

APPENDIX P.1

ABORIGINAL CULTURAL HERITAGE ASSESSMENT REPORT AND ANNEXURE 1 & 2

New South Wales ARCHAEOLOGY

Snowy 2.0 Main Works

Aboriginal Cultural Heritage Assessment Report

Date: 9 September 2019
Author: Dr Julie Dibden
Proponent: Snowy Hydro Limited
Local Government Area: Snowy Valleys and Snowy Monaro Regional



Snowy 2.0 Main Works
Aboriginal Cultural Heritage Assessment Report

Report version	Author	Date
Draft 1	Julie Dibden	19/6/19
Draft 2	Julie Dibden	11/8/19
Draft 3	Julie Dibden	14/8/19
Final draft	Julie Dibden	31/8/19
Final draft	Julie Dibden	9/9/19

Prepared by:
Dr Julie Dibden
NSW Archaeology Pty Ltd

Prepared for:
Snowy Hydro Limited

Frontispiece: Tantangara Test Excavation
Source: Julie Dibden

TABLE OF CONTENTS

EXECUTIVE SUMMARY 1
1. INTRODUCTION 6
1.1 THE PROJECT 6
1.2 PROJECT LOCATION 7
1.3 PROJECT AREA 9
1.4 PROPONENT 9
1.5 PURPOSE OF THIS REPORT 10
1.6 ASSESSMENT GUIDELINES AND REQUIREMENTS 10
1.7 RELATIONSHIP TO EXPLORATORY WORKS AND TRANSMISSION CONNECTION 12
1.8 OTHER RELEVANT REPORTS 12
2. PROJECT DESCRIPTION – SNOWY 2.0 15
2.1 OVERVIEW OF SNOWY 2.0 15
2.2 CONSTRUCTION OF SNOWY 2.0 18
2.3 OPERATION OF SNOWY 2.0 30
2.3.1 Scheme Operation and Reservoir Management 30
2.3.2 Permanent Access 31
2.3.3 Maintenance Requirements 31
2.4 REHABILITATION AND FINAL USE 31
3. LEGISLATIVE CONTEXT 32
3.1 COMMONWEALTH LEGISLATION 32
3.2 NEW SOUTH WALES LEGISLATION 32
3.2.1 EP&A Act and its Regulation 32
3.2.2 National Parks & Wildlife Act 1974 33
4. DESCRIPTION OF THE AREA – BACKGROUND AND CONTEXT 35
4.1 THE PHYSICAL SETTING AND LANDSCAPE 35
4.2 HUMAN ADAPTATION TO COLD CLIMATE ENVIRONMENTS WITHIN AUSTRALIA 51
4.2.1 Palaeoecological Context of Aboriginal Occupation Within the Snowy Mountains 52
4.2.2 Aboriginal Occupation of the Snowy Mountains 56
4.2.3 Evidence for Cold Climate Adaptation: Comparisons with Tasmania 59
4.2.4 High Country Adaptations 61
4.3 ETHNOGRAPHIC AND HISTORIC CONTEXT 63
4.4 MATERIAL EVIDENCE 66
4.4.1 OEH Aboriginal Heritage Information Management System 66
4.4.2 Previous Archaeological Assessment in the Region 66
4.5 PREDICTIVE MODEL OF ABORIGINAL SITE DISTRIBUTION 73
4.5.1 Archaeological Models of Aboriginal Occupation 73
4.5.2 Predictive Model of Site distribution for the Project Area 75
5. ABORIGINAL CONSULTATION PROCESS 80
6. ARCHAEOLOGICAL FIELD ASSESSMENT AND RESULTS 82
6.1 OVERVIEW 82
6.2 FIELD SURVEY 82
6.2.1 Field Survey Methodology 82
6.2.2 Field Survey Results 85
6.2.2.1 Talbingo 86
6.2.2.2 Lobs Hole Ravine 86
6.2.2.3 Marica 127
6.2.2.4 Gooandra Hill 134

6.2.2.5 Wallaces Creek Fire Trail 146
6.2.2.6 Kings Cross Road 166
6.2.2.7 Link Road 172
6.2.2.8 Three Mile Dam 177
6.2.2.9 Gooandra Fire Trail 191
6.2.2.10 Nungar Creek Fire Trail 205
6.2.2.11 Tantangara Dam Fire Trail 211
6.2.2.12 Tantangara Dam Road Transmission Line 216
6.2.2.13 Schofields Fire Trail 246
6.2.2.14 Circuits Hut Fire Trail 273
6.2.2.15 Pockets Saddle Road 300
6.2.2.16 Port Phillip Fire Trail 305
6.2.2.17 Tantangara Dam North 322
6.2.2.18 Bullocks Hill Trail 327
6.2.2.19 Bullocks Hill Trail Portal 330
6.2.2.20 Hains Hut Trail 333
6.2.2.21 Tantangara Dam 336
6.2.2.22 Tantangara Road 381
6.2.2.23 Denison 390
6.2.2.24 Rocky Plains Transmission Line 396
6.2.2.25 Rocky Plains 406
6.2.2.26 Kiandra 411
6.2.2.27 Nungar Creek Trail 415
6.2.2.28 Rock Forest 444
6.3 ARCHAEOLOGICAL TEST EXCAVATION 459
6.3.1 Test Excavation Methodology 459
6.3.2 Test Excavation Results 463
6.3.2.1 Excavation Results - Lobs Hole Ravine 464
6.3.2.2 Excavation Results - Gooandra 475
6.3.2.3 Excavation Results - Tantangara 476
7. CULTURAL HERITAGE VALUES AND STATEMENT OF SIGNIFICANCE 490
7.1 SIGNIFICANCE ASSESSMENT CRITERIA 490
7.2 SIGNIFICANCE OF THE ABORIGINAL OBJECT SITES IN THE PROJECT AREA 491
8. IMPACT ASSESSMENT 544
9. MANAGEMENT AND MITIGATION 546
9.1 MANAGEMENT AND MITIGATION STRATEGIES 546
10. CONCLUSIONS AND RECOMMENDATIONS 596
11. REFERENCES 598
ANNEXURE 1 GLOSSARY 610
ANNEXURE 2 AHIMS SITE SEARCHES 611
ANNEXURE 3 MAPPING: SURVEY UNITS AND ABORIGINAL OBJECTS 650
ANNEXURE 4 EXCAVATION DATA 693
ANNEXURE 5 LITHIC DATA 933

LIST OF FIGURES

Figure 1 Location of the Snowy 2.0 project area in a regional context. 14
Figure 2 An overview of Snowy 2.0 project elements 16
Figure 3 Snowy 2.0 construction areas – Talbingo Reservoir. 23
Figure 4 Snowy 2.0 construction areas – Lobs Hole. 24

Figure 5 Snowy 2.0 construction areas – Marica. 25
Figure 6 Snowy 2.0 construction areas – Plateau. 26
Figure 7 Snowy 2.0 construction areas – Tantangara. 27
Figure 8 Snowy 2.0 construction areas – Rock Forest. 28
Figure 9 Snowy 2.0 Excavation and tunnelling methods. 29
Figure 10 Lithology within the project area compiled from the Wagga Wagga (Adamson and Loudon, 1966) and Canberra (Strusz 1971) 1:250 000 sheets to the left and right of the image respectively. 37
Figure 11 Physiographic regions named in the text with respect to elevations within the project area; hydrological catchment boundaries; and larger stream channels; constructed reservoir. 39
Figure 12 Slope gradients within the project area calculated from 30 m SRTM data (Jarvis *et al.* 2008) with respect to the project area and larger stream channels. 40
Figure 13 Australian Soil Classification (Isbell 1996). 42
Figure 14 Soil stability (Murphy *et al.* 1998). 43
Figure 15 Spatial distribution of landscape resources within the project area (Wyborn *et al.* 1990). 50

LIST OF PLATES

Plate 1 Lobs Hole and Yarrangobilly Gorge in background; taken from Lobs Hole Ravine Road looking 40°. 44
Plate 2 The Yarrangobilly River at Lobs Hole; taken from near the Washington Hotel ruins, looking downstream. 44
Plate 3 The site of the Ravine township at Lobs Hole; taken from near the Washington Hotel ruin looking 150° to the site of the Police Station (in copse of Elm on right). 45
Plate 4 The Murrumbidgee River immediately upstream of the Tantangara Dam wall showing a typical treeless plain. Photo taken during construction of the wall. 47
Plate 5 The Eucumbene River flowing eastward through the Kiandra historic landscape. 48
Plate 6 Lobs Hole Ravine: RSU39 looking 80°. 125
Plate 7 Lobs Hole Ravine: RSU40 looking 80°. 125
Plate 8 Lobs Hole Ravine: RSU41 looking 280°. 126
Plate 9 Lobs Hole Ravine: RSU29/L1: ground edge hatchet head. 126
Plate 10 Marica: MSU1 looking 280°. 133
Plate 11 Marica: MSU4 looking 280°. 133
Plate 12 Gooandra Hill: GHSU7 looking 270°. 145
Plate 13 Gooandra Hill: GHSU13 looking 340°. 145
Plate 14 Wallaces Creek Fire Trail: WSU13/L1 looking 215°. 165
Plate 15 Wallaces Creek Fire Trail: WSU16/L5 looking 205°. 165
Plate 16 Kings Cross Road: KCSU1 looking 240°. 171
Plate 17 Kings Cross Road: KCSU7 looking 0°. 171
Plate 18 Link Road: LSU2; looking 30°. 176
Plate 19 Link Road: LSU4; looking 210°. 176
Plate 20 Three Mile Dam: 3MSU1/L1 looking 350°. 190
Plate 21 Three Mile Dam: 3MSU11/L1 looking 230°. 190
Plate 22 Gooandra Fire Trail: GSU18/L1 looking 290°. 192
Plate 23 Nungar Creek Fire Trail: the east end of NSU1 looking east. 210
Plate 24 Nungar Creek Fire Trail: NSU1/L1 looking west. 210

Plate 25 Tantangara Dam Fire Trail: TFTSU1 looking 90°. 215
Plate 26 Tantangara Dam Fire Trail: TFTSU3 looking 60°. 215
Plate 27 Tantangara Road transmission line: TTXSU9/L1 looking north. 245
Plate 28 Tantangara Road transmission line: TTXSU17/L1 looking north. 245
Plate 29 Schofields Fire Trail: SSU10/L2; looking north. 272
Plate 30 Schofields Fire Trail: SSU17/L2; looking north. 272
Plate 31 Circuits Hut Fire Trail: CHSU2/L1; looking 110°. 299
Plate 32 Circuits Hut Fire Trail: CHSU12/L1; looking 40°. 299
Plate 33 Bullocks Hill Trail Portal: BHPSU1 looking 135°. 330
Plate 34 Hains Hut Trail: The east end of HHSU3 and Hains Hut; looking 140°. 333
Plate 35 Tantangara Dam: AHIMS 57-4-127; looking 30° along Survey Unit 1....379
Plate 36 Tantangara Dam: TSU7/L7 looking south. 379
Plate 37 Tantangara Dam: TSU11/L16 rock shelter looking 200°. 380
Plate 38 Tantangara Dam: TSU11/L17 situated immediately to the north of the rock shelter; looking 80°. 380
Plate 39 Tantangara Road: TRdSU1/L2 looking south. 388
Plate 40 Tantangara Road: TRdSU1/L5 looking south. 388
Plate 41 Tantangara Road: TRdSU1/L11 looking 310°. 389
Plate 42 Tantangara Road: TRdSU1/L12 looking 250°. 389
Plate 43 Denison: DSU2/L1 looking 200°. 395
Plate 44 Denison: DSU4/L1 looking 300°. 395
Plate 45 Rocky Plains Transmission Line SU2/L1 looking 90°. 405
Plate 46 Rocky Plains Transmission Line SU3/L3 looking 200°. 405
Plate 47 Rocky Plains Survey Unit 1 looking 195°. 410
Plate 48 Rocky Plains Survey Unit 4 looking 170° along an old crown road alignment. 410
Plate 49 Kiandra Survey Unit 2; looking south. Note, Wolgal Hut in distance. 414
Plate 50 Kiandra Survey Unit 3; looking west. 414
Plate 51 Aboriginal object locale NCTSU1/L1 looking 165°. 442
Plate 52 Aboriginal object locale NCTSU8/L1 looking 255°. 442
Plate 53 Aboriginal object locale NCTSU18/L1 looking 180°. 443
Plate 54 Aboriginal object locale NCTSU27/L1 looking 40° towards the upper reaches of Boggy Plain Creek. 443
Plate 55 Aboriginal object locale CCSU1/L1 looking 65°. 457
Plate 56 Aboriginal object locale CCSU1/L2 looking 345°. 457
Plate 57 Aboriginal object locale CCSU11/L1 looking 70°. 458
Plate 58 Aboriginal object locale CCSU17/L1 looking 220°. 458
Plate 59 Quartz artefacts in SU15/Test Transect 5/Sq. 5b. 483
Plate 60 Chert artefacts in SU15/Test Transect 5/Sq. 5b. 484
Plate 61 Chert artefacts in SU15/Test Transect 9/Sq. 5 485

LIST OF TABLES

Table 1 Summary of assessment results. 3
Table 2 The SEARs requirements for heritage. 11
Table 3 Overview of Snowy 2.0 Main Works. 17
Table 4 Snowy 2.0 construction elements. 19
Table 5 Timing of glacial advances in mainland Australia (Barrows *et al.* 2001). ..38
Table 6 Key to soil stability classes (Murphy *et al.* 1998) 41
Table 7 Aspect of dated rock shelter and cave sites located within the subalpine and alpine zones of the Australian Alps. 63

Table 8 Summary of Aboriginal object site distribution in the Lobs Hole Ravine area. 87
Table 9 Lobs Hole Ravine: Effective Survey Coverage. 89
Table 10 Lobs Hole Ravine: A description of Survey Units. 92
Table 11 Lobs Hole Ravine: Aboriginal object descriptions. 108
Table 12 Summary of Aboriginal object site distribution in the Marica area. 127
Table 13 Marica: Effective Survey Coverage. 128
Table 14 Marica: A description of Survey Units. 128
Table 15 Marica: Aboriginal object descriptions. 131
Table 16 Summary of Aboriginal object site distribution in the Gooandra Hill area. 134
Table 17 Gooandra Hill: Effective Survey Coverage. 136
Table 18 Gooandra Hill: A description of Survey Units. 136
Table 19 Gooandra Hill: Aboriginal object descriptions. 142
Table 20 Summary of Aboriginal object site distribution in the Wallaces Creek Fire Trail area. 146
Table 21 Wallaces Creek Fire Trail: Effective Survey Coverage. 147
Table 22 Wallaces Creek Fire Trail: A description of Survey Units 148
Table 23 Wallaces Creek Fire Trail: Aboriginal object descriptions. 153
Table 24 Summary of Aboriginal object site distribution in the Kings Cross Road survey area. 166
Table 25 Kings Cross Road: Effective Survey Coverage. 167
Table 26 Kings Cross Road: A description of Survey Units. 167
Table 27 Link Road: Effective Survey Coverage. 173
Table 28 Link Road: A description of Survey Units. 173
Table 29 Summary of Aboriginal object site distribution in the Three Mile Dam area. 177
Table 30 Three Mile Dam: Effective Survey Coverage. 179
Table 31 Three Mile Dam: A description of Survey Units. 180
Table 32 Three Mile Dam: A description of Aboriginal Object Locales. 187
Table 33 Summary of Aboriginal object site distribution in the Gooandra Fire Trail survey area. 191
Table 34 Gooandra Fire Trail: Effective Survey Coverage. 193
Table 35 Gooandra Fire Trail: A description of Survey Units. 194
Table 36 Gooandra Fire Trail: A description of Aboriginal Object Locales. 203
Table 37 Summary of Aboriginal object site distribution in the Nungar Creek Fire Trail survey area. 205
Table 38 Nungar Creek Fire Trail: Effective Survey Coverage. 206
Table 39 Nungar Creek Fire Trail: A description of Survey Units. 206
Table 40 Nungar Creek Fire Trail: A description of Aboriginal Object Locales. 208
Table 41 Tantangara Dam Fire Trail: Effective Survey Coverage. 212
Table 42 Tantangara Dam Fire Trail: A description of Survey Units including a list of Aboriginal object locales recorded during survey. 212
Table 43 Tantangara Road Transmission Line: A summary of Aboriginal object distribution. 216
Table 44 Tantangara Road Transmission Line: Effective Survey Coverage. 218
Table 45 Tantangara Road Transmission Line: A description of Survey Units. 220
Table 46 Tantangara Road Transmission Line: A description of Aboriginal Object Locales. 238
Table 47 Schofields Fire Trail: A summary of Aboriginal object distribution. 246
Table 48 Schofields Fire Trail: Effective Survey Coverage. 248
Table 49 Schofields Fire Trail: A description of Survey Units. 249

Table 50 Schofields Fire Trail: A description of Aboriginal Object Locales. 261
Table 51 Circuits Hut Fire Trail: A summary of Aboriginal object site distribution. 273
Table 52 Circuits Hut Fire Trail: Effective Survey Coverage. 275
Table 53 Circuits Hut Fire Trail: A description of Survey Units. 276
Table 54 Circuits Hut Fire Trail: A description of Aboriginal Object Locales. 290
Table 55 Pockets Saddle Road: A summary of Aboriginal object site distribution. 300
Table 56 Pocket Saddle Road: Effective Survey Coverage.....301
Table 57 Pocket Saddle Road: A description of Survey Units. 301
Table 58 Pocket Saddle Road: A description of Aboriginal Object Locales. 304
Table 59 A summary of Aboriginal object site distribution in the Port Phillip Trail survey area.....305
Table 60 Port Phillip Trail: Effective Survey Coverage.....307
Table 61 Port Phillip Trail: A description of Survey Units.....309
Table 62 Port Phillip Trail: A description of Aboriginal Object Locales. 317
Table 63 Tantangara Dam North: Summary of Aboriginal object site distribution. 322
Table 64 Tantangara Dam North: Effective Survey Coverage. 323
Table 65 Tantangara Dam North: A description of Survey Units. 323
Table 66 Tantangara Dam North: A description of Aboriginal Object Locales.....325
Table 67 Bullocks Hill Trail: Summary of Aboriginal object distribution.....327
Table 68 Bullocks Hill Trail: Effective Survey Coverage. 328
Table 69 Bullocks Hill Trail: A description of Survey Units. 328
Table 70 Bullocks Hill Trail: A description of Aboriginal Object Locale. 329
Table 71 Bullocks Hill Trail Portal: Effective Survey Coverage. 331
Table 72 Bullocks Hill Trail Portal: A description of Survey Units. 331
Table 73 Hains Hut Trail: Effective Survey Coverage. 334
Table 74 Hains Hut Trail: A description of Survey Units. 334
Table 75 Tantangara Dam: Summary of Aboriginal objects. 336
Table 76 Tantangara Dam: Effective Survey Coverage.....338
Table 77 Tantangara Dam: A description of Survey Units. 339
Table 78 Tantangara Dam: A description of Aboriginal Object Locales. 352
Table 79 Tantangara Road: Summary of Aboriginal object site distribution. 381
Table 80 Tantangara Road: Effective Survey Coverage. 382
Table 81 Tantangara Road: A description of Survey Units. 382
Table 82 Tantangara Road: A description of Aboriginal Object Locales. 384
Table 83 Denison: Summary of Aboriginal object distribution.....390
Table 84 Denison: Effective Survey Coverage. 391
Table 85 Denison: A description of Survey Units. 391
Table 86 Denison: A description of Aboriginal Object Locales. 393
Table 87 Rocky Plains Transmission Line: Summary of Aboriginal object distribution. 396
Table 88 Rocky Plains Transmission Line: Effective Survey Coverage. 397
Table 89 Rocky Plains Transmission Line: A description of Survey Units. 397
Table 90 Rocky Plains Transmission Line: A description of Aboriginal Object Locales.....401
Table 91 Rocky Plains: Summary of Aboriginal object site distribution. 406
Table 92 Rocky Plains: Effective Survey Coverage.....407
Table 93 Rocky Plains: A description of Survey Units. 407
Table 94 Rocky Plains: A description of Aboriginal Object Locales. 409
Table 95 Kiandra: Effective Survey Coverage. 412

Table 96 Kiandra: A description of Survey Units. 412
Table 97 Nungar Creek Trail: Summary of Aboriginal object distribution....415
Table 98 Nungar Creek Trail: Effective Survey Coverage. 417
Table 99 Nungar Creek Trail: A description of Survey Units. 421
Table 100 Nungar Creek Trail: A description of Aboriginal Object Locales. 434
Table 101 Rock Forest: Summary of Aboriginal object distribution. 444
Table 102 Rock Forest: Effective Survey Coverage. 446
Table 103 Rock Forest: A description of Survey Units. 447
Table 104 Rock Forest: A description of Aboriginal Object Locales. 454
Table 105 Summary of excavation data per Lobs Hole Ravine Survey Units. 463
Table 106 Summary of excavation data per Gooandra Survey Unit. 463
Table 107 Summary of excavation data per Tantangara Survey Units. 463
Table 108 Lobs Hole: Summary of excavation data per Survey Unit....467
Table 109 Crosstabulation of artefact classes by raw material for all artefacts (abbreviations are defined in Annexure 6). 468
Table 110 Crosstabulation of cortex type and lithic material. 469
Table 111 Retouched artefacts. 472
Table 112 List of artefacts retrieved at Gooandra. 476
Table 113 Tantangara: Summary of excavation data per Survey Unit. 479
Table 114 Crosstabulation of artefact classes by raw material for all artefacts. 480
Table 115 Crosstabulation of cortex type and lithic material. 480
Table 116 Retouched artefacts in the Tantangara collection. 486
Table 117 Talbingo: Cultural heritage significance assessment of Survey Units and Aboriginal object locales. 493
Table 118 Lobs Hole: Cultural heritage significance assessment of Survey Units and Aboriginal object locales. 493
Table 119 Marica: Cultural heritage significance assessment of Survey Units and Aboriginal object locales. 501
Table 120 Gooandra Hill: Cultural heritage significance assessment of Survey Units and Aboriginal object locales. 502
Table 121 Wallaces Creek Fire Trail: Cultural heritage significance assessment of Survey Units and Aboriginal object locales....504
Table 122 Kings Cross Road: Cultural heritage significance assessment of Survey Units....507
Table 123 Link Road: Cultural heritage significance assessment of Survey Units. 507
Table 124 Three Mile Dam: Cultural heritage significance assessment of Survey Units and Aboriginal object locales. 508
Table 125 Gooandra Fire Trail: Cultural heritage significance assessment of Survey Units and Aboriginal object locales....510
Table 126 Nungar Creek Fire Trail: Cultural heritage significance assessment of Survey Units and Aboriginal object locales....511
Table 127 Tantangara Dam Creek Fire Trail: Cultural heritage significance assessment of Survey Units....512
Table 128 Tantangara Dam Road Transmission Line: Cultural heritage significance assessment of Survey Units. 512
Table 129 Schofields Fire Trail: Cultural heritage significance assessment of Survey Units and Aboriginal object locales....515
Table 130 Circuits Hut Fire Trail: Cultural heritage significance assessment of Survey Units and Aboriginal object locales....518
Table 131 Pockets Saddle Road: Cultural heritage significance assessment of Survey Units and Aboriginal object locales....521

Table 132 Port Phillip Trail: Cultural heritage significance assessment of Survey Units and Aboriginal object locales. 521
Table 133 Tantangara Dam North: Cultural heritage significance assessment of Survey Units and Aboriginal object locales....524
Table 134 Bullocks Hill Fire Trail: Cultural heritage significance assessment of Survey Units and Aboriginal object locales....525
Table 135 Bullocks Hill Fire Trail Portal: Cultural heritage significance assessment of Survey Units and Aboriginal object locales. 525
Table 136 Hains Hut Trail: Cultural heritage significance assessment of Survey Units and Aboriginal object locales. 525
Table 137 Tantangara Dam: Cultural heritage significance assessment of Survey Units and Aboriginal object locales. 526
Table 138 Tantangara Road: Cultural heritage significance assessment of Survey Units and Aboriginal object locales. 534
Table 139 Denison: Cultural heritage significance assessment of Survey Units and Aboriginal object locales. 536
Table 140 Rocky Plains Transmission Line: Cultural heritage significance assessment of Survey Units and Aboriginal object locales. 536
Table 141 Rocky Plains: Cultural heritage significance assessment of Survey Units and Aboriginal object locales. 537
Table 142 Kiandra: Cultural heritage significance assessment of Survey Units. .538
Table 143 Nungar Creek Trail: Cultural heritage significance assessment of Survey Units and Aboriginal object locales. 538
Table 144 Rock Forest: Cultural heritage significance assessment of Survey Units and Aboriginal object locales. 541
Table 145 Talbingo: Impact assessment and management and mitigation measures. 548
Table 146 Lobs Hole Ravine: Impact assessment and management and mitigation measures. 548
Table 147 Marica: Recommended management and mitigation measures. 554
Table 148 Gooandra Hill: Recommended management and mitigation measures. 555
Table 149 Wallaces Creek Fire Trail: Recommended management and mitigation measures. 557
Table 150 Kings Cross Road: Recommended management and mitigation measures. 560
Table 151 Link Road: Recommended management and mitigation measures. 561
Table 152 Three Mile Dam: Recommended management and mitigation measures. 561
Table 153 Gooandra Fire Trail: Recommended management and mitigation measures. 563
Table 154 Nungar Creek Fire Trail: Recommended management and mitigation measures. 565
Table 155 Tantangara Dam Fire Trail: Recommended management and mitigation measures. 565
Table 156 Tantangara Dam Road Transmission Line: Recommended management and mitigation measures. 566
Table 157 Schofields Fire Trail: Recommended management and mitigation measures. 569
Table 158 Circuits Hut Fire Trail: Recommended management and mitigation measures. 572

Table 159 Pockets Saddle Road: Recommended management and mitigation measures. 574
Table 160 Port Phillip Fire Trail: Recommended management and mitigation measures. 575
Table 161 Tantangara Dam North: Recommended management and mitigation measures. 577
Table 162 Bullocks Hill Fire Trail: Recommended management and mitigation measures. 578
Table 163 Bullocks Hill Fire Trail Portal: Recommended management and mitigation measures. 578
Table 164 Hains Hut Trail: Recommended management and mitigation measures. 578
Table 165 Tantangara Dam: Recommended management and mitigation measures. 578
Table 166: Tantangara Road Recommended management and mitigation measures. 587
Table 167: Denison Recommended management and mitigation measures. 588
Table 168: Rocky Plains Transmission Line: Recommended management and mitigation measures. 588
Table 169 Rocky Plains: Recommended management and mitigation measures. .589
Table 170 Kiandra: Recommended management and mitigation measures. 590
Table 171 Nungar Creek Trail: Recommended management and mitigation measures. 590
Table 172 Rock Forest: Recommended management and mitigation measures. ...593
Table 173 Summary of mitigation measures. 597

EXECUTIVE SUMMARY

Snowy Hydro Limited (Snowy Hydro) is proposing to build and operate Snowy 2.0, a project that will increase the pumped hydroelectric capacity within the existing Snowy Scheme by linking the Tantangara and Talbingo reservoirs with tunnels feeding a new underground power station.

Snowy 2.0 Main Works covers the major elements of Snowy 2.0, including the underground power station, access tunnels and access, power supply and communications infrastructure, as well as supporting infrastructure to enable construction. It also includes the operation of Snowy 2.0.

Snowy 2.0 is a Pumped Hydro Energy Storage (PHES) project that will increase the generation capacity of the Snowy Scheme by up to 50 per cent, with an additional 2,000 megawatts of generation. Snowy 2.0 has been declared State Significant Infrastructure and Critical State Significant Infrastructure (CSSI).

An Environmental Impact Statement (EIS) is being prepared to support an application seeking approval for the Main Project.

New South Wales Archaeology Pty Ltd has been engaged by Snowy Hydro Limited to conduct an Aboriginal cultural heritage assessment of the project for inclusion in the EIS.

The area in which the activity would be undertaken is described as the Snowy 2.0 Mains Works project area (project area) and is located in the Kosciuszko National Park (KNP). New South Wales Archaeology Pty Ltd conducted the assessment of the Exploratory Works, some areas of which are located within the project area.

The assessment has been conducted in accordance with the NSW Department of Planning, Industry and Environment (NSW DPIE) *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (OEH 2011) and *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (NSW DECCW 2010a).

A process of Aboriginal community consultation has been undertaken in accordance with the NSW DPIE *Aboriginal cultural heritage consultation requirements for proponents 2010* (NSW DECCW 2010b). In addition, Snowy Hydro has consulted independently with the relevant Local Aboriginal Land Councils and the Northern and Southern Kosciuszko National Park Aboriginal Community Memorandum of Understanding Groups. The consultation process is regular and on-going as the project is developed.

In addition to consultation, the heritage assessment has included a review of the relevant anthropological, historical and archaeological literature, a program of comprehensive field survey and extensive archaeological test excavations.

The Snowy Mountains is country to several groups and many Aboriginal people have cultural and spiritual associations that have long histories embodied in objects which can be seen on the ground and other intangible values related to the past and current concerns and aspirations (NSW DEC 2006). The following excerpt from the KNP 2006 Plan of Management written by the members of the Kosciuszko Aboriginal Working Group (DEC 2006: xi) expresses the sentiments of Aboriginal people in regard to the Snowy Mountains:

> *Living by natural cycles, the land provides our people with life, ceremony, family lore/law, and resources, such as tools, plant medicine, plant food, waters, fish, animals and insects e.g. the Bogong moth, while the melting of the snow gives life to the many creeks and rivers that flow out of the mountains. There are places of spiritual and physical significance to our people, and we are committed to working in partnership with others to protect, maintain and manage these places.*

This report describes the assessment process, the Aboriginal objects, places and features of cultural value within the landscape and the proposed impacts and harm. It sets out a series of management and mitigation measures for the consideration of all stakeholders including the Aboriginal community and the NSW DPIE.

A summary of the assessment results is presented in Table 1. Some 28 survey areas have been assessed. It is noted that some of the survey areas documented during the Exploratory Works are included in the current assessment given an overlap of the project areas.

The total assessment area measures 8,185.8 hectares. A total of 402 Survey Units have been defined, the majority of which have been subject to a comprehensive field survey. Due to some recent additions to the project footprint some Survey Units are as yet un-surveyed. These areas are nonetheless included in the management and mitigation strategies proposed for the project.

Some 29 previously recorded Aboriginal object sites were known to be present in survey area. A total of 306 additional sites were recorded during the field survey. An extensive program of subsurface test excavation has been undertaken. A total of 654 test squares has been excavated and 3,394 stone artefacts retrieved. The field survey and test excavation has enabled characterisation of the archaeological status of the project area to a high level of certainty.

Table 1 Summary of assessment results.

Area	Area (ha)	SU #	Previously recorded sites	New sites	Test excavation squares	Total sites
Talbingo	24.5	2	0	0	0	0
Lobs Hole Ravine	596.2	47	11	77	180	88
Marica	323.6	10	0	4	0	4
Gooandra Hill	243.1	15	0	17	76	17
Wallaces Creek FT	4258.7	16	0	20	0	20
Kings Cross Road	104.8	7	0	0	0	0
Link Road	42.9	5	0	0	0	0
Three Mile Dam	58.1	17	0	6	0	6
Gooandra FT	300.9	23	0	2	0	2
Nungar Creek FT	41.1	6	0	3	0	3
Tantangara Dam FT	108.1	6	0	0	0	0
Tantangara Dam Rd Transmission Line	187.4	41	0	11	0	11
Schofields FT	158	28	1	18	0	19
Circuits Hut FT	74.2	30	1	13	0	14
Pockets Saddle Road	151.6	8	1	0	0	1
Port Phillip Trail	117.1	24	0	21	0	21
Tantangara Dam North	53.2	5	0	4	0	4
Bullocks Hill FT	28	3	0	1	0	1
Bullocks Hill Portal	36.3	3	0	0	0	0
Hains Hut FT	38.1	3	0	0	0	0
Tantangara Dam	517.4	23	11	70	386	81
Tantangara Road	186.8	1	2	12	12	14
Denison	42.3	6	0	3	0	3
Kiandra	91.2	4	0	0	0	0
Rocky Plains	66.1	5	0	1	0	1
Rocky Plains Tx Line	33.3	8	2	6	0	8
Nungar Creek Trail	82.8	36	0	13	0	13
Rock Forest	220	20	0	5	0	5
Total	8,185.8	402	29	306	654	335

As a result of the assessment, the following conclusions and recommendations are made:

- The land in which impacts would occur is generally disturbed by previous land use and/or natural geomorphological processes. The archaeological resource is correspondingly disturbed.
- The Aboriginal artefact incidence in the project area does not surpass significance thresholds which would act to preclude the proposed impacts.

- Most of the stone artefact incidence is assessed to be representative of a negligible, very low or low density distribution in their respective Survey Units. However, several Survey Units or micro topographies within Survey Units have been found to contain higher artefact densities. These are correspondingly of higher significance. Accordingly, management and mitigation of impacts comprises a tiered approach appropriate for each Survey Unit, and includes measures such as conservation, collection and/or salvage and monitoring. In some Survey Units, no mitigation measures are required.
- Management and mitigation strategies are outlined and discussed in Section 9 of this report and should be given consideration by all stakeholders. These would form the basis for the development of an Aboriginal Cultural Heritage Management Plan.

  It is recommended that salvage excavations are conducted in certain Survey Units in order to mitigate impacts to the archaeological resource in the project area.
- An Aboriginal Cultural Heritage Management Plan should be developed for guidance during construction in regard to the management of heritage, allowable impacts and mitigation measures.

Acknowledgments

Archaeological evidence confirms that Aboriginal people have had a long and continuous association with the region for thousands of years. We would in particular like to acknowledge and pay our respects to the traditional owners of the country which is encompassed by the proposal.

Sincere gratitude is extending to the following individuals for assistance during the preparation of this report:

Luke Penrith, Aboriginal Enterprise Development Program Binaal Billa Region Riverina - Murray and Western NSW,
Leanne Williams, Ramsey Freeman, Janice Williams, Meegan Considine, Steve Connolly, Lorraine Connolly, Lindsay Connolly, Julie Connolly, Imogen Shoemark, Taylor Shoemark, Lawrence Marlowe, Shirly Marlowe, Nioka Marlowe, Matt Marlowe, Lachlan Marlowe, Ron Grosvenor, Leticia Williams, Adrian Obrien, Teesha Freeman, Rodney Penrith, Rob Hetherington, Northern MOU group, for field assistance,
Dr Georgia Roberts, specialist: human adaptation to cold climates;
Dr Sam Player, geomorphologist;
Charlie Litchfield, Chris Buscall, Glen Young, Kelly Palmer, Jeremy Stibbard, Michelle Buscall, Snowy Hydro,
David Barnes, Guy Fleming, Geological Survey of NSW,
Steve Brayshaw, Adaminaby,
Glenn Stroud, Simon Allender, Rod Peel, NPWS Tumut,
Ryan Desic, EMM,
George Thomas, grandson of the first settler at Lobs Hole;
Barry Yan, son and grandson of Eric and George Yan respectively, the last people to live at Lobs Hole.

1. INTRODUCTION

1.1 THE PROJECT

Snowy Hydro Limited (Snowy Hydro) proposes to develop Snowy 2.0, a large-scale pumped hydro-electric storage and generation project which would increase hydro-electric capacity within the existing Snowy Mountains Hydro-electric Scheme (Snowy Scheme). Snowy 2.0 is the largest committed renewable energy project in Australia and is critical to underpinning system security and reliability as Australia transitions to a decarbonised economy. Snowy 2.0 will link the existing Tantangara and Talbingo reservoirs within the Snowy Scheme through a series of underground tunnels and a new hydro-electric power station will be built underground.

Snowy 2.0 has been declared to be State significant infrastructure (SSI) and critical State significant infrastructure (CSSI) by the former NSW Minister for Planning under Part 5 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) and is defined in clause 9 of Schedule 5 of the *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP). CSSI is infrastructure that is deemed by the NSW Minister to be essential for the State for economic, environmental or social reasons. An application for CSSI must be accompanied by an environmental impact statement (EIS).

Separate applications are being submitted by Snowy Hydro for different phases of Snowy 2.0 under Part 5, Division 5.2 of the EP&A Act, including Exploratory Works for Snowy 2.0 (the Exploratory Works) and Main Works for Snowy 2.0 (the Main Works). In addition, an application under Part 5, Division 5.2 of the EP&A Act is also being submitted by Snowy Hydro for a segment factory that will make tunnel segments for both the Exploratory Works and Main Works phases of Snowy 2.0.

The first phase of Snowy 2.0, the Exploratory Works, includes an exploratory tunnel and portal and other exploratory and construction activities primarily in the Lobs Hole area of the Kosciuszko National Park (KNP). The Exploratory Works were approved by the former NSW Minister for Planning on 7 February 2019 as a separate project application to DPIE (SSI 9208).

This Aboriginal heritage assessment has been prepared to accompany an application and supporting EIS for the second phase of Snowy 2.0, which is to be known as the *Snowy 2.0 Main Works*. As the title suggests, this phase of the project covers the major construction elements of Snowy 2.0, including permanent infrastructure (such as the underground power station, power waterways, access tunnels, chambers and shafts), temporary construction infrastructure (such as construction adits, construction compounds and accommodation), management and storage of extracted rock material and establishing supporting infrastructure (such as road upgrades and

extensions, water and sewage treatment infrastructure, and the provision of construction power). Snowy 2.0 Main Works also includes the operation of Snowy 2.0.

Snowy 2.0 Main Works is shown in Figure 1. If approved, the Snowy 2.0 Main Works would commence before completion of Exploratory Works.

The Snowy 2.0 Main Works do not include the transmission works proposed by TransGrid (TransGrid 2018) that provide connection between the cableyard and the NEM. These transmission works will provide the ability for Snowy 2.0 to efficiently and reliably transmit additional renewable energy to major load centres during periods of peak demand, as well as enable a supply of renewable energy to pump water from Talbingo Reservoir to Tantangara Reservoir during periods of low demand. While the upgrade works to the wider transmission network and connection between the cableyard and the network form part of the CSSI declaration for Snowy 2.0 and Transmission Project, they do not form part of this application and will be subject to separate application and approval processes. This project is known as the HumeLink and is part of AEMO's Integrated System Plan.

With respect to the provisions of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), Snowy Hydro referred Snowy 2.0 Main Works to the Commonwealth Minister for the Environment and Energy (DoEE) and, on a precautionary basis, nominated that Snowy 2.0 Main Works has potential to have a significant impact on MNES and the environment generally.

On 5 December 2018, Snowy 2.0 Main Works were deemed a controlled action by the Commonwealth Department of Environment and Energy (DoEE). It was also determined that potential impacts of the project will be assessed by accredited assessment under Division 5.2 of the EP&A Act. This accredited process will enable DPIE to manage the assessment of Snowy 2.0 Main Works, including the issuing of the assessment requirements for the EIS.

1.2 PROJECT LOCATION

Snowy 2.0 Main Works are within the Australian Alps, in southern NSW, about mid-way between Canberra and Albury. Snowy 2.0 Main Works is within both the Snowy Valleys and Snowy Monaro Regional local government areas (LGAs).

The nearest large towns to Snowy 2.0 Main Works are Cooma and Tumut. Cooma is located about 50 kilometres (km) south east of the project area (or 70 km by road from Providence Portal at the southern edge of the project area), and Tumut is located about 35 km north west of the project areas (or 45 km by road from Tumut 3 power station at the northern edge of the project area). Other townships near the project area include Talbingo, Cabramurra, Adaminaby and Tumbarumba. Talbingo

and Cabramurra were built for the original Snowy Scheme workers and their families, while Adaminaby was relocated in 1957 to make way for the establishment of Lake Eucumbene.

The location of Snowy 2.0 Main Works with respect to the region is shown in Figure 1.

The pumped hydro-electric scheme elements of Snowy 2.0 Main Works are mostly underground between the southern ends of Tantangara and Talbingo reservoirs, a straight-line distance of 27 km. Surface works will also occur at locations on and between the two reservoirs. Key locations for surface works include:

- *Tantangara Reservoir* - at a full supply level (FSL) of about 1,229 metres (m) to Australian Height Datum (AHD), Tantangara Reservoir will be the upper reservoir for the pumped hydro project and include the headrace tunnel and intake structure. The site will also be used for a temporary construction compound, accommodation camp and other temporary ancillary activities;

- *Marica* - this site will be used primarily for construction (including construction of vertical shafts to the underground power station (ventilation shaft) and headrace tunnel (surge shaft), and a temporary accommodation camp);

- *Lobs Hole* - the site will be used primarily for construction but will also become the main entrance to the power station during operation. Lobs Hole will provide access to the Exploratory Works tunnel, which will be refitted to become the main access tunnel (MAT), as well as the location of the emergency egress, cable and ventilation tunnel (ECVT), portal and associated services; *and*

- *Talbingo Reservoir* - at a FSL of about 546 m AHD, Talbingo Reservoir provides the lower reservoir for the pumped hydro-electric project and will include the tailrace tunnel and water intake structure. The site will also be used for temporary construction compounds and other temporary ancillary activities.

Works will also be required within the two reservoirs for the placement of extracted rock. Supporting infrastructure will include establishing or upgrading access tracks and roads and electricity connections to construction sites.

Most of the proposed pumped hydro-electric and temporary construction elements and most of the supporting infrastructure for Snowy 2.0 Main Works are located within the boundaries of KNP, although the disturbance footprint for the project during construction is less than 0.25% of KNP. Some of the supporting infrastructure (including sections of road upgrade, power and communications infrastructure) extends beyond the national park boundaries. These sections of infrastructure are primarily located to the east and south of Tantangara Reservoir. One temporary construction site is located beyond the national park along the Snowy Mountains

Highway about three kilometres east of Providence Portal (referred to as Rock Forest).

The project is described in more detail in Section 2.

1.3 PROJECT AREA

A project area for Snowy 2.0 Main Works has been identified that includes the elements of the project, including all construction and operational elements. The project area is shown on Figures 1 and 2. Key features of the project area are:

- the water bodies of Tantangara and Talbingo reservoirs, covering areas of 19.4 square kilometres (km^2) and 21.2 km^2 respectively. The reservoirs provide the water to be utilised in the pumped hydro-electric scheme;
- major watercourses including the Yarrangobilly, Eucumbene and Murrumbidgee rivers and some of their tributaries;
- KNP, within which the majority of the project area is located. Within the project area, KNP is characterised by two key zones: upper slopes and inverted tree lines in the west of the project area (referred to as the 'ravine') and associated subalpine treeless flats and valleys in the east of the project area (referred to as the 'Plateau'); and
- farmland southeast of KNP at Rock Forest.

The project area is interspersed with built infrastructure including recreational sites and facilities, main roads as well as unsealed access tracks, hiking trails, farmland, electricity infrastructure, and infrastructure associated with the Snowy Scheme.

1.4 PROPONENT

Snowy Hydro is the proponent for Snowy 2.0. Snowy Hydro is an integrated energy business generating energy, providing price risk management products for wholesale customers and delivering energy to homes and businesses. Snowy Hydro is the fourth largest energy retailer in the NEM and is Australia's leading provider of peak, renewable energy.

1.5 PURPOSE OF THIS REPORT

This Aboriginal heritage assessment supports the EIS for the Snowy 2.0 Main Works. It documents the heritage assessment methods and results, the initiatives built into the project design to avoid and minimise impacts, and the mitigation and management measures proposed to address any residual impacts not able to be avoided.

The specific objects of this assessment are:

- to record all items of Aboriginal heritage value that exist within the development footprint;
- to assess the significance of Aboriginal heritage items in the project area;
- to assess the potential impacts of the project on Aboriginal heritage in the project area; and
- to formulate management measures for the protection of Aboriginal heritage items in the development footprint.

1.6 ASSESSMENT GUIDELINES AND REQUIREMENTS

This ACHAR has been prepared in accordance with the Secretary's Environmental Assessment Requirements (SEARs) for the Main Project, issued on 1 August 2019, as well as relevant governmental assessment requirements, guidelines and policies, and in consultation with the relevant government agencies.

To inform preparation of the SEARs, DPIE invited other government agencies to recommend matters to be addressed in the EIS. These matters were taken into account by the Secretary for DPIE when preparing the SEARs. Copies of government agency advice to DPIE were attached to the SEARs. The NSW Office of Environment and Heritage (OEH) raised matters relevant to the ACHAR. The matters raised as follows:

- Preparation of an Aboriginal Heritage Management Plan (AHMP) and a Heritage Management Plan (HMP) – see section 10 of this ACHAR;
- A study prepared by an anthropologist investigating the archival and oral history recordings for any items of landscapes with significant Aboriginal heritage values likely to be disturbed or harmed by the project. No items or landscapes with significant Aboriginal heritage values will be disturbed by this project and this investigation has not been warranted.

Table 2 lists the matters in the SEARs relevant to this assessment and where they are addressed.

Table 2 The SEARs requirements for heritage.

Requirement	Section addressed
An assessment of the cultural and heritage impacts of the project, including impacts on:	
The cultural values of the Kosciuszko National Park;	This report and the Historic Heritage Assessment and Statement of Heritage Impact
The listed heritage values of the Australian Alps National Parks and Reserves National Heritage Place;	This report and the Historic Heritage Assessment and Statement of Heritage Impact
The listed heritage values of the Snowy Mountains Scheme National heritage place;	The Historic Heritage Assessment and Statement of Heritage Impact
The cultural values of Kosciuszko National Park;	This report and the Historic Heritage Assessment and Statement of Heritage Impact
Aboriginal and historic heritage items.	This report and the Historic Heritage Assessment and Statement of Heritage Impact

The content and format of the report is set out in accordance with the NSW OEH (2011) *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* document. The report aims to document:

- The Aboriginal objects and declared Aboriginal places (as relevant) located within the area of the proposed activity;
- The cultural heritage values, including the significance of the Aboriginal objects and declared Aboriginal places that exist across the whole area that will be affected by the proposed activity, and the significance of these values for the Aboriginal people who have a cultural association with the land, as relevant;
- How the requirements for consultation with Aboriginal people have been met (as specified in clause 80C of the National Parks and Wildlife [NPW] Regulation);
- The views of those Aboriginal people regarding the likely impact of the proposed activity on their cultural heritage (if relevant);
- The actual or likely harm posed to the Aboriginal objects or declared Aboriginal places from the proposed activity, with reference to the cultural heritage values identified;

- Any practical measures that may be taken to protect and conserve those Aboriginal objects or declared Aboriginal places (if relevant); *and*
- Any practical measures that may be taken to avoid or mitigate any actual or likely harm, alternatives to harm, or, if this is not possible, to manage (minimise) harm (if relevant).

This ACHAR has been prepared by Dr Julie Dibden (ANU: BA honours; PhD), New South Wales Archaeology Pty Ltd.

Field assistance has been provided by the people representing the Tumut Brungle Gundagai Area Aboriginal Community Memorandum of Understanding (TBGAAC MOU) group.

1.7 RELATIONSHIP TO EXPLORATORY WORKS AND TRANSMISSION CONNECTION

The Exploratory Works includes an exploratory tunnel and portal, temporary construction compound, accommodation camp and temporary excavated rock stockpiles, all located in Lobs Hole, as well as barge access at the northern and southern end of Talbingo Reservoir and the construction and upgrade of road infrastructure. The primary purpose of the Exploratory Works is to gain an understanding of the rock conditions at the proposed location of the underground power station for Snowy 2.0. An exploratory tunnel is the key element proposed to gain this information.

The Exploratory Works is excluded from the scope of this Aboriginal heritage assessment; it has been subject to a separate assessment as part of the approval process for those works. Also excluded from the scope of this assessment are the transmission works proposed by TransGrid that provide connection between the cableyard (proposed to be located adjacent to the ECVT and the transmission network) and the NEM. All upgrade works to the wider transmission network and connection between the cableyard and the network do not form part of this application and are detailed in separate applications and approvals by TransGrid.

The impacts identified in this Aboriginal heritage assessment relate only to the Main Works phase of Snowy 2.0, not the Exploratory Works or Transmission Connection projects. However, where relevant, cumulative impacts with these separate projects have been considered and documented.

1.8 OTHER RELEVANT REPORTS

This Aboriginal heritage assessment has been prepared with reference to other technical reports that were prepared as part of the Snowy 2.0 Main Works EIS. The other relevant report referenced in this Aboriginal heritage assessment is listed below.

- Historic Assessment and Statement of Heritage Impact (NSW Archaeology 2019) – Appendix P.2 of the EIS.

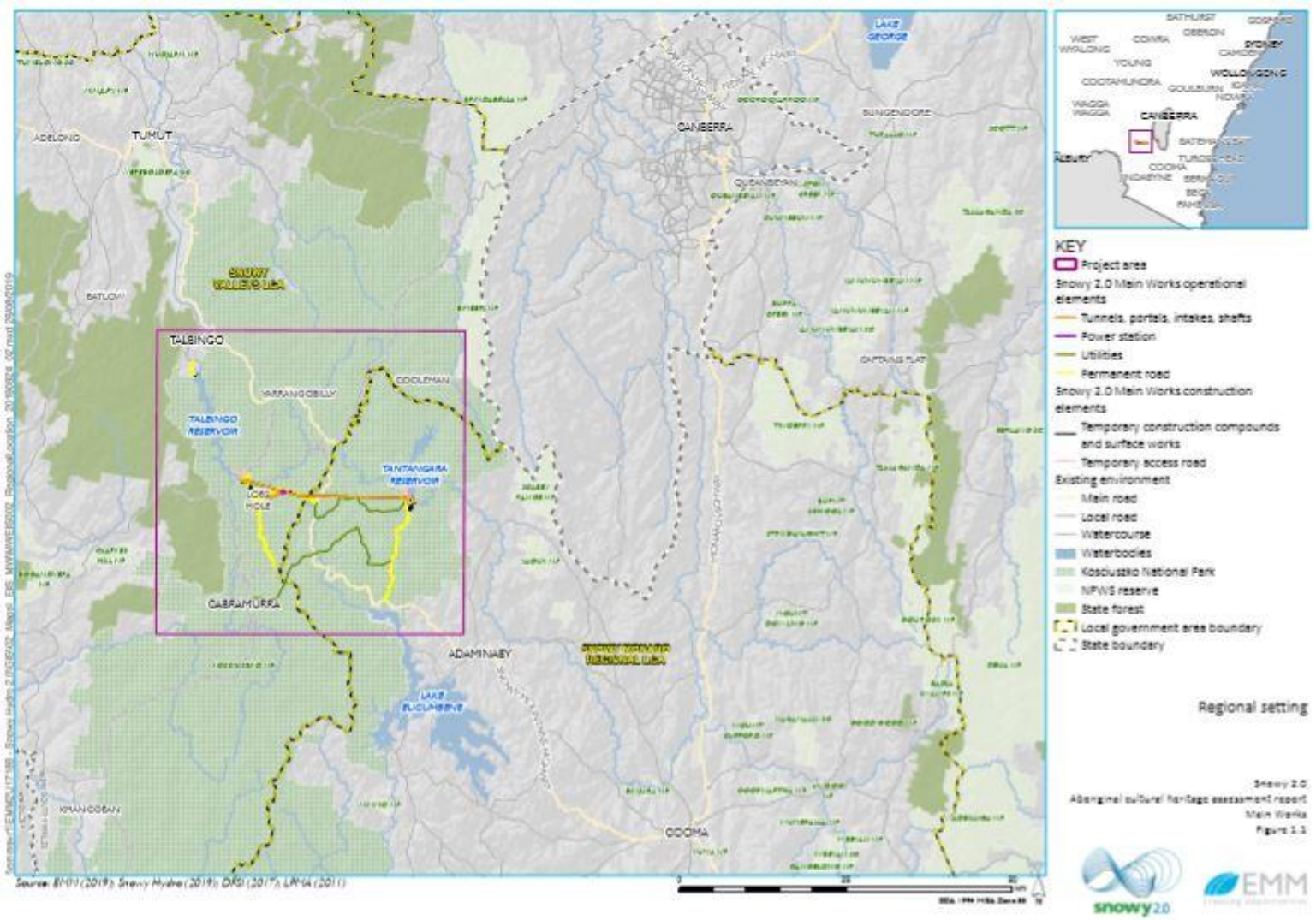


Figure 1 Location of the Snowy 2.0 project area in a regional context.

2. PROJECT DESCRIPTION – SNOWY 2.0

This chapter provides a summary of the Snowy 2.0 Main Works project. It outlines the functional infrastructure required to operate Snowy 2.0, as well as the key construction elements and activities required to build it. A more comprehensive detailed description of the project is provided in Chapter 3 (Project description) of the EIS, which has been relied upon for the basis of this technical assessment.

2.1 OVERVIEW OF SNOWY 2.0

Snowy 2.0 will link the existing Tantangara and Talbingo Reservoirs within the Snowy Scheme through a series of underground tunnels and a new hydro-electric power station will be built underground. An overview of Snowy 2.0 is shown on Figure 2, and the key project elements of Snowy 2.0 are summarised in Table 3.

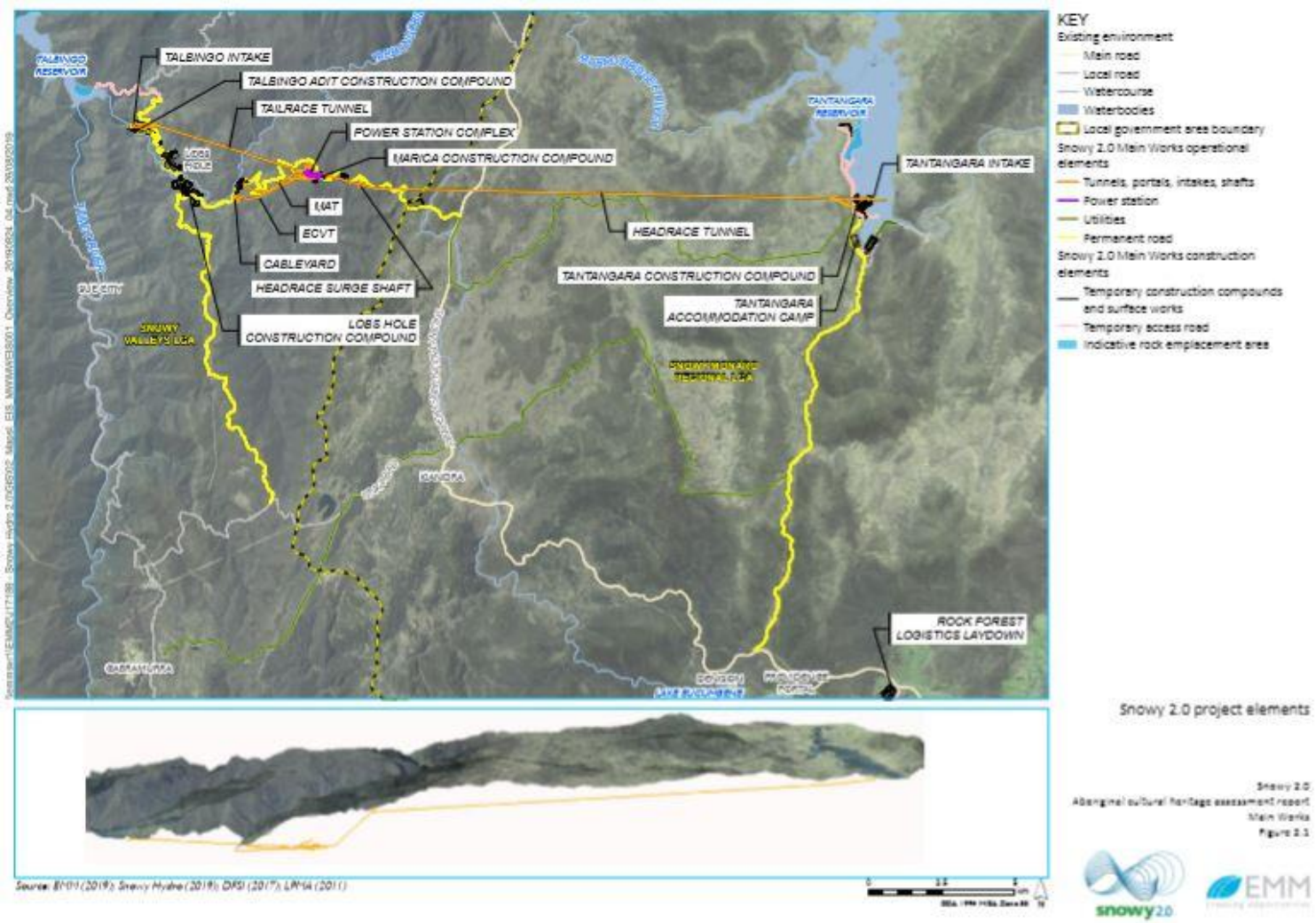


Figure 2 An overview of Snowy 2.0 project elements.

Table 3 Overview of Snowy 2.0 Main Works.

Project element	Summary of the project
Project area	The project area is the broader region within which Snowy 2.0 will be built and operated, and the extent of which direct impacts from Snowy 2.0 Main Works are anticipated.
Permanent infrastructure	Snowy 2.0 infrastructure to be built and operated for the life of the assets include the: • intake, gate shafts and control buildings at Tantangara and Talbingo Reservoirs; • power waterway tunnels primarily comprising the headrace and tailrace tunnels and surge structure, inclined pressure shaft, penstock manifold and tailrace tunnel; • underground power station complex and vent shaft; • access tunnels (and tunnel portals) to the underground power station comprising the Main Access Tunnel (MAT) and Emergency egress, communication, and ventilation tunnel (ECVT); • establishment of a portal building and helipad at the MAT portal; • communication and power supply including continued use of the Lobs Hole substation; • cable yard adjacent to the ECVT portal to connect Snowy 2.0 to the NEM; • access roads and permanent bridge structures needed for operation and maintenance of Snowy 2.0 infrastructure; and • fish control structures on Tantangara Creek and near Tantangara Reservoir wall.
Temporary infrastructure	Temporary infrastructure required during the construction phase of the Snowy 2.0 Main Works are: • construction compounds, laydown and ancillary facilities; • accommodation camps for construction workforce; • construction portals and adits to facilitate tunnelling activities • barge launch ramps; • water and wastewater management infrastructure (treatment plants and pipelines); and • temporary access roads.
Disturbance area	The disturbance area is the extent of construction works required to build Snowy 2.0. The maximum disturbance area is about 1,680 hectares (ha), less than 0.25% of KNP. Parts of the disturbance area will be rehabilitated and landformed and other parts will be retained permanently for operation.
Tunnelling method	The primary tunnelling method for the power waterway is by tunnel boring machine (TBM), with portals and adits using drill and blast methods. Excavation for other underground caverns will also be via combinations of drill and blast, blind sink methods and/or raise bore techniques.

Project element	Summary of the project
Excavated rock management	Excavated rock will be generated as a result of tunnelling activities and earthworks. The material liberated through these activities will be tested, stockpiled and either reused by the contractor (or NPWS), placed permanently within Tantangara or Talbingo reservoirs, used in final land forming and rehabilitation, or transported offsite.
Construction water and wastewater management	Water supply for construction will be from the two existing reservoirs (Talbingo and Tantangara) and reticulated via buried pipelines (within access roads). Raw water will be treated at accommodation camps and used as potable water. Water to be discharged (comprising process water, wastewater and stormwater) will be treated before discharge to the two existing reservoirs (Talbingo and Tantangara) as follows: • treated process water will be reused onsite where possible to reduce the amount of discharge to reservoirs, however excess treated water will be discharged to the reservoirs; • collected sewage will be treated at sewage treatment plants to meet the specified discharge limits before discharge; and • stormwater will be captured and reused as much as possible.
Rehabilitation	Rehabilitation of areas disturbed during construction and returning to pre-disturbance condition or as agreed with NPWS. This includes construction areas at Lobs Hole which comprise surplus cut materials that are required for the construction. Areas to be used by Snowy Hydro in the long-term may be re-shaped and rehabilitated to maintain access and operational capabilities (eg intakes and portal entrances)
Construction workforce	The construction workforce for the project is expected to peak at around 2,000 personnel
Operational life	The operational life of the Project is estimated to be 100 years
Operational workforce	The operational workforce is expected to be 8 -16 operational and maintenance staff
Hours of operation	Construction of Snowy 2.0 will be 24/7 Operation of Snowy 2.0 will be 24/7
Capital investment value	Estimates to be $4.6 billion

2.2 CONSTRUCTION OF SNOWY 2.0

A number of construction activities will be carried out concurrently, and across a number of different sites. Specific details on these activities as well as an indicative schedule of construction activities is provided in Chapter 3 (Project description) of the EIS. This section summarises the key construction elements of the project.

Table 4 provides an overview of the construction elements, their purpose and location within the project area.

Table 4 Snowy 2.0 construction elements.

Construction element	Purpose	Location
Construction sites	Due to the remoteness of Snowy 2.0, construction sites are generally needed to: • Provide ancillary facilities such as concrete batching plants, mixing plants and on-site manufacturing; • Store machinery, equipment and materials to be used in construction; • Provide access to underground construction sites; and • Provide onsite accommodation for the construction workforce.	Each construction site needed for Snowy 2.0 is shown on Figures 2 - 8.
Substations and power connection	One substation is required to provide permanent power to Snowy 2.0, at Lobs Hole. This substation is proposed as part of a modification of Exploratory Works with a capacity of 80 mega volt amp (MVA). It will continue to be used for Main Works, however, requires the establishment of further power supply cables to provide power to the work sites and TBM at Tantangara, as well as Talbingo, in particular to power the TBMs via the MAT, ECVT, Talbingo and Tantangara portals.	The supporting high voltage cable route mostly follows access roads to each of the work sites.
Communications system	Communications infrastructure will connect infrastructure at Tantangara and Talbingo reservoirs to the existing communications system at the Tumut 3 power station (via the submarine communications cable in Talbingo Reservoir established during Exploratory Works) and to Snowy Hydro's existing communications infrastructure at Cabramurra.	The cable will be trenched and buried in conduits within access roads. Crossing of watercourses and other environmentally sensitive areas will be carried out in a manner that minimises environmental impacts where possible, such as underboring.
Water and wastewater servicing	Drinking water will be provided via water treatment plants located at accommodation camps. Water for treatment will be sourced from the nearest reservoir. There are three main wastewater streams that require some form of treatment before discharging to the environment, including: • Tunnel seepage and construction wastewater (process water); • Domestic sewer (wastewater); and • Construction site stormwater (stormwater).	Utility pipelines generally follow access roads. Water treatment plants (drinking water) will be needed for the accommodation camps and will be located in proximity. Wastewater treatment plants will similarly be located near accommodation camps. Process water treatment plants will be at construction compounds and adits where needed to manage tunnel seepage and water during construction.

Construction element	Purpose	Location
Temporary and permanent access roads	Access works are required to: • provide for the transport of excavated material between the tunnel portals and the excavated rock emplacement areas; • accommodate the transport of oversized loads as required; and • facilitate the safe movement of plant, equipment, materials and construction workers into and out of construction sites. The access road upgrades and establishment requirements are shown on Figures 2 to 8. These roads will be used throughout construction including use of deliveries to and from site and the external road network.	The access road upgrades and establishment requirements are shown across the project area. Main access and haulage to site will be via Snowy Mountains Highway, Link Road and Lobs Hole Ravine Road (for access to Lobs Hole), and via Snowy Mountains Highway and Tantangara Road (for access to Tantangara Reservoir) (see Figure 2.
Excavated rock management	Approximately 9 million m^3 (unbulked) of excavated material will be generated by the Main Works construction and require management. The strategy for management of excavated rock will aim to maximise beneficial reuse of materials for construction activities. Beneficial re-use of excavated material may include use for road base, pad establishment, selected fill and tunnel backfill and rock armour as part of site establishment for construction areas. Excess excavated material that cannot be re-used during construction will be disposed of within Talbingo and Tantangara reservoirs, used in permanent rehabilitation of Lobs Hole, or transported out of the National Park for on-land disposal if required.	Placement areas are shown on Figures 4 and 7.
Barge launch facilities	Barge launch facilities on Talbingo Reservoir will have already been established during Exploratory Works for the placement of the submarine communications cable and will continued to be used for Main Works for construction works associated with the Talbingo intake structure. The Main Works will require the establishment of barge launch facilities on Tantangara Reservoir to enable these similar works (removal of the intake plug).	Barge launch sites are shown on Figures 3 and 7.

Construction element	Purpose	Location
Construction workforce	The construction workforce will be accommodated entirely on site, with a 20 day on 10 day off FIFO/DIDO roster. No private vehicles will be permitted, and the workforce bused to and from site.	Access to site will be via Snowy Mountains Highway

The key areas of construction are shown on Figures 2 – 8 and can be described across the following locations:

- Talbingo Reservoir – Talbingo Reservoir provides the lower reservoir for the pumped hydro-electric project and will include the tailrace tunnel and water intake structure. The site will also be used for temporary construction compounds and other temporary ancillary activities;

- Lobs Hole – this site will be used primarily for construction (including construction of vertical shafts to the underground power station (ventilation shaft) and headrace tunnel (surge shaft), underground tailrace surge shaft and a temporary accommodation camp);

- Marica – the site will be used primarily for construction but will also become the main entrance to the power station during operation. Lobs Hole will provide access to the Exploratory Works tunnel, which will be refitted to become the main access tunnel (MAT), as well as the location of the emergency egress, cable and ventilation tunnel (ECVT), portal and associated services;

- Plateau – the land area between Snowy Mountains Highway and Tantangara Reservoir is referred to as the Plateau. The Plateau will be used to access and construct a utility corridor and construct a fish weir on Tantangara Creek;

- Tantangara Reservoir – Tantangara Reservoir will be the upper reservoir for the pumped hydro project and include the headrace tunnel and intake structure. The site will also be used for a temporary construction compound, accommodation camp and other temporary ancillary activities; and

- Rock Forest – a site to be used temporarily for logistics and staging during construction. It located beyond the national park along the Snowy Mountains Highway about 3 km east of Providence Portal.

During the construction phase, all work sites will be restricted access and closed to the public. This includes existing road access to Lobs Hole via Lobs Hole Ravine Road, and access to Tantangara Reservoir via Tantangara Road. Restrictions to water-based access and activities will also be implemented for public safety and to allow safe construction of the intakes within the reservoirs.

A key construction element for the project is the excavation and tunnelling for underground infrastructure including the power station, power waterway (headrace and tailrace tunnels) and associated shafts. The primary methods of excavation are shown in Figure 9 with further details on construction methods described in Appendix D of the EIS.

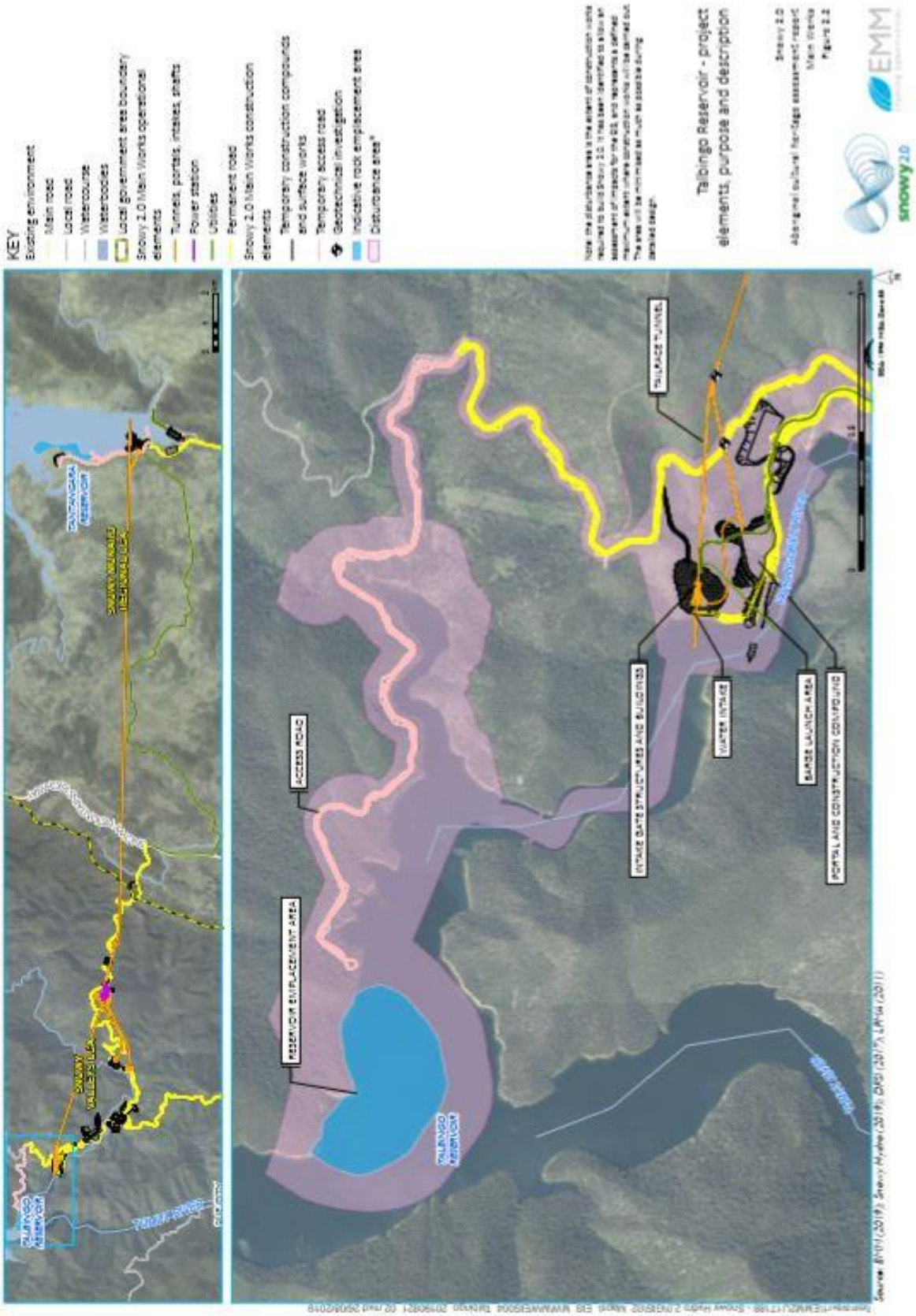


Figure 3 Snowy 2.0 construction areas – Talbingo Reservoir.

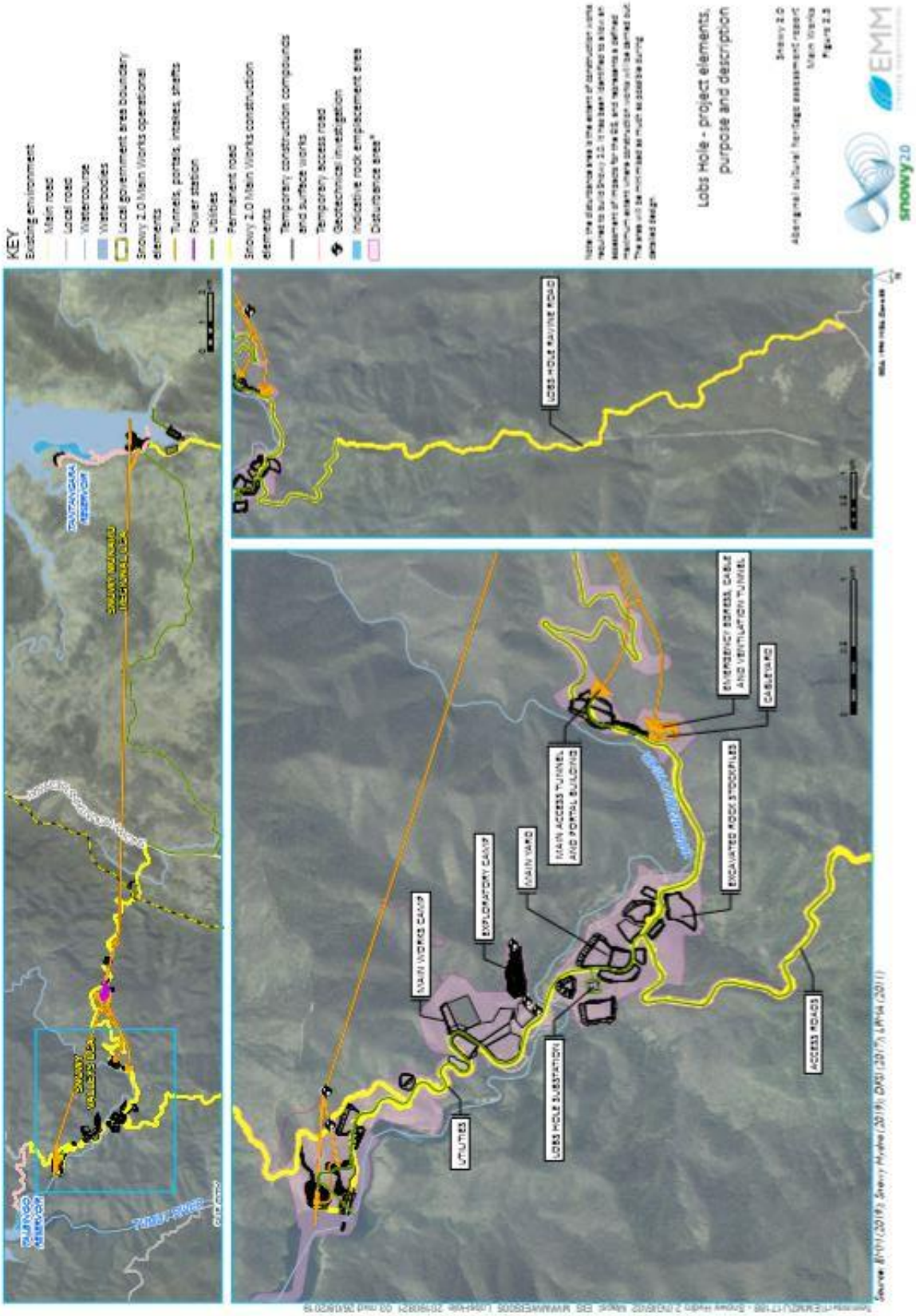


Figure 4 Snowy 2.0 construction areas – Lobs Hole.

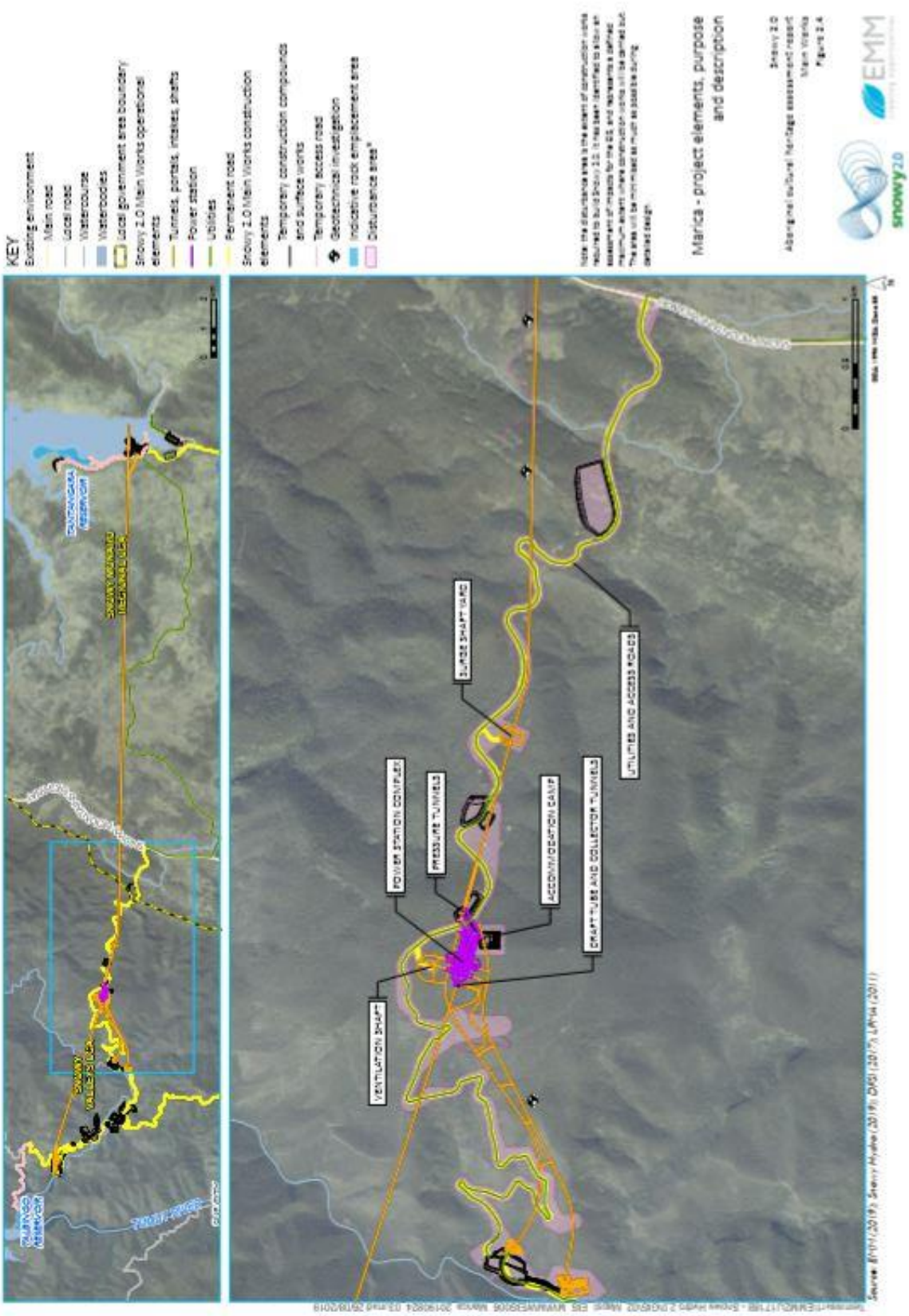


Figure 5 Snowy 2.0 construction areas – Marica.

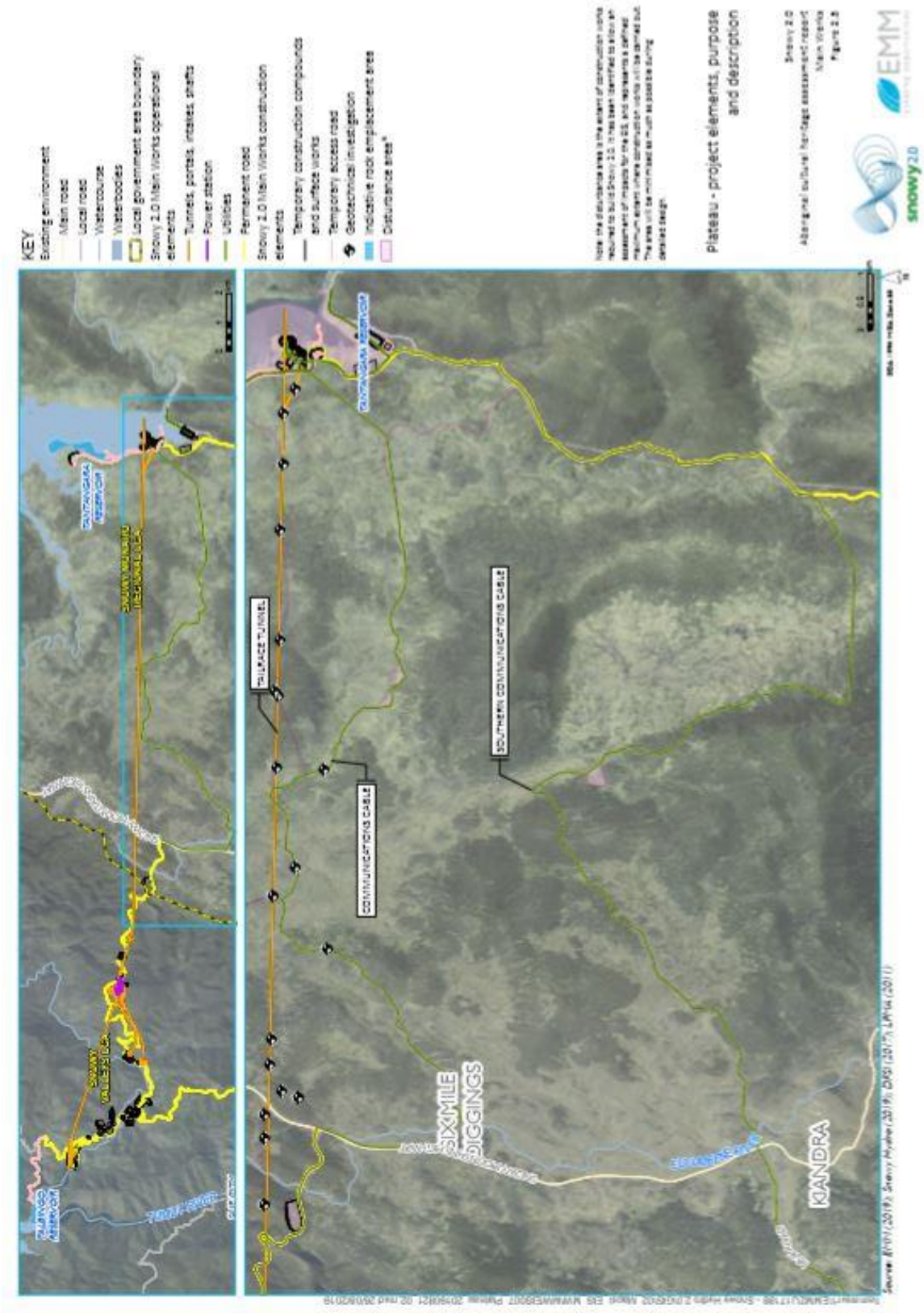
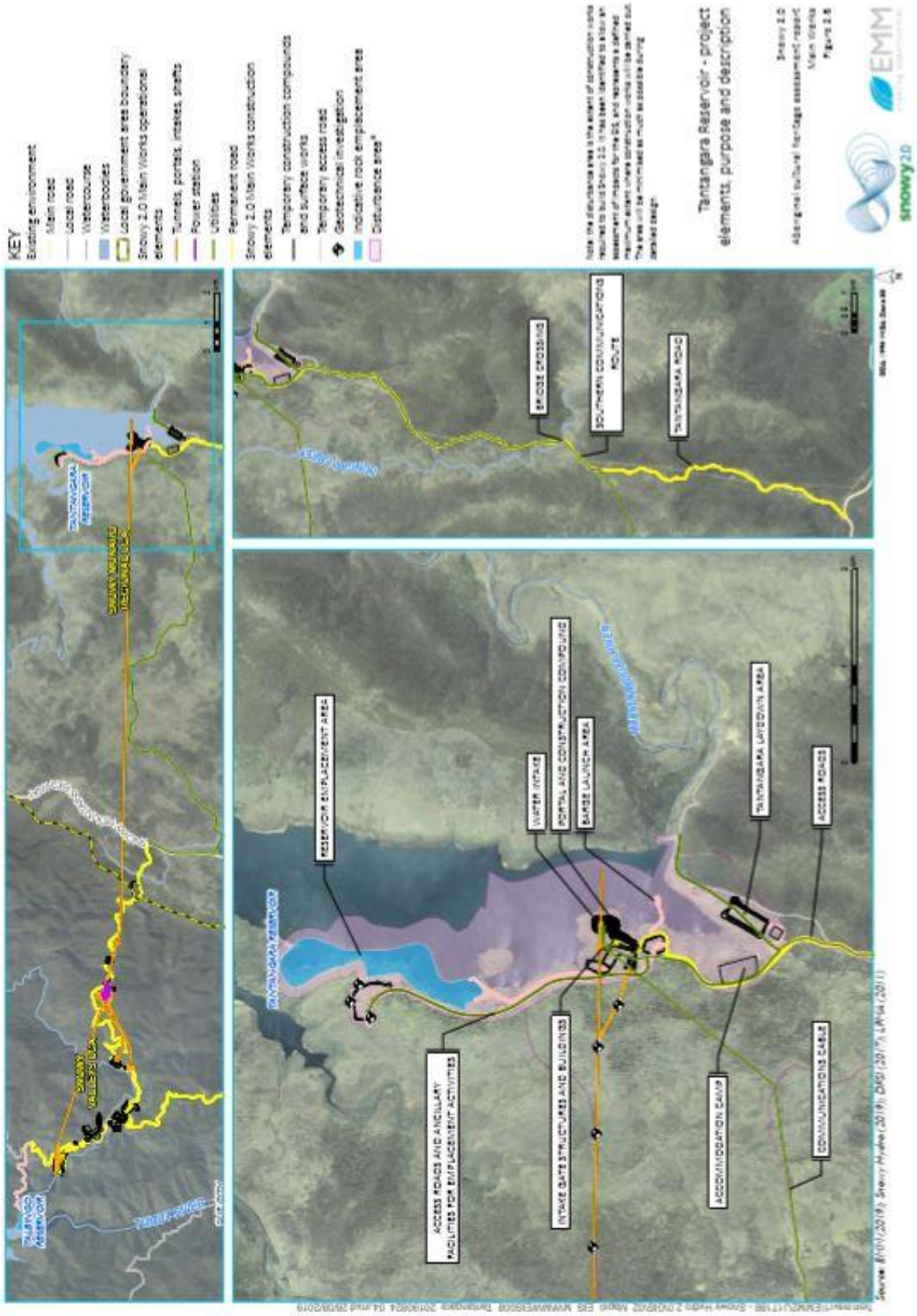


Figure 6 Snowy 2.0 construction areas – Plateau.


KEY
Existing environment
Main road
Local road
Watercourse
Waterbodies
Local government area boundary
Snowy 2.0 Main Works operational elements
Tunnels, portals, intakes, shafts
Power station
Utilities
Permanent road
Snowy 2.0 Main Works construction elements
Temporary construction compounds and surface works
Temporary access road
Geotechnical investigation
Indicative rock emplacement area
Disturbance area*
Tantangara Reservoir - project elements, purpose and description
EMM
snowy 2.0
SNOWY 2.0 TRANSMISSION
SNOWY 2.0 TRANSMISSION
TANTANGARA ROAD
SNOWY 2.0 TRANSMISSION
SNOWY 2.0 TRANSMISSION
SNOWY 2.0 TRANSMISSION

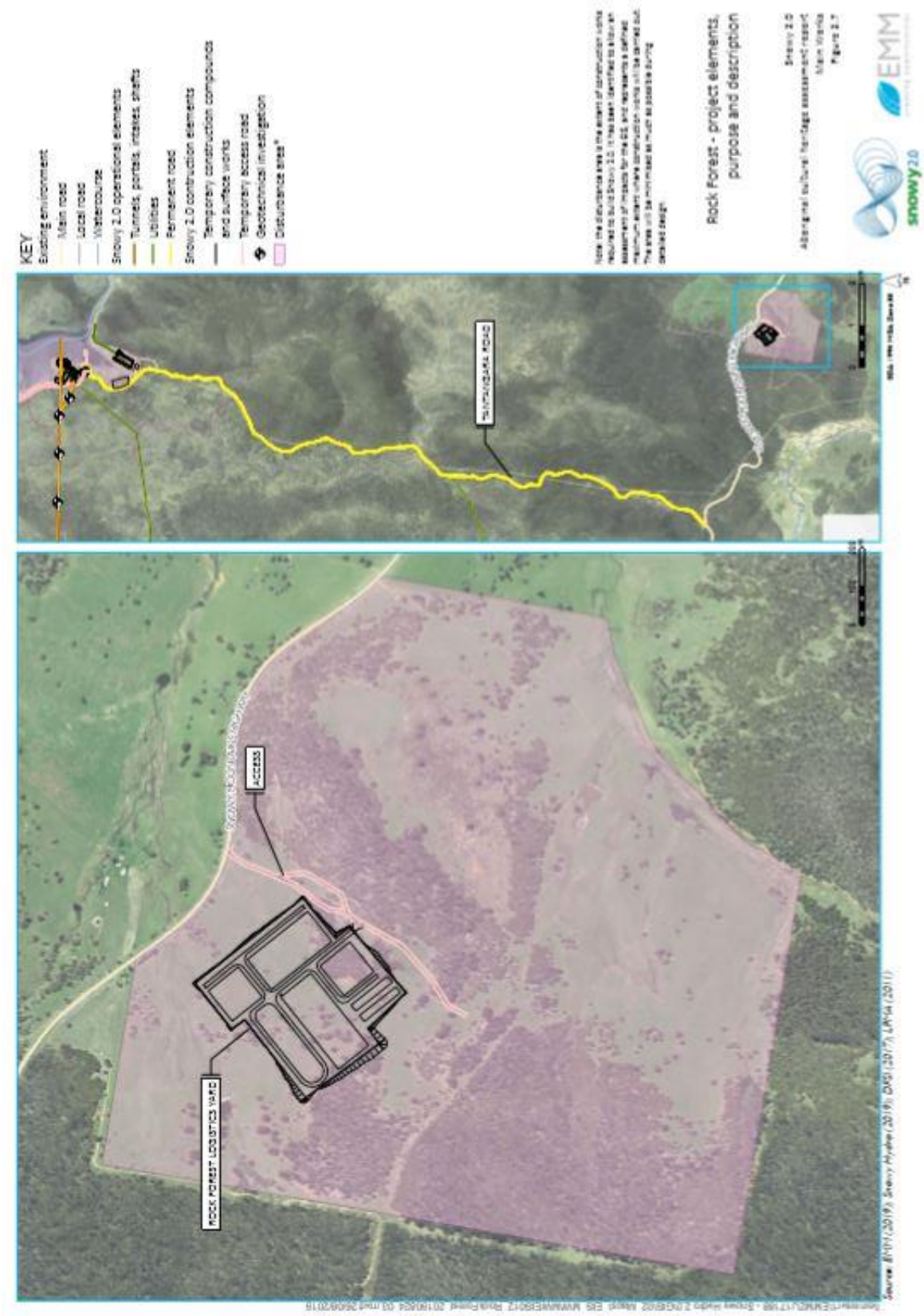


Figure 8 Snowy 2.0 construction areas – Rock Forest.

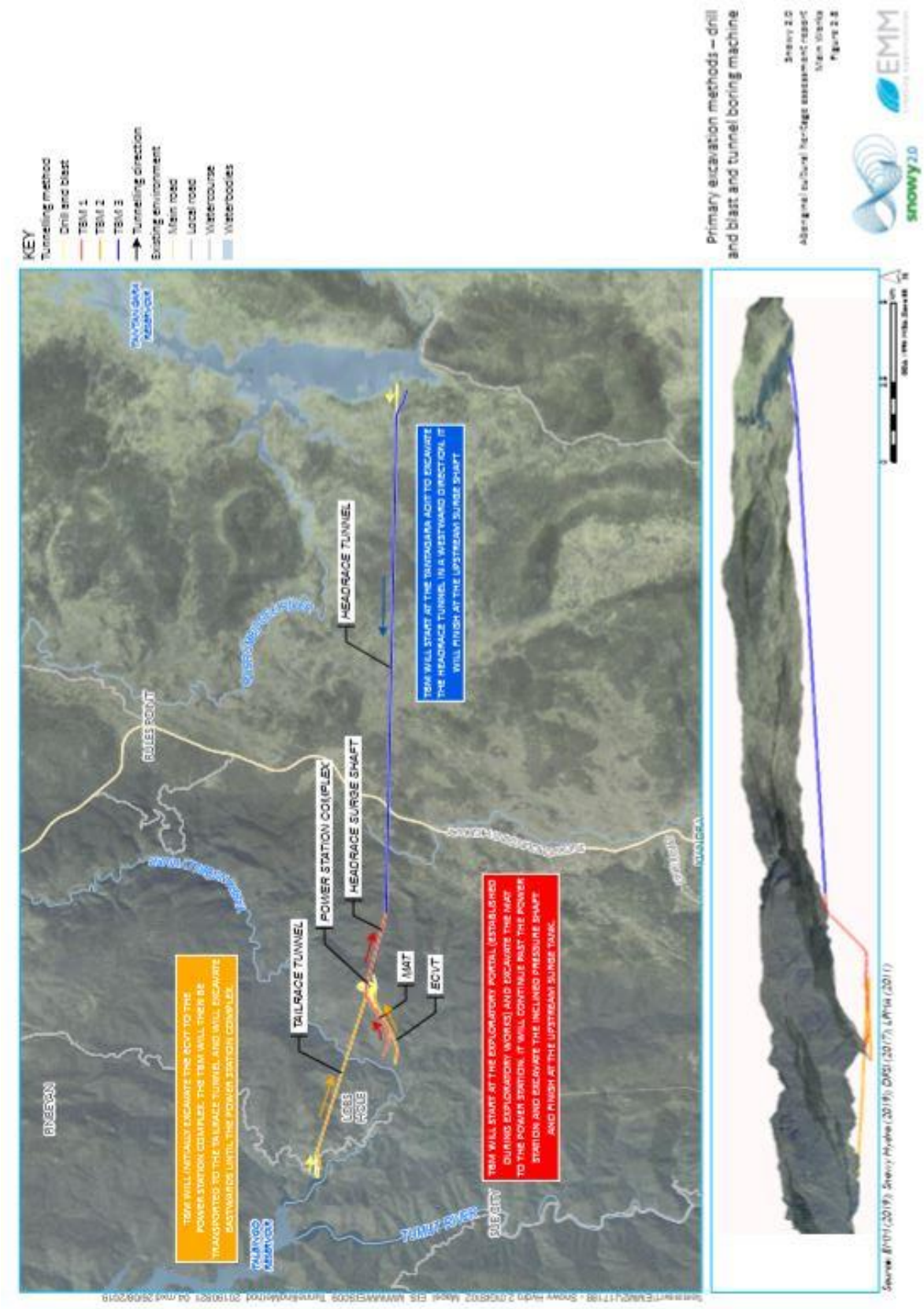


Figure 9 Snowy 2.0 Excavation and tunnelling methods.

2.3 OPERATION OF SNOWY 2.0

2.3.1 Scheme Operation and Reservoir Management

Snowy 2.0 would operate within the northern Snowy-Tumut Development, connecting the existing Tantangara and Talbingo reservoirs.

Tantangara Reservoir currently has the following operational functions within the Snowy Scheme:

- collects releases from the Murrumbidgee River and the Goodradigbee River Aqueduct,
- provides a means for storage and diversion of water to Lake Eucumbene via the Murrumbidgee-Eucumbene Tunnel, and
- provides environmental releases through the Tantangara Reservoir river outlet gates to the Murrumbidgee River.

Talbingo Reservoir currently has the following operational functions:

- collects releases from Tumut 2 power station,
- collects releases from the Yarrangobilly and Tumut rivers,
- acts as head storage for water pumped up from Jounama Pondage, and
- acts as head storage for generation at Tumut 3 power station.

Due to its historic relationship to both the upstream Tumut 2 Power Station and downstream Tumut 3 Power Station, Talbingo Reservoir has had more operational functions than Tantangara Reservoir in the current Snowy Scheme.

Following the commencement of the operation of Snowy 2.0, both Tantangara and Talbingo reservoirs will have increased operational functions. Tantangara Reservoir will have the additional operational functions of acting as a head storage for generation from the Snowy 2.0 power station and also acting as a storage for water pumped up from Talbingo Reservoir. Talbingo Reservoir will have the additional operational function of acting as a tail storage from Snowy 2.0 generation.

As a result of the operation of Snowy 2.0, the water level in Tantangara Reservoir will be more variable than historically. Notwithstanding this, operations will not affect release obligations under the Snowy Water Licence nor will it involve any change to the currently imposed Full Supply Levels (FSLs). No additional land will be affected by virtue of the inundation of the reservoirs through Snowy 2.0 operations. Water storages will continue to be held wholly within the footprint of the existing FSLs.

2.3.2 Permanent Access

Permanent access to Snowy 2.0 infrastructure is required. During operation, a number of service roads established during construction will be used to access surface infrastructure including the power station's vent shaft, the water intake structures, and the headrace tunnel surge shaft. Permanent access tunnels (the MAT and ECVT) will be used to enter and exit the power station.

2.3.3 Maintenance Requirements

Maintenance activities required for Snowy 2.0 will be integrated with the maintenance of the existing Snowy Scheme. Maintenance activities that will be required include:

- maintenance of equipment and systems within the power station complex;
- maintenance of access roads (vegetation clearing, pavement works, snow clearing);
- dewatering of the tailrace tunnel (once every 15 to 50 years); and
- maintenance of electricity infrastructure (cables, cable yard, cable tunnel).

2.4 REHABILITATION AND FINAL USE

A Rehabilitation Strategy has been prepared for Snowy 2.0 Main Works and provided in the EIS.

It is proposed that all areas not retained for permanent infrastructure will be revegetated and rehabilitated. At Lobs Hole, final landform design and planning has been undertaken to identify opportunities for the reuse of excavated material in rehabilitation to provide landforms which complement the surrounding topography in the KNP.

Given that most of Snowy 2.0 Main Works is within the boundaries of the KNP, Snowy Hydro will liaise closely with NPWS to determine the extent of decommissioning of temporary construction facilities and rehabilitation activities to be undertaken following the construction of Snowy 2.0 Main Works.

3. LEGISLATIVE CONTEXT

3.1 COMMONWEALTH LEGISLATION

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) aims to protect matters of national environmental significance (MNES) including:

- world heritage properties;
- national heritage places;
- Ramsar wetlands of international importance;
- nationally threatened species and ecological communities;
- migratory species;
- Commonwealth marine areas;
- the Great Barrier Reef Marine Park;
- nuclear actions (including uranium mining); and
- a water resource, in relation to coal seam gas development and large coal mining development.

MNES relevant to Exploratory Works are nationally threatened species and ecological communities and national heritage places. Two national heritage places occur within the project area: *Australian Alps National Parks and Reserves* and *The Snowy Mountains Scheme*.

The project has been assessed according to the National Heritage values associated with the two National Heritage places against the significant impact criteria.

3.2 NEW SOUTH WALES LEGISLATION

3.2.1 EP&A Act and its Regulation

The NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) is the primary legislation regulating environmental planning and assessment in NSW. Part 5 of the EP&A Act establishes the assessment and approval regime for State significant infrastructure (SSI) and critical State significant infrastructure (CSSI).

Snowy 2.0 has been declared CSSI by the NSW Minister for Planning under the provisions of the EP&A Act and is defined in Clause 9 of Schedule 5 of the *State Environmental Planning Policy* (State and Regional Development) *2011* (SRD SEPP).

3.2.2 National Parks & Wildlife Act 1974

The *National Parks and Wildlife Act 1974* (NPW Act 1974) provides statutory protection for all Aboriginal objects and Aboriginal Places.

An 'Aboriginal object' is defined as

> 'any deposit, object or material evidence (not being a handicraft for sale) relating to Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains'.

An Aboriginal place is an area declared by the Minister to be an Aboriginal place for the purposes of the Act (s84), being a place that in the opinion of the Minister *is or was of special significance with respect to Aboriginal culture.*

Part 6 of the National Parks and Wildlife Act 1974 (NPW Act) provides specific protection for Aboriginal objects and declared Aboriginal places by establishing offences of harm. Harm is defined to mean destroying, defacing, damaging or moving an object from the land. There are a number of defense's and exemptions to the offence of harming an Aboriginal object or place. One of the defense's is that the harm is carried out under an Aboriginal Heritage Impact Permit (AHIP).

However, under Section 5.23 of the EP&A Act, the following authorisations are not required for approved State Significant Infrastructure (and accordingly the provisions of any Act that prohibit an activity without such an authority do not apply):

- an Aboriginal heritage impact permit under section 90 of the National Parks and Wildlife Act 1974.

A number of other aspects of the NPW Act are, however, relevant as set out below.

Under Section 89A Notification of sites of Aboriginal objects. A person who is aware of the location of an Aboriginal object that is the property of the Crown or, not being the property of the Crown, is real property, and does not, in the prescribed manner, notify the Director-General of DPIE thereof within a reasonable time after the person first becomes aware of that location is guilty of an offence against this Act unless the person believes on reasonable grounds that the Director-General is aware of the location of that Aboriginal object. An Aboriginal Site Recording Form allows for primary site recording. Aboriginal Site Recording Forms are provided to the Aboriginal Heritage Information Management System (AHIMS) which is maintained by NSW DPIE. The Aboriginal object sites recorded during the fieldwork for the project have all been entered on AHIMS, and hence, this requirement has been fulfilled in respect of the project.

An Aboriginal Site Impact Recording Form has been developed to ensure that current information about the status of AHIMS sites is maintained and an accurate picture of the condition of all registered Aboriginal sites is always available. The form must be completed after authorised impacts to AHIMS sites occur. Once completed, the forms must be sent to the AHIMS Registrar. Authorised impacts are those:

- which occur as a result of test excavation carried out in accordance with the *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW*;
- allowed by an AHIP issued by the NSW DPIE;
- undertaken for the purpose of complying with Director-General Requirements issued by the Department of Planning and Infrastructure for State Significant Development (SSD – Part 4), State Significant Infrastructure (SSI – Part 5.1) or a Major Project (Part 3A – now repealed) under the Environmental Protection and Assessment Act 1979 – EP&A Act); or
- allowed by an SSD/SSI/Part 3A consent/approval under the EP&A Act.

When impacts occur to Aboriginal object sites during the construction and development activity for Snowy 2.0, Aboriginal Site Impact Recording Forms would need to be completed and submitted to the AHIMS Registrar. This requirement should be set out in the Aboriginal Cultural Heritage Management Plan when it is developed for the project.

Many Aboriginal communities wish to have care of Aboriginal objects which have been excavated, disturbed or moved by development activities, erosion or other processes. Under Section 85A of the NPW Act 1974, the transfer of Aboriginal objects from a site to an Aboriginal person or organisation for safe keeping is allowed. The person or organisation must enter into an agreement with the NSW DPIE. A Care Agreement Application Form must be completed and sent to the relevant NSW DPIE regional office.

Aboriginal objects have been retrieved during the test excavations conducted for this project. During the implementation of impact management and mitigation, the transfer of Aboriginal objects to the Aboriginal community should be fulfilled. This requirement should be set out in the Aboriginal Cultural Heritage Management Plan when it is developed for the project.

4. DESCRIPTION OF THE AREA – BACKGROUND AND CONTEXT

In this section, background and relevant contextual information is compiled, analysed and synthesized. The purpose of presenting this material is to gain an initial understanding of the cultural landscape. The following topics are addressed (*cf*. NSW OEH 2011: 5):

- The physical setting or landscape;
- History of peoples living on that land; *and*
- Material evidence of Aboriginal land use.

4.1 THE PHYSICAL SETTING AND LANDSCAPE

Aboriginal people have occupied NSW for more than 42,000 years (Bowler *et al*. 2003). Evidence and cultural meanings relating to occupation are present throughout the landscape (NSW OEH 2011: iii).

A consideration of landscape is particularly valuable in archaeological modelling for the purposes of characterising and predicting the nature of Aboriginal occupation across the land. In Aboriginal society, landscape could be the embodiment of Ancestral Beings, and the basis of a social geography and economic and technological endeavour. The various features and elements of the landscape are/were physical places that are known and understood within the context of social and cultural practice. The reality of the physical world is such that human occupation, and certain cultural practices and behaviours, cannot be equivalent and always possible everywhere; '... environments constitute arenas of human action and being, they yield resources to be exploited, and they impose constraints and provide enabling conditions for practices' (Keen 2004: 3).

In Australia, a general model of subsistence organisation existed, a collector model, whereby people in groups formed home bases from which they made foraging forays, and returned, for the sharing and distribution of food (Keen 2004: 104). In this model people make few residential moves, and those made are often to locales valued as much for the presence of water or firewood, as they are for food (Keen 2004: 104). Geographical and environmental data is used in this study for anticipating where in the landscape people may have habitually resided in base camp scenarios and how the patterns in their material objects relate to the physical setting.

Given that the natural resources that Aboriginal people harvested and utilised were not evenly distributed across landscapes, Aboriginal occupation and the archaeological manifestations of that occupation will not be uniform across space. Therefore, the examination of environmental context is valuable for predicting the type and nature of archaeological sites which might be expected to occur. Factors

that typically inform the archaeological potential of landscape include the presence or absence of water, animal and plant foods, stone and other resources, the nature of the terrain and the cultural meanings associated with a place.

Additionally, geomorphological and humanly activated processes need to be defined as these will influence the degree to which material evidence may be visible and/or conserved. Land which is heavily grassed and geomorphologically stable will prevent the detection of archaeological material, while places which have suffered disturbance may no longer retain artefacts or stratified deposits. A consideration of such factors is necessary in assessing site significance and formulating mitigation and management recommendations.

The project area is located primarily within the Kosciuszko National Park (KNP) which includes 673,542 hectares of the Snowy Mountains and surrounding slopes and lowlands (DEC 2006). KNP straddles the Great Dividing Range. Altitude varies from 213 m in the valley of the Snowy River to 2,229 m at the summit of Mount Kosciuszko. The park is of national and state conservation significance as it (NPWS 2000):

- protects significant water catchments;
- contains all of NSW's alpine areas and a large portion of its sub-alpine areas;
- protects a variety of habitats and threatened flora and fauna communities;
- contains a wide variety of significant topographical and geomorphological features, ranging from semi-arid to alpine environments;
- provides an educational and scientific resource of national and international importance;
- contains extensive archaeological resources, including Aboriginal campsites, stone arrangements, quarries, burial places and ceremonial grounds; and
- has a rich historic heritage relating to summer grazing, mining, skiing and the Snowy Mountains Scheme.

Geology

The project area is dominated by lithological units and structures of the Lachlan Fold Belt, a cratonic structure formed from the accretion of tectonic subduction zones from the east (Bishop 1988). The evolution of the fold belt in relation to the project area is comprehensively described in Wyborn (1977; 1990; 1994) and the following is largely derived from those texts, unless indicated otherwise.

During the Ordovician, two deep marine sedimentary basins were separated by a north east trending belt of volcanics. The sedimentary basins are represented within the project area by the sandstone turbidites and conglomerate units spanning a large area of the north west project area and to the east of Tantangara Reservoir.

Remnants of the volcanic belt can be seen today as a trend of basalt units bearing north east in the centre of the project area (Figure 10).

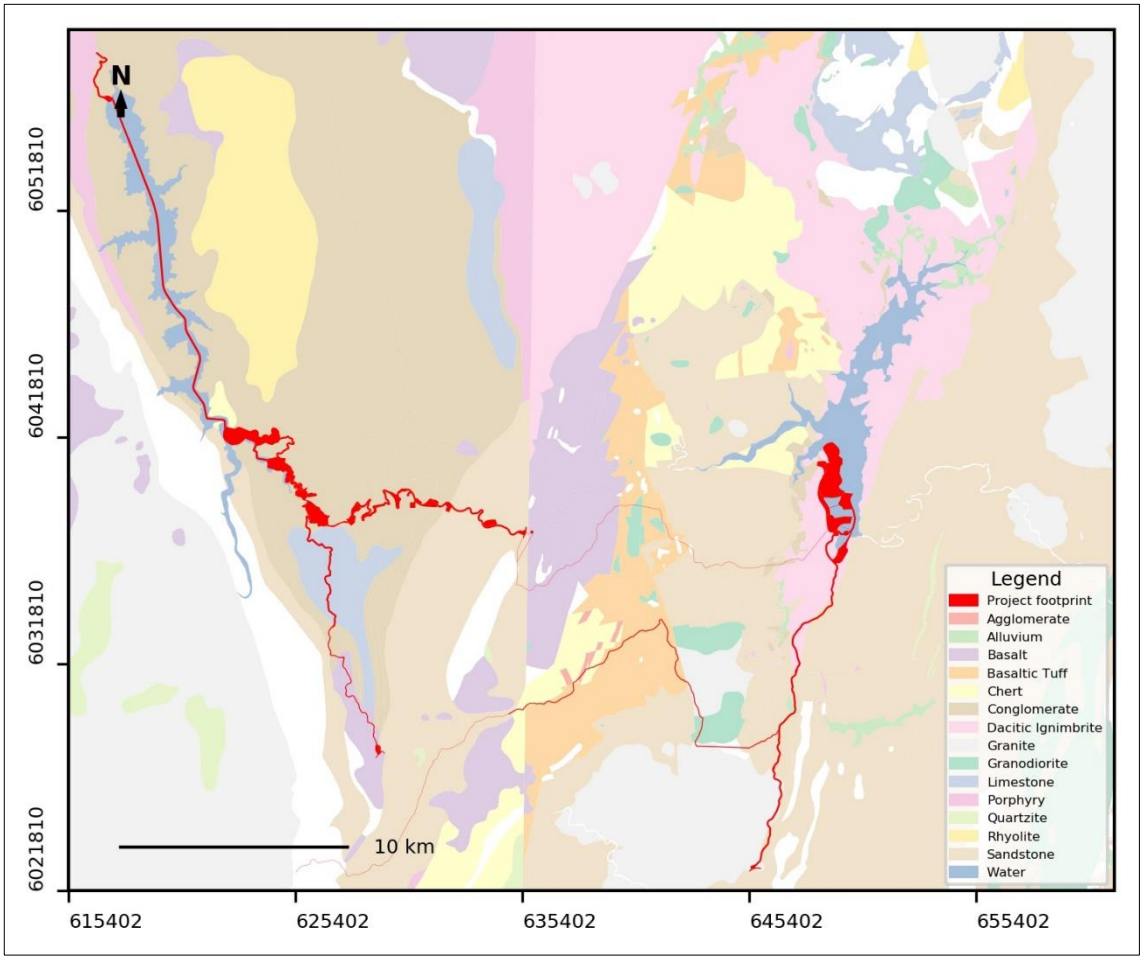


Figure 10 Lithology within the project area compiled from the Wagga Wagga (Adamson and Loudon, 1966) and Canberra (Strusz 1971) 1:250 000 sheets to the left and right of the image respectively.

Deposition ceased by the early Silurian and regional low temperature-high pressure metamorphism commenced. Major strike-slip fault systems developed along the Ordovician volcanics forming basins and intervening shelves. The major fault zones occurring within the project area include the Tumut Ponds and Indi fault zones. Emplacements of S-type granites (derived from sedimentary source rocks) occurred during the Silurian and Devonian and cover a large area of the south west corner of the project area; emplacements also occur at the central southern edge and the northern half of the eastern area, although these are technically adamellites, having too little quartz for classification as granite.

Volcanic activity occurred during the Devonian with intrusion of minor I-type granites, expressed as small equant units of granodiorite scattered around the east.

Extrusive vulcanism is represented by ignimbrites (pyroclastic ash deposits) around the north of Tantangara Reservoir.

Isolated areas of deposition recommenced during the Devonian, expressed as minor lithic sandstone units immediately north east of Tantangara Reservoir. More extensively, limestones were also deposited with three formations occurring within the project area. The Lick Hole Limestone occurs in the central south west; the Yarrangobilly Limestone in the central north, and the Cooleman Limestone in the north east corner. All but the Lick Hole Limestone is karstic with extensive cave systems, gorges and rising streams (Spate 2004).

The region was denuded to a channel-incised plain prior to the Tertiary (Oilier 1982), most likely in two to three episodes during the Late Permian–Early Triassic, the mid-Cretaceous, and possibly the Cenozoic (Kohn *et al.*1999). During the Tertiary, two phases of basaltic volcanic eruptions occurred, and these have been temporally related to pulses of highland uplift (Jones & Veever's 1982 in (Jones & Veever's 1982 in Bishop 1988).

During the Last Glacial Maximum (LGM) four glacier advances are known to have occurred (Table 5) (Barrows *et al.* 2001). Glacial activity was restricted to a small area approximately 50 km to the south and so did not impact directly on the surface morphology of the project area.

Table 5 Timing of glacial advances in mainland Australia (Barrows *et al.* 2001).

Glacial advance	*ka*
Snowy River	59,300±5400
Headly Tarn	32,000±2500
Blue Lake	19,100±1600
Mt. Twynam	16,800±1400

Physiography

The study area spans three physiographic regions (Figure 11). The Australian Alps are associated with the higher elevations spanning the larger eastern portion of the study area. To the west, the Hume Slopes are associated with a broad valley draining towards the northwest, and the East Victorian Uplands are associated with the rises in the southeast (Pain *et al.* 2011). East of the area, the Australian Alps are separated from a dissected coastal plain by an erosional escarpment (Oilier 1982).

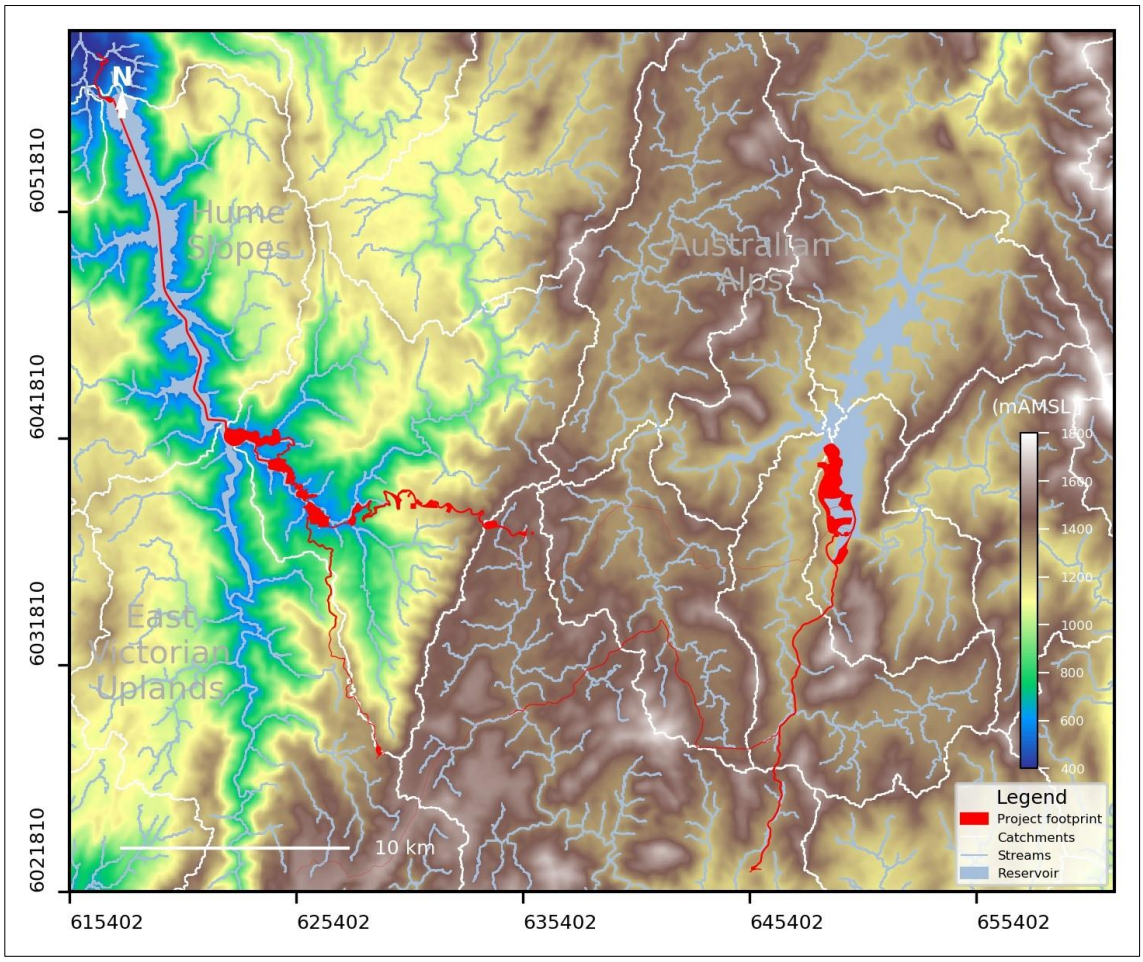


Figure 11 Physiographic regions named in the text with respect to elevations within the project area; hydrological catchment boundaries; and larger stream channels; constructed reservoir.

The terrain within the project area is generally steep at the peaks of elevations, but notably greatest in association with the valley forming part of the Hume Slopes. The distribution of gradients suggests that the valley has formed largely from channel incision after uplift of the Kosciuszko Massif, which has subsequently increased downslope flow energy.

Hydrology

Over the Australian Alps, hydrology is strongly controlled by the structural features of the Kosciuszko Massif, with straight, parallel valleys, being common in proximity to fault zones (Figure 12). The entirety of the Australian Alps within the project area drain to the east, and the East Victorian Uplands to the south west. The Hume slopes drain to the north west in a broad valley drained by the Tumut and Yarrangobilly Rivers. The headwaters of each originate in the south west and central north respectively; their courses broadly follow the escarpment of the Kosciuszko Massif until confluencing at the Talbingo Reservoir. Because of the steepness of the adjacent

slopes, floodplains associated with the two rivers appear to be absent within the study area.

Precipitation within the project area is approximately 2,400 mm/yr (Barrows *et al.* 2001) and occurs predominantly in the form of snow within the alpine area. At the onset of the summer months, the snow melts and causes a substantial increase of fluvial discharge. The effect would have been greatly magnified as a consequence of the glacial advances of the LGM, which would have promoted substantially more snowfall. The increase of discharge during glacial advances would have increased the probability that sediments stored on the valley slopes would be mobilised and deposited on the floodplains of gentler downstream gradients.

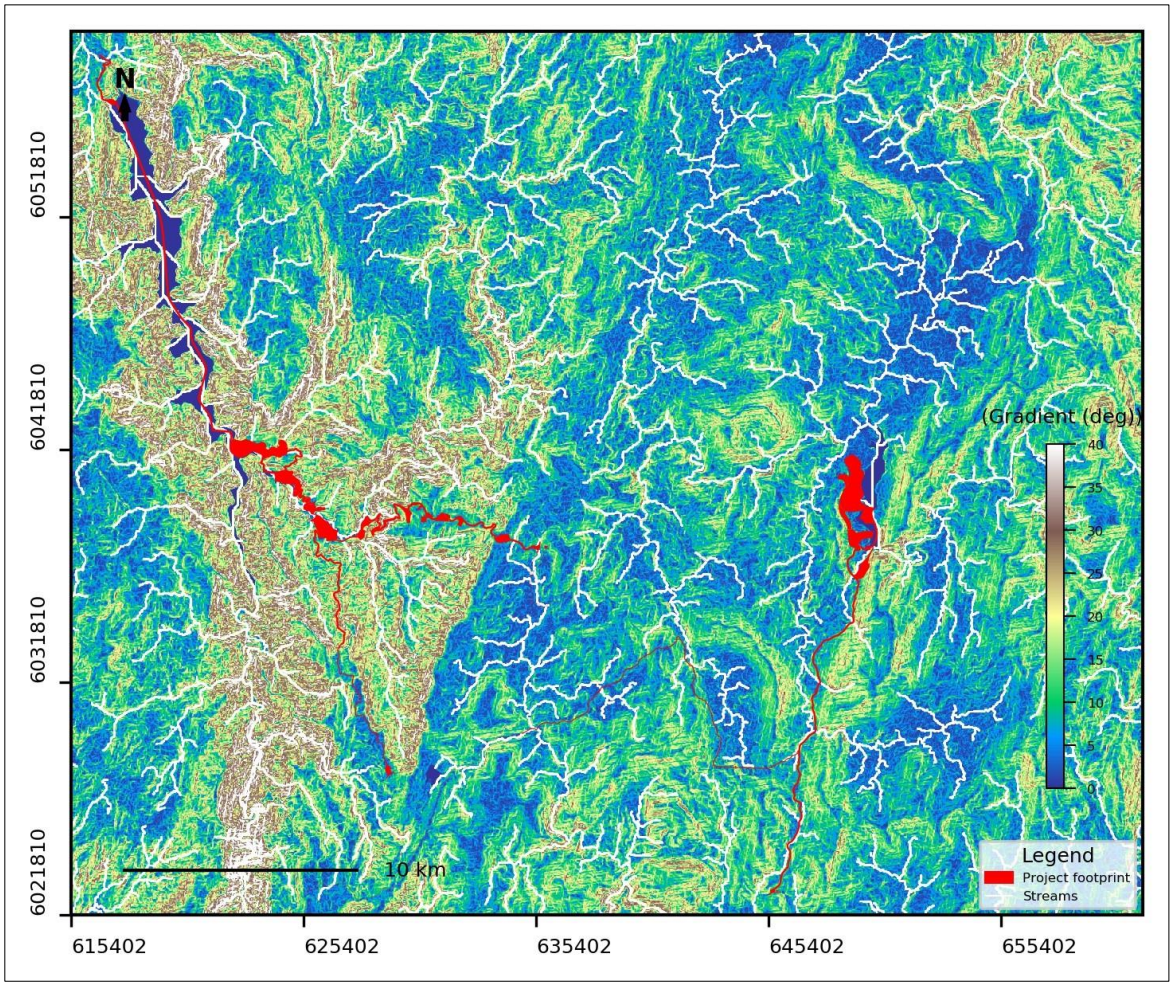


Figure 12 Slope gradients within the project area calculated from 30 m SRTM data (Jarvis *et al.* 2008) with respect to the project area and larger stream channels.

Regolith

Limited soil and landscape data are available for the area at a reconnaissance catchment scale (1:100 000 & 1:250 000), limiting the quality of the available thematic maps (OEH 2017). Classes of the Australian Soil Classification (ASC)

(Figure 13) are available and show that the level-flat ground throughout the project area are dominated by Kurosols, which are acidic and strong texture-contrast soils (Isbell 1996). Many ridges, elevated depressions and lower slopes are composed of a combination of Rudosols and Tenosols. Rudosols tend to be young and have very little pedological development, hence commonly being located on young weathering products. Tenosols have very weak pedological development and may have a high organic content, associated with peat deposits overlying bare rock. Steep slopes associated with the western escarpment of the Australian Alps, and the slopes of the Victorian Uplands, are commonly composed of Dermosols, soils which do not have a strong texture contrast, potentially because of erosion of the surface units. In summary, the project area includes thin soils on elevated level-flats, pedologically developed soils on the weathering products of steep slopes, and poorly developed soils of variable depths on recently deposited colluvial sediments.

Table 6 Key to soil stability classes (Murphy *et al*. 1998).

Stability class	Description	Field Behaviour
R1	High coherence soils with low sediment delivery potential	Stable soils with no appreciable erosion. Generally well-drained permeable soils. Earth batters stable. No or little general evidence of coarse or fine sediment movement.
R2	Low coherence soil (when wet) with low sediment delivery potential	Sandy soils which, when exposed, commonly exhibit sheet wash and evidence of coarse sediment movement such as sediment fans at drain outlets and in gutters. Little sediment transport into drainage networks.
R3	High coherence soils with high sediment delivery potential	Clayey and silty soils which are liable to sheet erosion. Typically, slowly permeable and drainage generally impeded. Earth batters and exposed surfaces subject to minor to moderately extensive rilling and minor slumping. Minor gully erosion may develop in drainage lines and incision may occur along road drains. Localised films of fine sediment at drain outlets and in drainage lines.

Regolith stability in the area is largely affected by periglacial processes such as gelifluction (movement of waterlogged soil downslope during warmer months) and frost shattering of bedrock. However, these processes are most significant above approximately 2,000 m, which only occur at the higher peaks to the south of the project area (Barrows *et al*. 2001). Nevertheless, wherever steep terrain occurs the effect of colluvial processes (the downward movement of regolith) is substantially

increased, particularly given the high precipitation rates and wet subsoil environments. Available mapping rarely indicates slope stability within the study area to be beyond minor (Figure 13; Table 6), most likely because of a stable vegetation cover protected as part of the Kosciuszko National Park. Higher rates of erosion appear to correlate with particular geological units; a granite unit at the central southern edge of the project area is in fact adamellite and likely has a high sodium content, increasing slaking and dispersion and therefore susceptibility to erosion. Dacitic ignimbrite immediately north of the Tantangara Reservoir is also correlates strongly with higher erosion, although the reason is unclear.

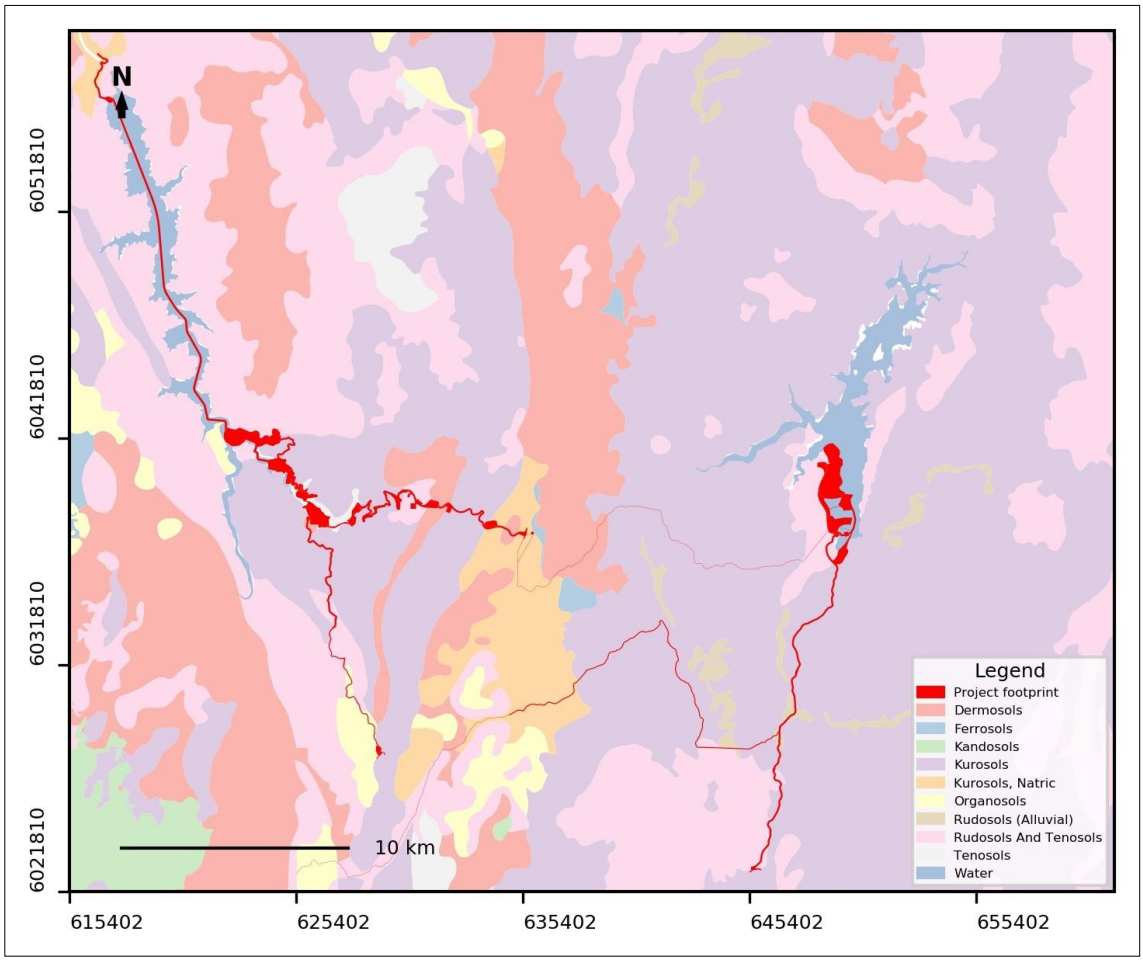


Figure 13 Australian Soil Classification (Isbell 1996).

The presence of stratified sediments is widespread on slopes, albeit colluvial and complex. There are no indications of alluvial deposits, even at the lower elevations within the project area in association with the Tumut and Yarrangobilly Rivers. Only where it debouches onto the Tumut Plains to the north of the project area does the plan view of the Tumut River adopt a meandering planform, indicating a stratified alluvial substrate.

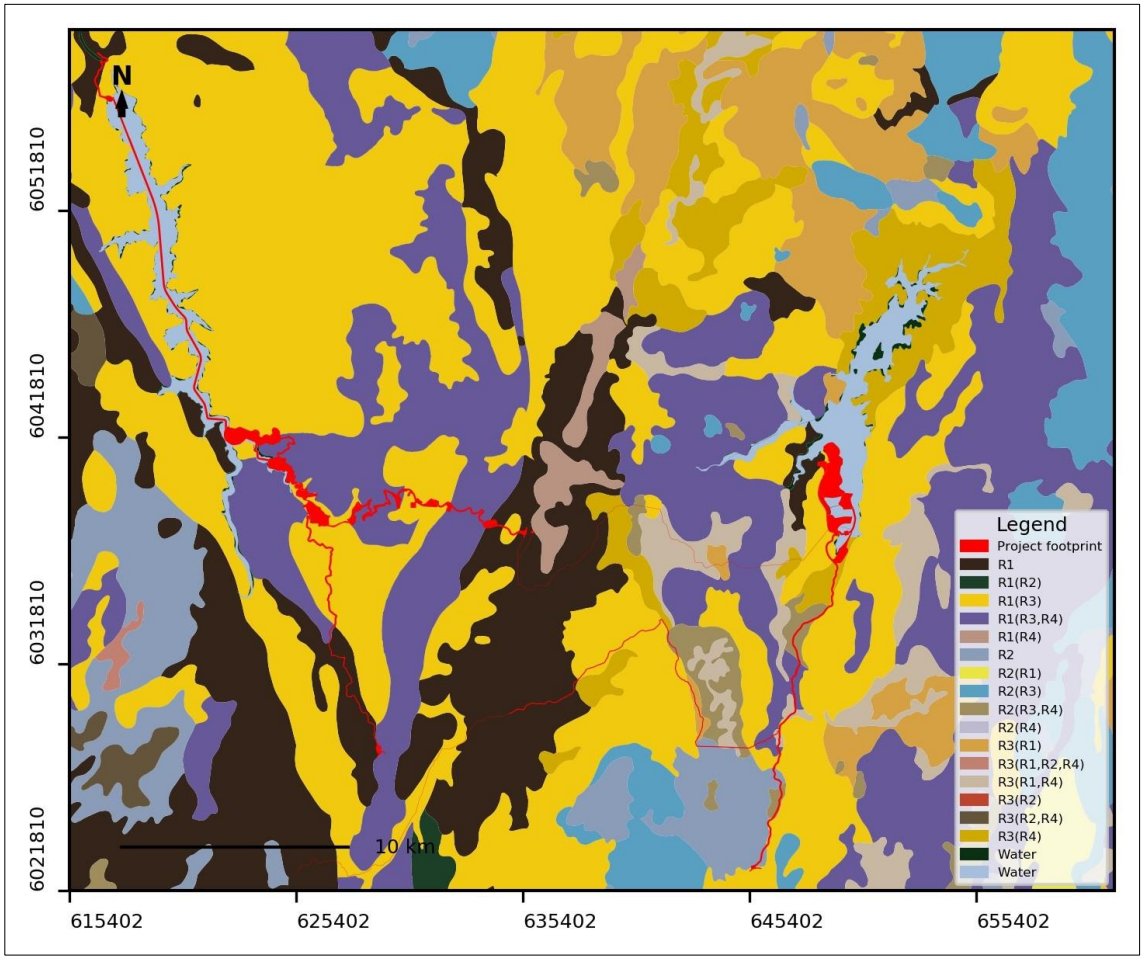


Figure 14 Soil stability (Murphy *et al.* 1998).

Vegetation

Vegetation communities in KNP are related to variation in altitude and rainfall. Four physiographic elements present include alpine, subalpine, montane and tableland communities:

- The Alpine areas are situated above 1,850 m. This area is dominated by tall alpine herbfield and heathland communities, and includes sod tussock grassland, short alpine herbfield, feldmark, bog and fen (NPWS 2000).
- Subalpine areas occur between c. 1,400 m and 1,850 m. This community is dominated by Snow Gum woodland. Frost hollows occur in valley bottoms and are treeless. These include sod tussock grasslands and fen and bog communities (NPWS 2000).
- Montane areas are situated between 1,100 m and 1,400 m. These are dominated by forests and woodlands (NPWS 2000).
- The tableland areas occur below 1,100 m. These contain savannah woodland communities (Plates 1, 2 and 3).



Plate 1 Lobs Hole and Yarrangobilly Gorge in background; taken from Lobs Hole Ravine Road looking 40°.



Plate 2 The Yarrangobilly River at Lobs Hole; taken from near the Washington Hotel ruins, looking downstream.



Plate 3 The site of the Ravine township at Lobs Hole; taken from near the Washington Hotel ruin looking 150° to the site of the Police Station (in copse of Elm on right).

Lobs Hole Ravine

Meteorological data from Talbingo is the most useful comparable material to describe the climate of Lobs Hole (Snowy Hydro Limited 2017c). At Talbingo, the mean monthly maximum temperature ranges from 12.5° in July to 30.3° in January. Mean monthly minimum temperature ranges from 3.0° in July to 15.3° in January. Given Lobs Hole is elevated at ~200 m higher, some minor variation to the Talbingo temperatures would prevail.

Lobs Hole is a locality in a valley of the Yarrangobilly River, on the western side of the Great Dividing Range. The valley is within a broader area of steep, mountainous terrain. Upstream of Lobs Hole, the Yarrangobilly River, Wallaces and Stable Creeks, become narrow, precipitous and gorge like. Lobs Hole is out-of-the-way, and being a valley of gentle topography and amenity, is a locally uncommon environment.

The valley is comprised of river flats, gentle gradient slopes and elevated crests. Situated at an elevation just below 600 m, the valley is likely to have provided respite throughout the year from the weather of the surrounding high country. It is difficult to recreate the pre-European environment of the valley with any great certainty. However, it is likely to have provided a relative abundance and diversity of flora and fauna, in addition to a reliable source of potable water and firewood. The Lobs Hole valley is likely to have been used regularly by Aboriginal people throughout the annual cycle of movement through country. The material manifestation of that

occupation is likely to be present as a relatively high density artefact distribution across the landscape.

Lobs Hole has been used since the early 1800s for the movement of stock, prospecting, grazing, settlement, refuge from the winters of Kiandra, gardening and agriculture, copper mining (from 1860s - ~1917) and recreation. Accordingly, the landscape has suffered relatively high levels of prior disturbance from discrete impacts such as building construction, mining and so on, but also more broadly from agriculture, grazing and erosion. The Lobs Hole Ravine Road is locally disturbed by direct impacts associated with road construction and electricity easement clearing.

During the construction of the Snowy Scheme, Lobs Hole was used during surveying work. A major surveying camp was set up by Major Clews at Lobs Hole (at the junction of the Yarrangobilly and Tumut rivers and now under water) and the Wallace Creek camp was apparently located near to the junction of Wallaces Creek and Yarrangobilly River (Rodwell 1999 - exact location unknown).

The 330kV transmission line from the Cabramurra switchyard traverses the Lobs Hole valley in a north/south alignment. During the construction of the Snowy Scheme, Lobs Hole was a recreational destination for workers. After the project was finished, these men met there for reunions when they enjoyed fishing, knife throwing competitions and the like. Lobs Hole continues to be used periodically for camping and fishing.

The Plateau and Plains

Marica, Gooandra, Kiandra and Tantangara are sub-alpine and montane environments at the northern end of Kosciuszko National Park. The landscape is comprised of a broad undulating plateau which gives way to the valleys of Tantangara Creek, Eucumbene River and Murrumbidgee River (Plates 4 and 5).

Frost, snow and cold weather conditions are typical of winter, but can be experienced at any time of the year. These harsh conditions create frost hollows in the valleys where cold air drains through the valley bottom. The cold air inhibits the growth of trees resulting in a reverse treeline effect, with snow grass and alpine heaths growing down in the valley, while Snowgums and Black Sallees are confined to the ridge tops (Cameron-Smith 1999).

The climatic conditions range from sub-zero temperatures with snow cover for at least one month of the year to recorded maxima of over 30 degrees in summer. Large daily temperature fluctuations are experienced resulting in regular freeze/thaw conditions during the colder half of the year.

Soils in the sub-alpine area have low nutrient availability due to high acidity and are highly permeable leaving them susceptible to severe erosion if the vegetation is disturbed (McKenzie *et al.* 2004).

The Murrumbidgee River flows eastward and eventually south through the Tantangara valley where it is now dammed (Plate 4). The Eucumbene River flows southward through the undulating snow grass plains surrounding Kiandra (Plate 5).



Plate 4 The Murrumbidgee River immediately upstream of the Tantangara Dam wall showing a typical treeless plain. Photo taken during construction of the wall. Source: Steve Brayshaw.



Plate 5 The Eucumbene River flowing eastward through the Kiandra historic landscape.

Climate

Climate is a strong occupational determinant within the Snowy Mountains region. Snow cover and low temperatures during winter months are likely to have meant that Aboriginal land users would have avoided the higher altitude zones during this time.

Until recently, the evidence for human activity above 1,000 m elevation in the Snowy Mountains did not extend back any further than 4,000 years (Aplin *et al.* 2010). However, recent archaeological research has confirmed an Aboriginal presence in the Snowy Mountains since the early Holocene, from around 9,000 years before present (BP) (Aplin *et al.* 2010; Theden-Ringl 2016).

The glaciation of the Snowy Mountains was over by 16,000 years ago. However, a return to cool conditions occurred during the Younger Dryas c. 13,000-11,500 years ago. During the early Holocene, beginning around 10,000 years ago and continuing until c. 6,000 years, warm conditions prevailed. The current tree line had attained its position at about 10,000 years ago. Peat was forming in moist sites at 1,000 m asl before the Younger Dryas; by the early Holocene it was forming in higher elevation sites (Aplin *et al.* 2010). Wet sclerophyll forest elements register in the palynological

records from the early Holocene until c. 4,000 years ago and a rapid growth of mires occurs through the same period (Aplin *et al.* 2010).

Recent analysis of the mammal assemblage from excavations at Yarrangobilly suggest that the local environment in the early Holocene included significant areas of wet sclerophyll forest and was likely to be have been of higher overall productivity than modern communities (Aplin *et al.* 2010). The material indicates the presence of a mosaic understory structure and composition including moist, dense patches and more open communities each supporting different suites of animals (Aplin *et al.* 2010).

Discussion

Beyond the construction of roads and easements, much of the surface works of the project area are located on the Hume Slopes in association with the Talbingo Reservoir and in the vicinity of Lobs Hole. The substrate there includes Devonian ravine beds composed of conglomerate, sandstone and siltstone; the Licks Hole Limestone and caves occur immediately south. Surface works also occur associated with the Tantangara Reservoir, where the Kellys Plain volcanics substrate includes dacitic ignimbrite, rhyodacite ignimbrite, tuff agglomerate and rhyolite. Roads and easements link the two reservoir and transport routes to the south, traversing numerous geological units and landforms. Aplin *et al*. (2010) notes that sites older than 4,000 years have not yet been found in the Australian Alps, despite evidence in Tasmania occurring throughout the Late Pleistocene (However, see Theden-Ringl 2016; 2017). Previously, only sparse lithic scatters have only been found above 1,200 m asl. The distribution and integrity of archaeological sites occurring within the area is likely to be affected by the physical setting described above and is briefly considered below.

The occurrence of karst landscapes within the area is significant, particularly given at least one is known to contain archaeological materials. The Yarrangobilly Limestone is known to include archaeological sites within a substantial cave system and are located immediately upstream of the surface works around Lobs Hole (Figure 15). Alternatively, the Cooleman Limestone is located in the highlands at the north east of the project area.

The distribution of archaeological sites is likely to be affected by the occurrence of sources of knappable stone material. From the available lists of lithological materials, *basaltic tuff* and *chert* are the most likely materials to include a conchoidal fracture suitable for knapping, although descriptions are not detailed enough to confirm. Figure 15 shows the distribution of basaltic tuff and chert within the project area. Units in which chert or tuff are dominant occur within the highlands, increasing the probability that that region was exploited in the past. Where tuff or chert is recovered from archaeological sites within the project area, comparison with

materials collected from the known outcrops may be appropriate. In that manner, potential quarry sites may at least be excluded as a potential source; at most, evidence for quarrying may be observed.

Other notable resources include granitoid tors present within the alpine and subalpine region, which have been considered significant Aboriginal site locational determinants given that they provided both food resources (as moth aestivation sites) and shelter from weather.

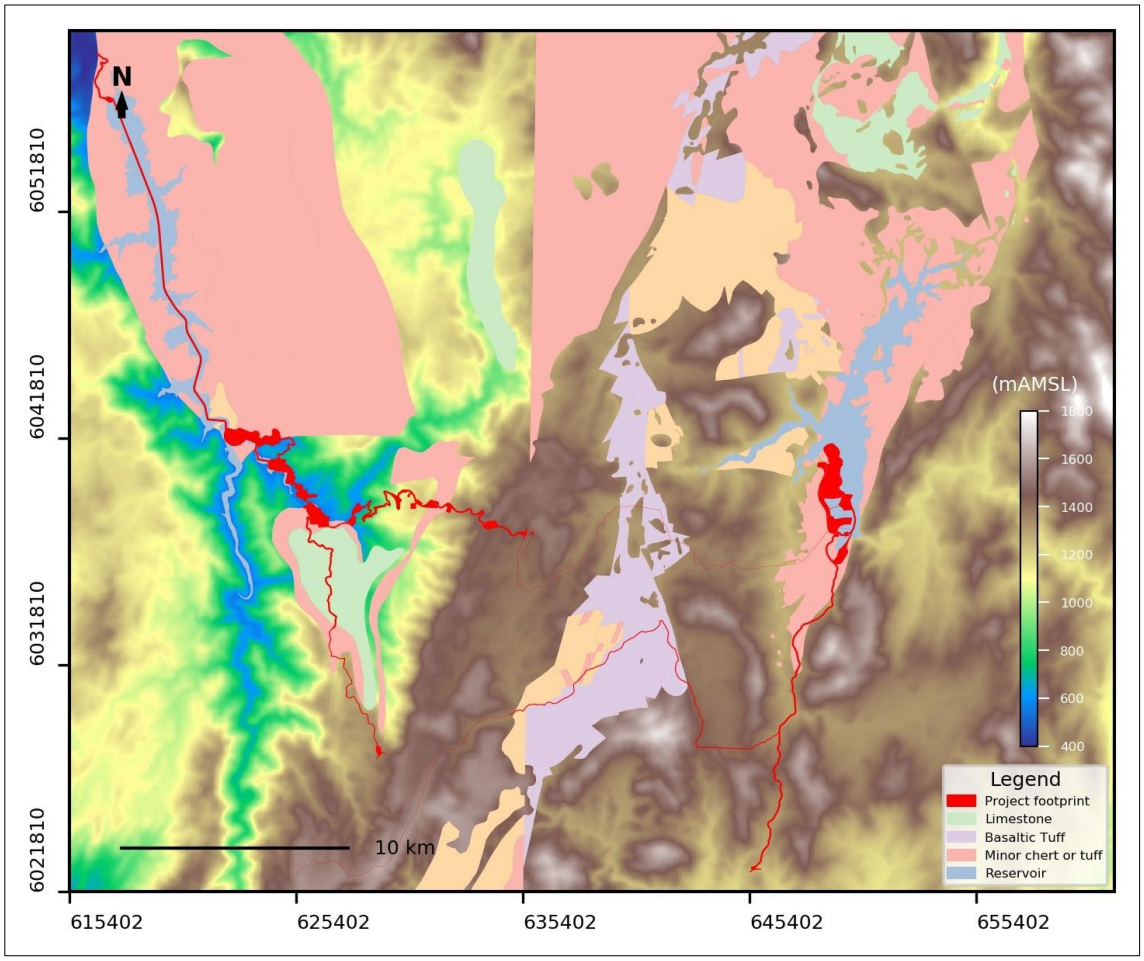


Figure 15 Spatial distribution of landscape resources within the project area (Wyborn *et al.* 1990).

Evidence of human occupation may occur around each landscape resource but also between them. Tracing potential routes between them all may not be feasible here, however, at a basic level, movement between the resources of the lower Hume Slopes to the highlands is a reasonable consideration. Elevations shown in Figure 9 indicate that the lowest area over the escarpment occurs at approximately the most southern extension of the Yarrangobilly Limestone. The primary travelling route into the highlands may simply have been along the course of the Yarrangobilly River, towards the Yarrangobilly Caves, and then directly into the highlands. Although,

examination of the slopes in Figure 12 show that the steepest occur immediately adjacent to the course of the Yarrangobilly River. Indeed, an easier route would have been along a tributary of the Tumut River downstream of the project area, at Journama Creek. The distance between the headwaters of Journama Creek and Yarrangobilly River is approximately two kilometres over gentle slopes; from there the Yarrangobilly Caves and the highlands could be conveniently accessed. Of course, convenience cannot be regarded as a definitive predictor of human behaviour.

The increase in sediment yield caused by the arrival of European land practices (Gale and Haworth 2002) and the effect on archaeological site integrity has been limited by the general inaccessibility of the region, and the subsequent protection of the vegetation as part of the Kosciuszko National Park. Notwithstanding natural processes, archaeological sites located within the project area are therefore likely to be of higher integrity than commonly found elsewhere in Australia.

The high elevations and steep slopes of the project area (Figures 11 & 12) promote colluviation, which is likely to be the dominant natural impact to archaeological site integrity. Sedimentological characterisation of a colluvial deposit is unlikely to resolve the degree of archaeological integrity given that the colluvial clasts would have an indeterminably different history to emplaced archaeological objects. Instead, the problem would require archaeological consideration. For example, colluvial action generally has the effect of dispersing materials, so the occurrence of a cluster of gravel clasts with a single probable origin (such as knapped lithic material), would be sufficient evidence of good site integrity, whereas a background occurrence would not. The numerical limits of what defines a background occurrence relative to a preserved cluster would have to be obtained experimentally from excavation results. A unique feature of preservation within the project area is the occurrence of peat deposits as a result of cold temperatures and wet subsoil environments. Rare organic archaeological materials may be preserved within any of the numerous peat deposits occurring on level-flat landforms in higher elevations (see Figures 10 & 11). In regard to the impact footprint of the project, the area around the Tantangara Reservoir may be viable, or perhaps more practicable would be monitoring of roads or easements that may be required to cross peatland. The critical limiting factor for preservation of such materials would be the frequency of inhabitation of those areas in the past; notwithstanding the cold temperatures, peat deposits are notoriously difficult to traverse. Certainly, preserved organic materials would be rare and infrequent.

4.2 Human Adaptation to Cold Climate Environments within Australia

People have lived within the cold climate environments of the Australian continent for at least 40,000 years (Cosgrove & Allen 2001). Initial migrations into Australia at least 65,000 years ago led to the rapid dispersal of Aboriginal communities along the coastal margin, with genetic evidence suggesting an initial arrival in the south by 44,000 BP (Clarkson *et al.* 2017; Tobler *et al.* 2017). This rapid dispersal through

a range of varied landscapes, from the tropical north to the cool-temperate south, demonstrates that these early colonisers were highly adaptable peoples, able to transform and develop a range of technologies to best utilise their new environment.

While models of early human movement across the Australian continent have focussed in some detail on spatial variation, relatively little attention has been afforded to elevational adaptability on a deep time scale. The most detailed study of human adaptation to cold climates within the Australian context has been in Tasmania, where long-term detailed studies of Aboriginal occupation of the south west of the island have revealed complex and nuanced strategies for survival.

This section investigates the ecological context of human occupation within the South East Highlands over the last 21,000 years, drawing comparisons to adaptive strategies identified within the Tasmanian archaeological record.

4.2.1 Palaeoecological Context of Aboriginal Occupation Within the Snowy Mountains

The occupation history of the South East Highlands and broader evidence of human adaption to these cold climate regions needs to be placed within the context of the broader landscape dynamics. The stability and seasonality of the climate, the types of vegetation within the landscape and the animals that inhabit those areas as a result, will all directly influence not only the adaptations which are required for life in these alpine and subalpine landscapes, but indeed whether permanent settlement is even possible.

Relatively little research has been focussed towards a detailed palaeoecological reconstruction of Australia's alpine regions, particularly within the Snowy Mountains. Presented here is a summary of palaeoecological change – that is, change which incorporates the whole landscape ecosystem, including climate, temperature, vegetation and fauna – within the timescale of Aboriginal occupation of southeast Australia over the last 40,000 years. Ecological change will be addressed under five broad time slices found to be common across much of broader southeast Australia:

- The glacial period (40,000 – 18,000 BP);
- The deglacial period (18,000 – 12,000 BP);
- The early Holocene (12,000 to 6,000 BP);
- The mid Holocene (6,000 to 4,000 BP);
- The late Holocene (4,000 BP to present).

The glacial and periglacial period (40,000 – 18,000 BP)

Within the South East Highlands, the period between 40,000 BP to 18,000 BP is characterised by glacial and periglacial conditions, dominated by a cool, arid climate. These cold conditions peaked during the Last Glacial Maximum (LGM) between ~22,000 BP and 18,000 BP (Turney *et al.* 2006), with temperatures across southeast

Australia estimated to have reduced by between 3.7°C and 6.5°C relative to today (Colhoun *et al*. 1999; Fletcher & Thomas 2010). Sea surface temperatures were also affected during this time, reduced by between 3°C to 5°C along the southern NSW coast (Bostock *et al.* 2010). Based on modern temperature data, summer maximum temperatures during this period would have reached between 15.5°C and 18.5°C, dipping as low as -3.5°C to 0°C during winter (Australian Bureau of Meteorology 2019).

Based on the models of settlement within Australia and associated archaeological and genetic evidence discussed previously, it is unlikely that the southeast highlands were occupied prior to the Early Kosciusko Glaciation at 59,300±5,400 BP (Barrows *et al*. 2001). The second period of glaciation within this region occurred some 25,000 years later, starting with the Headly Tarn Advance at 32,000±2,500 BP (Barrows et *al*. 2001). Archaeological evidence has confirmed that an Aboriginal presence had been established in the subalpine zone by the second glacial advance at 19,100±1,600 BP (Blue Lake) (Barrows *et al*., 2001; Flood *et al*., 1987; Ossa *et al*. 1995). The third and final glacial advance occurred at Mt Tywnam (16,800±1,400 BP) (Barrows *et al*. 2001).

Cooler temperatures and higher wind speeds resulted in a landscape characterised by sparse vegetation cover in the alpine zone, dominated by feldmark and then short alpine herbfield towards the end of this period (Raine 1974). Grasses (Poaceae and Asteraceae), *Casuarina* and low shrub species including *Podocarpus* dominated the slightly milder subalpine zone during this time. This environment likely restricted the range of potential prey species available to Aboriginal communities, which may have contributed to the apparent absence of people within this alpine landscape at this time.

The postglacial period (18,000 – 12,000 BP)

Significant environmental change occurred throughout south-eastern Australia immediately following the LGM. Commencing at 18,000 BP, rising temperatures resulted in the rapid retreat of glaciers in both the Snowy Mountains and the highlands of Tasmania (Barrows *et al*. 2004, 2001). On a global scale, the melting of ice sheets and glaciers freed large amounts of fresh water leading to higher rates of precipitation and increasing sea levels. Pollen records show a widespread decline in herbaceous and shrubby vegetation in cold climate environments and an associated simultaneous re-emergence of tree species including casuarina and *Eucalyptus* with the decline of herbs and shrubs *(*Hopf *et al.* 2000; Markgraf *et al.* 1986; Williams *et al*. 2006). Within the Snowy Mountains, pollen data from glacial cirques show an emergence of feldmark and snow patch communities by around 17,000 BP (Raine 1974) and by 13,000 BP, local tree communities are evident at upland sites (Kershaw & Strickland 1989; Martin 1999).

Within our current (limited) frame of knowledge, this rapidly changing landscape represents the transition between the uninhabitable and the habitable. The increased density of vegetation across the region would likely have encouraged the upslope expansion in the ranges of various mammalian fauna including the kangaroo, emu and the cold adapted wombat. Possums and bird life would have taken advantage of the increased distribution of tree cover and a greater variety of edible vegetation would have become available. It is in this context that we see a burgeoning of archaeological evidence of occupation moving into the Holocene.

The early Holocene (12,000 – 6,000 BP)

The number of palaeoenvironmental records for south-eastern Australia, and the Snowy Mountains more specifically, increases significantly at the start of the Holocene, 10,000 – 12,000 years ago. The postglacial trend of increasing warmth and precipitation continued, reflected in both terrestrial (Stanley & Deckker 2002) and deep-sea cores (Gingele *et al*. 2007). The stable climate of the last glacial cycle also began to break down during the early Holocene, resulting in increased variability through time and across geographic regions for both precipitation and temperature. Sediment cores from Blue Lake, located to the south of the current study area, recorded a progressively varied climate throughout this period with increasing precipitation punctuated by periods of aridity (Stanley & Deckker 2002). Within the Snowy Mountains, pollen cores show that the tree line had risen to its current position by 10,000 BP (Kershaw & Strickland, 1989; Martin, 1999), and in the south, snow patch and feldmark communities had stabilised by 8,400 BP (Raine 1974).

The Holocene Optimum, a period of globally increased temperatures between 10,000 BP to 4,000 BP, manifests within the south-eastern Australian Alps with a significant expansion of wet sclerophyll forest and *Pomaderris* understory starting at 9,700 BP (Hope *et al*. 2009; Kershaw & Strickland 1989; Martin 1999). This record is supported by a fossil mammalian assemblage excavated from the archaeological site Yarrangobilly Y259, located within the current project area. The range and distribution of species within this record suggest a local environment dominated by a mosaic wet sclerophyll community of higher overall productivity in comparison to today (Aplin *et al*. 2013).

The development of these kinds of complex vegetation communities within the highlands at this time dramatically increased the range of resources available to Aboriginal people while at the same time potentially limiting the ease of access to the region. The assemblage from Y259 demonstrates that many of these resources were certainly being utilised, including red-necked wallabies, rock wallabies, possums and bandicoot, although a clear preference for medium-sized to large mammals is evident (Aplin *et al*. 2013).

The mid-Holocene (6,000 – 4,000 BP)

By the end of the mid-Holocene, the influence of the Holocene Optimum had begun to wane as a more pronounced El Nino mode of ENSO led to a greater incidence of dry intervals (Reeves *et al*. 2013). This variability is highlighted in pollen records from the Snowy Mountains which indicate decreasing wet sclerophyll forest communities from 5,200 BP to 4,500 BP, signalling both drier and cooler conditions (Hope *et al*. 2009; Kershaw & Strickland 1989; Martin 1999). This shift coincides with the start of the Neoglacial period across south-eastern Australia, characterised by cooler conditions and increased geomorphic activity leading to an overall pattern of episodic drying and wetting across the Snowy Mountains (Costin 1972; Martin 1999; Marx *et al*. 2010; Porter 2000).

These changes to vegetation communities across the Snowy Mountains landscape would also have increased access to the region. Indeed, it is interesting to note that at a regional scale, Aboriginal occupation of the Snowy Mountains increases towards the end of the Holocene Optimum at around 4,600 BP (Aplin *et al*. 2013; Kamminga *et al*. 1989; Williams *et al.* 2013). These landscape level changes would also have influenced the resources available to Aboriginal communities, with larger herbivores such as wallabies, wombats and kangaroos taking advantage of the increasing range of grasslands.

The late Holocene (4,000 BP – present)

The climate during the late Holocene across south-eastern Australia was highly variable relative to the conditions experienced over the last 20,000 years, largely driven by a strengthening of ENSO and increased influence of the Indian Ocean Diploe *(*Gliganic *et al.* 201*4;* Gouramanis *et al.* 2013; Marx *et al.* 2010; Petherick *et al.* 2013). By 3,000 BP, the effects of the Neoglacial across the Snowy Mountains were marginal and temperatures were on their way to modern ranges (Vernon 2017). Cores from Blue Lake in the southern Snowy Mountains show evidence of a highly variable climate (Vernon 2017), including periodic large storm events throughout the last 1,600 years (Stanley & Deckker 2002). The intensification of the mid-latitude westerly winds during this period would have brought increased precipitation in the form of both snow and rain (Theobald *et al*. 2015). Increased fire regimes are also observed within this period (Black & Mooney 2006), likely reflecting both the more friable nature of the landscape and the increased presence of people within it.

The transition to modern subalpine and alpine environments across the Snowy Mountains during the late Holocene led to the formation of the unique floral and faunal communities seen today. Faunal resources would likely have included species adapted to the mosaic of open grasslands and open stands of eucalypts such as gliders, possums, antechinus, kangaroos, wallabies, rodents and wombats.

A marked increase in evidence for alpine occupation occurs over the last 4,500 years, with 70 per cent of dated alpine or subalpine sites within the Australian Alps occupied during this period (Williams & Smith 2013). As previously discussed, accessibility into the region may have contributed to this pattern to some degree, however it is also essential to consider the role of survey coverage and preservation in such interpretations. As noted earlier, very little of this region has been systematically assessed for evidence of Aboriginal occupation and even fewer of the already known sites have characteristics which make them conducive to the preservation of organic materials.

4.2.2 Aboriginal Occupation of the Snowy Mountains

Human occupation of south-eastern NSW dates from at least 20,000 years ago as evidenced by dated occupation sites including the Burrill Lake rock shelter (Lampert 1971), Cloggs Cave (Flood 1980) and New Guinea 2 Cave (Ossa *et al*. 1995). The Bulee Brook 2 shelter in the south coast hinterland ranges, excavated by Boot (1994), provides evidence that occupation of this zone had occurred by at least 18,000 years ago. In the south-eastern highlands, excavation of the Birrigai rock-shelter has provided dates of occupation from 21,000±200 years BP (Flood *et al*. 1987: 16).

Mulvaney (1992: 10) has argued that Pleistocene occupation of the alpine region may be presumed and '… particularly in the presently forested valleys'. While Pleistocene occupation of the Snowy Mountains has also been put forward as a theory by Kamminga (1992), this remains to be confirmed. The most current evidence does, however, indicate systematic usage of the high country since the early Holocene (Theden-Ringl 2016). Flood *et al.* (1987) argued that the Birrigai shelter on the northern fringes of the Alps provided evidence of Pleistocene occupation dating from about 21,000 years ago. The scarcity of artefacts in the Pleistocene levels was interpreted as showing seasonal occupation of the site. Flood *et al.* (1987) argued for an increase in occupation of the site from about 3,000 years BP and, on this basis, suggested that permanent exploitation of the alpine and sub-alpine regions of the Snowy Mountains began from about 5,000 years ago.

Flood (1973) conducted a survey at Thredbo which was probably the first alpine field survey in Australia. She surveyed a one kilometre transect north - south across the north side of Thredbo Valley. No sites were recorded which led her to conclude that the valley may only have been used as a minor transit route in summer.

Survey results from lower elevation valleys on the Snowy River and around Jindabyne led Flood (1980) to develop a regional site locational model. This model proposed that sites were mostly located 50 - 100 m from a river bank and well above flood levels, on well drained ground (sometimes of steep gradient) rather than on low lying poorly drained alluvial flats, to have a northerly or easterly aspect in which protection from prevailing westerly and southerly winds is possible, and clustered

with larger sites situated around bends in rivers. Flood (1980) argued that these lowland sites were short term campsites used by Aboriginal people who occupied higher elevation locales during the summer months.

Flood (1980) drew heavily on the ethnographic literature regarding the summer Bogong moth exploitation to her regional model. She proposed that sites at higher elevations would have the following characteristics:

- Small sites and isolated finds could be found above the winter snowline (at c. 1,525 m asl). These sites would consist of pebble tools representative of moth exploitation;
- Small campsites would be located below the tree line and winter snowline (1,525 – 1,200 m asl). These sites would be representative of men's base camps related to the exploitation of the moth; and
- Larger campsites would be located below 1,200 m asl within montane valley contexts. These sites would be related to summer usage. However, Flood did concede that they may have been used at other times of the year.

Flood's (1973; 1980) work was the first regional framework of Aboriginal occupation of the Snowy Mountains. She presented a functional occupation model of seasonal usage (summer) of the highlands based on the exploitation of Bogong moths. Her model was heavily influenced by the ethnohistoric literature with a limited anchor in the archaeology. The moth, she argued, was important as an economic food source and that its exploitation may have been causal as the impetus for the initial usage of the highlands. As noted above, Flood (1973) argued that the occupation pattern which resulted from the exploitation of moths is one in which a series of camps extended from the lowest valleys below 300 m asl up to the alpine tree line zone at 1,830 m asl.

Since Flood's seminal work, further archaeological assessment has been undertaken within the region resulting in a revised understanding of Aboriginal occupation in the high country. A contrary viewpoint to Flood's (1973) model was put forward by Chapman (1977) who argued that there was no evidence which pointed to the moth as being a staple food source. She argued that, furthermore, there is no evidence that the moth was a reliable food source, and indeed, that it lacked nutritional value to act as a staple and, that the moth in any case, was primarily consumed by men. Chapman (1977) instead argued that the significance of moth exploitation was that it fostered social cohesion within the region.

Researchers such as Bowdler (1981), Cooke (1988), Gott (1982) and Kamminga *et al.* (1989) have drawn attention to a variety of vegetable and animal products available locally which are likely to have been utilized as food resources. Like Chapman (1977), Kamminga *et al.* (1989) also argued that the large inter-tribal gatherings which were associated with moth exploitation acted to mediate and foster political and social

linkages between the different language and tribal groups which came together during these occasions.

While the Flood (1973; 1980) framework for understanding Aboriginal usage of the Snowy Mountains has clearly been found wanting, a model of seasonal usage of the continues to have currency within the literature. Mulvaney and Kamminga (1999: 298) argued that during winter small groups of Aboriginal people would have occupied the lower montane valleys and the adjacent tablelands and that the region would have opened up considerably in summer. It was during the summer months that people from other areas gathered in the north of the mountains to perform inter-tribal ceremonies (Mulvaney and Kamminga 1999: 299). Like Flood (1980) and others, Mulvaney and Kamminga (1999: 299) argue that above 1,200 m asl, only small lithic scatters occur.

Until recently there was almost no dated studies of habitation at high altitudes (*cf.* Theden-Ringl 2016). While numerous lower altitude sites have provided occupation dates from the terminal Pleistocene, one of which is Birrigai referred to previously, only two high altitude sites have provided dates older than 3,000 years: Yarrangobilly Y259 (Aplin *et al*. 2010) and Nursey Swamp 2 (Rosenfeld *et al*. 1983).

Dates from six Namadgi rock shelters published recently by Theden-Ringl (2016) provide new information about the chronology of the Aboriginal presence in the Alps. The sites are all in a montane context in the Namadgi Ranges (c. 30 km east of Tantangara Reservoir), with altitudes ranging from 900 – 1,200 metres. Despite various constraints including taphonomic issues such as the suspected erosion of some cultural deposits, Theden-Ringl (2016) presents a broad occupation chronology of people in the Namadgi high country from almost 8,000 years ago. Importantly, the new dates establish the relative continuity of occupation from the Pleistocene-Holocene transition to the recent past. Theden-Ringl (2016) argues that the evidence fits a model of increased exploration and occupation, by generally low populations, in response to the opening up of ecological resources. These new dates do not clarify previous models of seasonal usage of the high country, nor the antiquity of moth feasting, but do contribute to an emerging continent-wide pattern of shifts in occupation through time.

Theden-Ringl (2017) has also produced a revised model of technological change for the high country based on her analysis of the lithic material from the Namadgi sites. She found no evidence to support Flood's (1973, 1980) regional model of a late Holocene technological transition from chert-dominated backed artefacts to a bipolar quartz industry. Nor did her evidence support cultural change associated with a blacked artefact proliferation at c. 4,500 to 3,500 BP (*cf.* Hiscock 2008). Instead, Theden-Ringl (2017) found technological shifts in morphometric decline, raw material diversity and the appearance of backed artefacts to occur in the last millennium.

4.2.3 Evidence for Cold Climate Adaptation: Comparisons with Tasmania

Aboriginal cold climate adaptation on a deep time scale is decidedly under researched within the mainland Australian context, with dated sites both rare and geographically widespread. The Tasmanian record stands in stark contrast, demonstrating not only that Aboriginal communities were living within both subalpine and alpine environments, but that they did so from *c.*40,000 years ago, only abandoning the south west of the island when the climate ameliorated at the start of the Holocene (Cosgrove & Allen 2001). During the late Pleistocene, these Tasmanians were the most southerly peoples on Earth, living as close to the Antarctic peninsula as those in the Northern Hemisphere were to the northern ice sheets.

Decades of research on the exceptionally well-preserved archaeological assemblages of the south west Tasmanian archaeological province has led to the identification of several adaptive strategies common across temporal and spatial scales. Foremost is the intensive and selective pursuit of the Bennett's wallaby (*Macropus rufogriseus)* (~70% NISP) and the Common or Bare nosed wombat (*Vombatus ursinus tasmaniensis*) (~25% NISP) (Cosgrove *et al.* 2010). While this pattern of resource use is consistent across each of the south west sites, the hunting and butchery patterns for each species remains unique. The hindquarters of the Bennett's wallaby were preferred with the IV and V metatarsal, femur and tibia all seemingly specifically targeted for bone marrow (Cosgrove & Allen 2001; Garvey 2010). The butchery pattern for the wombat is significantly different, focussed on the cranial, the anterior axial (region across the spine at the shoulders) and forelimb elements (Cosgrove & Allen 2001; Garvey 2006). Studies of modern comparative fauna have shown that each of these anatomical regions in the respective species is strongly associated with high proportions of polyunsaturated fatty acids (Garvey 2011; Garvey *et al.* 2016). Modern diets rich in kangaroo meat have been shown to be associated with elevated levels of arachidonic acid in blood plasma which, when combined with the higher levels of polyunsaturated fatty acids, may have resulted in a dietary advantage for people living in late Pleistocene Tasmania due the reduced risk of blood clots, strongly associated with cold temperatures (Cosgrove *et al.* 1990; O'Dea 1988). Further, the diets of hunter-gatherer societies in high latitude environments have been shown to become seasonally marginal and then inadequate as plant resources and dietary fat become increasingly unavailable (Speth & Spielmann 1983). In this context, and particularly during prolonged cold conditions such as those of the late Pleistocene, the development of an effective hunting strategy which maximises dietary fat throughout the year, and particularly through winter, would create a distinct adaptive advantage. The south west Tasmanian archaeological record suggests that people had indeed developed a highly strategic approach to both maximise yields as well as reaching seasonal calorific requirements.

The seasonal movement of people within, and utilisation of, the south west Tasmanian landscape has been demonstrated by several studies, suggesting that lowland sites were more commonly used during autumn and winter and upland sites over spring and summer (Cosgrove *et al.* 1990; Pike-Tay *et al.* 2008; Roberts 2017). This strategy has several implications for the adaptive use of this cold environment. Firstly, it is directly related to the extensive discussions on faunal utilisation and management which occurred across the 30,000 year occupation of the region – a regional strategy of moving between focal hunting locations to maximise returns in order to continually rejuvenate prey populations (Allen *et al.* 2016; Cosgrove *et al.* 1990; Cosgrove & Allen 2001; Cosgrove & Garvey 2017; Pike-Tay *et al.* 2008).

Secondly, it relates to the potential consideration of the thermal properties of the broader environmental context of the south west. Gilligan (2007) notes that the archaeological record suggests a positive correlation between increasing cold and increasing settlement of regions in the south of the island and at elevation. During the LGM, temperatures are estimated to have been between 3°C to 7°C colder than today, with a wind chill between -5°C and -10°C, dropping the temperature well below the modern human thermal physiological thresholds of -5°C (Gilligan 2010, 2007). Thus, the amelioration of wind chill within the sheltered valleys and cave sites of the south west may have played a significant role in the adaptive strategy used to survive in glacial/periglacial Tasmania (Gilligan 2007). This would have particularly been the case over winter, an observation supported by the evidence for seasonal occupation at these sites. Thermal consideration can also be seen in the characteristics of the south west sites, with preference given to those with a northerly or north-westerly facing aspect to give the greatest thermal warming (Gilligan 2007). The final line of evidence supporting thermal adaptive strategies in the south west is the ultimate abandonment of the region at the start of the Holocene when the climate began to ameliorate. Given that other regions were kept open by fire at this time (Cosgrove *et al.* 1990) Gilligan (2007) suggests that the changing need for shelter contributed to the cessation of seasonal visits into this rugged landscape.

Thermal adaptation to cold can occur through in three fundamental human behavioural responses: the use of fire, shelter and clothing (Gilligan 2007). The latter response is evident in all of the south west sites, with the exception of Nunamira Cave, in the form of bone points (Cosgrove *et al.* 1990; Webb & Allen 1990). Webb and Allen (1990) suggest that these bone points and bone tools could have been used for a wide range of thermal outcomes, including skin processing and cloak toggles; wallaby skins would have been ideal for use as clothing (Gilligan 2007).

To summarise, within the extremely rich late Pleistocene archaeological record of subalpine and alpine Tasmania we find numerous examples of adaptive strategies being employed by the most southerly people on Earth. A systematic and strategic use of the landscape and the resources within it ensured that the Tasmanians were

maximising their potential to meet their calorific needs by both reducing them – through occupation of sites which were under better thermal conditions – and targeting both specific species and specific elements within those species which returned the most nutritious meat and marrow. Numerous bone points within the south west sites suggest that late Pleistocene Tasmanians were able to further increase their thermal threshold through the manufacture of clothing, possibly utilising the numerous wallaby skins available to them via their hunting focus.

4.2.4 High Country Adaptations

The challenge that we face in making direct comparisons between the occupation records of Tasmania and the Australian Alps is the relative paucity of data – only a very small number of sites in and around the alpine and subalpine zone have been dated with an even smaller proportion occupied beyond 2,000 years BP. We are yet to understand in any detail when people first came to explore these highland landscapes and when and how they inhabited them. As previously discussed, in stark contrast to the south west Tasmanian record very little evidence is currently available to support Aboriginal occupation of the South Eastern Highlands beyond the earliest Holocene. Site Y259 at Yarrangobilly remains a single, isolated source of evidence into this early occupation, dated to 9,700 – 9,530 cal BP (Aplin *et al.* 2013). Discussions on the early patterns of highland occupation often draw upon other early occupation sites within the broader region, including Cloggs Cave (73 m asl), New Guinea II (~110 m asl), Wombeyan 1 (~600 m asl) and Birrigai (730 m asl). While these sites can certainly contribute to our understanding of how the boarder south east environment was used, they do not provide the necessary comparative data for detailed interpretations akin to the south west record.

Using the current evidence for the Holocene occupation of the South Eastern Highlands, what inferences can be drawn about mainland adaptation to these cold climate regions? The richness in the Tasmanian faunal and lithic records is unmatched in the mainland sites, with only Cloggs Cave (Flood 1974) and New Guinea II (Ossa *et al*. 1995) coming close. A clear fauna signature is not apparent within nor across the subalpine and alpine sites previously mentioned. Where analysed, there does appear to be a preference for medium sized fauna where bone has been attributable to human agency (Aplin *et al.* 2013; Ossa *et al*. 1995), although there is no evidence for the systematic exploitation of either species-specific elements or marrow. The bone from both Cloggs Cave (Flood 1974; Hope 1973) and Wee Jasper 99 (Theden-Ringl *et al*. 2018) have both been ascribed to non-human predation. Indeed, carnivore activity is also cited as the likely source of the crushed bone at New Guinea II (Ossa *et al*. 1995).

Moving beyond the adaptive use of terrestrial fauna, Bowdler (1981) and Gott (1982) have considered the role of vegetable staples in the diet of Aboriginal communities across south-eastern Australia. Of note amongst these resources is the yam-daisy

(*Microseris scapigera*), broadly distributed across New South Wales and Victoria, including at higher elevation in the Australian Alps. The yam-daisy features frequently within early ethnographic accounts, particularly within Victoria where it is noted more frequently than any other dietary plant (Beveridge 1889; Dawson1881; Mitchell, 1839; Morgan 1852). Murrnong grows well in the subalpine and alpine zones of the Australian Alps (Gott 1982) and several early ethnographic accounts describe its collection there (Helms 1895). Diets rich in animal protein must be offset by vegetable foods so as to maintain healthy body function (Gott 1982), an argument which has also been made in the context of the south west Tasmanian model (Allen *et al.* 2016; Cosgrove & Allen 2001). Based on its distribution, multi-season availability and the ethnographic evidence for late Holocene use, Bowdler (1981) has suggested that the yam-daisy may have served as a 'low-key' but reliable staple in the South Eastern Highlands, noting that there is no suggestion in the ethnohistorical literature that these plants were utilised only on a seasonal basis. While this has not been tested archaeologically, specific scope for investigations utilising techniques such as residue analysis have been flagged by researchers currently working within the subalpine and alpine zones (Theden-Ringl 2018).

As previously discussed, the dominant discourse surrounding Aboriginal occupation of the South Eastern Highlands has been the ethnographically documented seasonal exploitation of the protein-rich Bogong moth, which aestivates at high-elevation peaks over the summer months (Flood *et al.* 1987; Theden-Ringl 2016). While the use of moth in the highlands has been pushed back to the end of the late Holocene at Birrigai (Flood *et al.* 1987), little evidence has been found elsewhere, including at site Y259 where moths were found aestivating during the excavation (Aplin *et al.* 2013). Occasional visitation has been invoked for a large proportion of sites within the subalpine and alpine zones of the South Eastern Highlands, including Birrigai, Cloggs Cave, New Guinea II and Y259. Whether these occasional visits were based on a seasonal schedule has not been investigated, either due to the poor preservation of organic material, low sample sizes, or it being beyond the scope of the research. Argue (1995) has made the valid point that as most of the resources in the South Eastern Highlands were available all year round, the region has the economic prerequisites for year-round occupation. Resources were noted to include the rhizomes of a wide range of plants, birds, marsupial mice, brushtail possums, species of gliders, koalas, kangaroos, swamp wallabies, echidnas, native rodent species, fish, platypus, snake-necked tortoises and yabbies (Argue 1995: 35), demonstrating that the seasonal nature of the Bogong moth was very much the exception within this landscape.

An assessment of evidence for thermal adaptive strategies within the South Eastern Highlands shows a general preference for subalpine and alpine cave and rock shelter sites with an aspect within the 90° range between east and south (Table 7). This varies from the Tasmanian sites by 180°, argued to have given the greatest thermal warming (Gilligan 2007). As nearly all the mainland sites date to the Holocene, it is

possible that thermal considerations were not as necessary during the timeframe of occupation. Indeed, for sites occupied during the Holocene Optimum where temperatures exceeded those of today, thermal advantage may have been gained from choosing sites facing southeast, particularly if occupation occurred on a seasonal basis over summer. This line of evidence requires considerably more research before any behavioural advantage can be attributed to this pattern.

Table 7 Aspect of dated rock shelter and cave sites located within the subalpine and alpine zones of the Australian Alps.

Site	Aspect	Reference
New Guinea II	ESE	Ossa *et al.* 1995
Birrigai Rock shelter	SW	Flood *et al.* 1987
Cloggs Cave	S	Flood 1973
Y259	W	Aplin *et al.* 2013
Caddigat Shelter	N	Flood 1973
Bogong Shelter	N	Flood 1973
Yankee Hat 2	S	Flood 1973
Hanging Rock, Tidbinbilla	SE	Flood 1973
Boboyan Rock shelter	WSW	Theden-Ringl 2016
Bulls Flat rock shelter	NE	Theden-Ringl 2016
Middle Creek rock shelter	N	Theden-Ringl 2016
Gudgenby campsite	E	Theden-Ringl 2016
Nursery north rock shelter	W	Theden-Ringl 2016
Nursery south rock shelter	NW	Theden-Ringl 2016

Summary

The well-preserved and detailed archaeological record of Tasmania's occupation during the last glacial period demonstrates not only that Aboriginal communities were capable of surviving in such conditions, but that they thrived. The apparent absence of occupation in comparable environments on the mainland during this time is therefore somewhat of an enigma, particularly given the relatively close location of Tasmania to the South Eastern Highlands across the Bassian Plain. The most critical point to emphasise is the dramatic differences in the scope of the archaeological evidence between these two cold climate environments. A detailed, nuanced adaptive strategy has emerged from Tasmania because of the depth and detail of the data. It is likely that given time and research effort, a similarly detailed chronology and behavioural story will emerge from the cold climate regions of the south eastern mainland.

4.3 Ethnographic and Historic Context

As far as possible, an ethnographic and historical review of Aboriginal life in the region will be outlined below. However, our understanding of Aboriginal people in

this area, and the historical dimension of the colonial encounter has been reconstructed from scant records produced during a context of death and dispossession (Swain 1993: 115); it is sketchy and severely limited. Stanner (1977) has described the colonial and post-colonial past as a 'history of indifference', and this portrays both the substantive situation which prevailed and the general lack of regard for this history.

For a considerable period after Europeans arrived in Australia, no concerted ethnographic investigations were undertaken to learn about the society and culture of Aboriginal people. As a result, in trying to reconstruct the complex traditional cultures of Aboriginal groups, investigators of today are necessarily required to piece together, as best as possible, fragmentary information derived from the incidental annotations of disparate early observers (*cf*. Young 2000). As elsewhere, this applies also to the Aboriginal peoples who occupied the Snowy Mountains. Knowledge and understanding of Aboriginal social life and organisation in south-eastern New South Wales at the time of European occupation is minimal. Fundamental details relating to kinship, clan, territorial and religious organisation is scant.

Aboriginal language groups including the Wolgalu, Djilamatung and Ngarigo occupied the Snowy Mountains prior to European settlement (Boot 2000; Flood 2010; Tindale 1974; Wesson 2000). White settlers began to move into the Snowy Mountains during the early 1800s. European settlement ultimately resulted in the alienation of Aboriginal people from their traditional lands and changes in their cultural and economic relationships with country.

The study area itself is within the country of the Wolgalu people (Tindale 1974, Boot 2000a). The Wolgalu inhabited parts of the South West Slopes including much of the eastern Tumbarumba district, the headwaters of the Murrumbidgee and Tumut Rivers, Kiandra, south to Tintaldra and north east to near Queanbeyan (Knight 2010). This range may also have periodically included Mounts Kosciuszko, Cobberas and The Pilot (Boot 2000a; Howitt 1904; Tindale 1974). The Wolgalu shared borders with the Wiradjuri, Ngarigo, Ngunnawal and Djilimatang people. Tindale refers to some enmity between the Wiradjuri and Wolgalu, however, Cooke (1988) has emphasised the close cultural similarities that existed between them, citing intermarriage, shared social practices and regular trade.

Large-scale group interaction took place between these groups during highly formalised and carefully planned ceremonial events, typically incorporating ritual movement into the Wolgalu high country (Knight 2010). Occasions such as these were documented by Tom Wilkinson on the *Yallowin* run in the Tumut River valley in 1840 (Wilkinson 1970 cited in Knight 2010):

> The blacks used to come in from Yass, Wallaregang, Omeo and Mitta Mitta and hold corroborees at Yallowin. I have seen 300 there at one time … On a hill in front of Yallowin there still remains the mark of a ring made by a blackfellows'

> corroboree. The corroboree made men of the youths after they had attained a certain age.

The 'man-making' ceremonies at Yallowin involved a subsequent phase of movement to the Bogong Mountains where other known earth circle sites were incorporated into the ritual activity (Knight 2010). Knight (2010) suggests that Kiandra lies roughly mid-way between the significant places of the Bogong Mountains and Jagungal and may well have existed as an Aboriginal access route between them and other known ceremonial sites in and around Wolgalu country such as those near Yarrangobilly, Tantangara and the upper Goodradigbee River valley.

Howitt (1904) considered the Aboriginal people of the Kiandra area as *Bemeringal* or mountaineers:

> Those who live on the high mountains still further back are called the Bemeringal … from Bemering 'a mountain'. Perhaps strictly, the Bemering include the people living on the Manero tableland, and even those on the high country as far as Kiandra.

The relationships that existed between the regional groups is evidenced in the following (Pearse 1896 cited in Knight 2010):

> The blacks used to trade from tribe to tribe for stone tomahawks, boomerangs, and other weapons made from Boree wood, which would go to the blacks who lived more than one hundred miles away; they in exchange pipeclay, done up in roles. And stone knives were placed in these rolls of clay, these knives they call kiandra because they came from Kiandra in the mountains; the pipeclay came from Moneymoney (place unknown), it in booras (sic); fighting parties also used it.

There is very little historical information relating to the local Aboriginal people. Observations dating to the preceding 'traditional' phase of local Wolgalu life are limited to brief chance encounters in nearby country such as that between Henry Bingham and a small party of Aborigines at Yaouk Station in 1839 (Gillespie 1984: 31, cited in Knight 2010) and the campsites seen by the explorers Hume and Hovell in the Tumut River valley (Bland 1831: 22 in Flood 1980: 57). Shortly thereafter, it was noted in official census records that a Wolgalu group known as the 'Bolero band' with a 'King' from Kiandra was residing in the country between Kiandra and the Cooleman Plains (Cooke 1988; Knight 2010).

A review of the early historical literature relating to the pastoral industry and the movement of stock reveals that by the 1830s, Aboriginal people had forged close ties with white settlers and assisted in locating routes and the movement of stock though the mountains (for example *Murray of Yarralumla* as discussed in Wilson 1968). There is a reference in the literature to an Aboriginal man named Snowball in the

1870s, who hunted wild horses and broke them in to sell in auction (Australian Town & Country Journal 2 Mar 1872).

A perusal of the dairies of the early settlers suggests that in the early decades of the 1900s, Aboriginal people lived generally independently of the settler economy, but worked on occasion when it suited them, and on their own terms. Aboriginal men were highly regarded as extremely capable workers, and in and around the Snowy Mountains, relationships with the settlers appears to have been amiable.

4.4 MATERIAL EVIDENCE

4.4.1 OEH Aboriginal Heritage Information Management System

All Aboriginal object locales recorded during this assessment are now entered on the DPIE Aboriginal Heritage Information Management System (AHIMS). Thirteen searches of the AHIMS conducted on 29 March 2019 (Annexure 2) present the complete site inventory for the project area. The locations of Aboriginal object sites are shown in mapping in Annexure 3.

It is noted that the AHIMS register only includes sites which have been reported to the NSW DPIE. Generally, sites are only recorded during targeted surveys undertaken in either development or research contexts. Accordingly, this AHIMS search cannot be considered to be an actual or exhaustive inventory of Aboriginal objects situated within the local area or indeed within the study area. It is also noted that sites listed on AHIMS may be variable in their accuracy; it is not uncommon for grid references and/or the datum to be wrong.

Searches have been conducted of the NSW State Heritage Inventory and the Australian Heritage Database. No Aboriginal sites for the area were listed in either database.

4.4.2 Previous Archaeological Assessment in the Region

In this section, a summary of previous heritage studies conducted in Kosciuszko National Park is presented. The region has been the subject archaeological survey and assessment over many decades, however, only one study has been undertaken within the immediate area of the project (Johnson 1992), as discussed further below.

Flood (1973) included the local area in her regional prehistory of the highlands, as discussed above. She noted sites in the Kiandra, Boggy Plain and Mt Tantangara area. Flood also refers to the pass at Kiandra-Yarrangobilly as an Aboriginal travel route which, including Connors Hill and Adaminaby, contain 'traces' of Aboriginal usage. On the Bogong Mountains, Flood (1980: 176) recorded three sites in open flats, the location of which had been predicted from aerial photographs. Flood (1980: 176)

described these as containing small numbers of artefacts. She compared them to a large site found at the Yarrangobilly River, with the inference that larger sites would be found in the main valleys. Additionally, Flood (1980: 176) indicates that Yarrangobilly is situated within a natural direct route situated between the lower Tumut Valley and the Monaro Tablelands as it passes between the Bogong Mountains to the east and the gorge country of the Upper Tumut River to the west.

Flood (1980) recorded several open artefact scatters further south along this natural direct route. One large site was recorded in the saddle at Connors Hill. The site is described as containing between 21 and 100 artefacts (her size class 3). Artefacts from this site were collected; they included backed blades and manuports and a backed scraper made of glass. In addition, she recorded a site at Kiandra and one on Tantangara Mountain. The Tantangara site was located on a saddle and consisted of a few small tools and one backed blade. These artefacts too, were collected from the site.

Flood (1980) described the *Rings* bunan site located on the Bogong Mountains. This earthen ceremonial site is situated in a natural frost-hollow clearing. Another earthen ring site is reported to exist on the Cooleman Plain, although Flood (1980: 146) reported that its location had not been determined.

Cooke (1988) conducted an archaeological investigation of the Cooleman Plain and found that while sites did occur at lower elevations in the open valley, primarily they were located between 1,200 m – 1,450 m elevations, within the tree line. These sites were interpreted to reflect longer-term occupation sites. Additionally, Cooke (1988) found that sites tended to be situated in the lee side of surrounding hills. Cooke's (1988) analysis of stone artefacts revealed that artefacts made on locally acquired stone were amorphous while those made on finer grained, potentially imported stone, were flaked more intensively and produced identifiable tool types such as backed blades. Cooke (1988) examined the deposition of human remains found in a small cave at Blue Water Holes. Several stone quarries were recorded, including a basalt hatchet head quarry.

Navin (1989, 1990) conducted surveys of high altitude areas associated with radio communication tower developments within the Snowy Mountains. Four artefact scatters were recorded during these surveys. All sites were small in area and contained low artefact densities and numbers. Most raw materials were quartz and silcrete. All occurred on grassed, relatively flat, well drained ground, in generally sheltered contexts within or adjacent to Snow Gum woodlands. Sites were not found in exposed and/or heath dominated contexts.

Navin (1989) conducted a survey on the Mt Tantangara summit in response to a proposed mobile repeater and trunk microwave communications facility. No sites were found on the summit; however, one site and an isolated find were recorded on

the mountain slopes. The artefact scatter is located on an extensive area of alpine grassland on a ridgeline saddle between Mt Tantangara and Sawyers Hill. The site was found to be associated with a small spring in a tea-tree thicket. Artefacts were distributed across an area of 800m². Raw materials recorded at the site included mudstone, silcrete and quartz.

Navin (1990) conducted a survey of Mt Gooandra. No sites were recorded, and the area was considered to be of low archaeological sensitivity.

Navin (1991) conducted a survey of two sections of existing transmission line easements, one extended from the Tooma River to Roaring Mag Mountain at Yellow Bog, and the other from Scammels Ridge to Dargals Fire Trail. The Tooma to Yellow Bog easement falls between two broad landscape elements: basal slopes of the upper catchment of Yellow Bog Creek and a ridge and spur complex which forms the western extension of Jagumba Mountain and the watershed between Yellow Bog Creek and Tooma River. One site consisting of four stone artefacts was found on a track on a basal hillslope. All artefacts were made of chert. The site was interpreted to be representative of a sparse scatter. The Scammels Ridge to Dargals Fire Trail easement consists of steep slopes and ridge and spur crests, in addition to a creek line.

Johnson (1992) documents the results of the Kosciuszko Baseline Study. This report lacks sufficient detail which might have made the results useful in a predictive modeling exercise. An area at the Tooma Reservoir situated around the Pearces Creek inflow was inspected. Visibility was 'excellent' and a basalt flake and a flaked pebble were found. The Manjar Fire Trail at Emu Plain was surveyed; however, no artefacts were found. A low density artefact scatter was found on Four Mile Hill Fire Trail (Johnson 1992). Numerous sites were recorded at Lobs Hole. The Gulf Bend area situated 1-2 km downstream from Tantangara Dam wall was surveyed, at which time eight artefact scatters were recorded, most of which were situated on ridgetops and knolls (Johnson 1992). Chert artefacts dominated the assemblages and a black chert flaking floor was recorded at one site (Johnson 1992: 130).

Saunders (1995) surveyed Four Mile Hill Fire Trail in response to a road upgrade proposal by NSW NPWS. Six low density artefact scatters, including a site previously recorded by Johnson and Jones (1991) and four isolated finds were recorded. The sites were distributed along ridge slopes and a ridge crest. The largest site with the highest number of artefacts was found in an upper slope context below the crest of the ridgeline. The assemblage was dominated by quartz and a material identified to be either tuff or siltstone.

Boot (1999) surveyed Quarry Road, west of the Tantangara Reservoir. Approximately 3.5 km of road was surveyed at which time nine artefact scatters and two isolated finds were recorded. Sites were found to be situated on flat spur crests

or in locations adjacent to creeks. This was argued to be typical of the area (Boot 1999). Sites were located between 1,240 m and 1,260 m AHD elevations and Boot (1999) suggested that this pattern reflects an avoidance of cold air drainage in the valley floor.

Taylor (2000) conducted a further survey on Quarry Road to fully assess the sites as previously recorded by Boot (1999). Taylor relocated the sites, and in addition, recorded two more. Most were assessed to be low density artefact scatters, typical of the region. One site was, however, interpreted as a potential base camp given the large number of artefacts it contained and its location on a flat spur crest overlooking the Murrumbidgee valley (Taylor 2000).

Barber (2003) surveyed selected areas near Tantangara Reservoir and the Goodradigbee River. These areas are situated at between 1,000 m and 1,400 m AHD. No sites were recorded; however, prior disturbance was found to have been significant and, generally, the areas were assessed to be of low potential given the steep nature of the terrain.

Boot (2000b) conducted a survey at Denison on the northwest shore of Lake Eucumbene. Two previously recorded sites were located. These had been recorded during the Kosciuszko National Park Baseline Study (Johnson & Jones 1991). Four artefact scatters and three isolated finds were recorded by Boot (2000b). All sites were found to lie between the 1,200 m and 1,160 m AHD contours and to be situated on broad flat ridges and spur crests, and on alluvial flats near watercourses. Boot (2000b) found that this site distribution pattern suggested that cold air drainage seemed to be less of a constraint at Denison as it appeared to be elsewhere. The site contents were found to be consistent with other local areas (Boot 2000b). Sites were found to be small assemblages of dispersed artefacts dominated by chert, volcanic and quartz materials. The artefacts were predominantly flakes, flaked pieces and cores. Two sites were noted to possess considerable amounts of pebble and quarry cortex on their artefacts. All quarry cortex artefacts were made of chert, suggesting to Boot (2000b) that a quarry exists in the area. Pebble cortex was found on quartzite and volcanic artefacts. These artefacts were probably sourced from the Eucumbene River (Boot 2000b).

Dibden (2003) surveyed a hillslope and crest at Mt Selwyn in response to a proposal to install an underground power cable. No sites were found; however, the area was assessed to have some potential. It was recommended that the site should be monitored during construction, at which time no Aboriginal objects were located.

Dibden (2004b) conducted a survey of several Snow Chain Bay locations proposed by the RTA on the Snowy Mountains Highway between Adaminaby and Kiandra. Despite high levels of prior disturbance associated with previous road works one artefact scatter was located on a basal hillslope near Connors Hill.

Dibden (2004c) conducted an assessment for Snowy Hydro of an area of land immediately adjacent to the Eucumbene Portal Electrical Substation, KNP, in relation to a proposed relocation of the existing substation access track. No Aboriginal objects or archaeologically sensitive landforms were recorded. The proposal area was assessed to be of negligible archaeological potential.

Knight (2004) carried out an archaeological assessment of the Yaouk and Scabby Range Nature Reserves. The survey included a series of transects across a range of inter-montane valley, ridgeline and range top locations between 1,100 m and 1,725 m AHD. Thirty nine Aboriginal sites were recorded including 24 artefact scatters, 14 isolated finds and one Aboriginal stone arrangement. In the Scabby Range, most sites were found in association with basal slope and spur features in valley contexts, with strong correlations evident between sites and low gradient surfaces overlooking or in direct proximity to permanent water sources such as creeks and swamps (Knight 2004: 28). In the more elevated terrain of Yaouk, strong correlations were evident between artefact scatters and low gradient crest and basal slope features slightly elevated above watercourses (Knight 2004: 29). In the case of the inter-montane valleys, a trend for artefact scatters to occur in association with the snow gum/grassland ecotone was also noted (Knight 2004: 33).

Dibden (2006) carried out an Aboriginal archaeological assessment of a proposed water pipeline between Three Mile Dam and the snowmaking pond at Selwyn Quarry. The survey route comprised a three kilometre corridor that traversed a series of simple slope and ridge crest landform units associated with the major ridge feature dividing the Three Mile Creek and Bullocks Head Creek catchments. No Aboriginal objects were recorded during the survey. It was suggested that the lack of Aboriginal material was probably attributable to the local environment's low biodiversity with no permanent water as well as with significant prior disturbance (Dibden 2006).

Feary and Vincent 2007 conducted a desktop assessment of Kiandra's Aboriginal heritage for the 2007 Precinct Plan. The potential for the Kiandra area to have attracted occupation was assessed as relatively low due to its perceived lack of resources and generally cold and 'barren landscape' (Feary & Vincent 2007). Limited Aboriginal economic activity was seen to have probably centred on the Eucumbene River and other local streams during the warmer months, with some camping taking place in the grassland/snow gum woodland ecotones (Feary & Vincent 2007: 11). It was hypothesised that the primary role of Kiandra in the cycle of Aboriginal landscape use was as a corridor of movement associated with the exploitation of bogong moths at the high peaks, associated ceremonial activity and as a possible source of stone for making 'knives' (Feary & Vincent 2007: 12). A predictive statement suggested the primary form of archaeological evidence likely to occur would be scatters of flaked or ground stone artefacts located on elevated and well drained land close to creeks (Feary & Vincent 2007: 30).

An archaeological survey of the Mt Selwyn Resort area was conducted by Knight in March 2009. In the course of this study it was predicted that the majority of the resort area was likely to exhibit low archaeological potential due to the combination of exposed, steep and rugged terrain and the high levels of disturbance (Knight 2009a: 5). However, some archaeological potential was seen to remain in certain zones including low gradient, sheltered points along the main ridge top (such as saddles), level, slightly elevated points overlooking the Bullock's Head and Clear Creek corridors (such as shoulders and spur toes) and local well-drained alluvial terraces or creek banks (Knight 2009: 5). The prediction was basically supported by the results of the survey. While no archaeological finds were made in the more elevated and steeper resort terrain, an isolated artefact was found in the upper reaches of Pig Gully. The artefact was found on an elevated shoulder overlooking the upper reaches of Bullocks Head Creek (Knight 2009a: 10). This location appeared to represent a comparatively intact portion of the landscape adjacent to an alluvial valley that had otherwise been heavily impacted by 19th and early 20th century gold mining (Knight 2009a: 6, 13-14). This result appeared to lend weight to the argument that lower elevation, lower gradient places overlooking creek valleys were attractive to Aboriginal land use.

Despite the previously negative findings in the Selwyn area, fieldwork undertaken by Sue Feary in May/June 2010 on the ski slopes at the resort resulted in the discovery of an open artefact scatter in part of the area previously surveyed by Knight (2009a). The scatter comprised 14 flakes of red silcrete adjacent to a soak in an upper slope context.

Knight (2010) conducted an assessment of the Kiandra precinct for NPWS. Seventeen Aboriginal sites were recorded including ten artefact scatters, six isolated artefacts and a significant Aboriginal cultural landscape feature. One site, a cultural stone alignment of indeterminate origin, was also recorded in the far west of the study area on Section Ridge.

The archaeology of the area was characterised by small, generally low-density sites (Knight 2010). However, due to issues of ground exposure and surface visibility it was determined that there was considerable potential some to be larger, including the Wallace's Creek Fire Trail sites and those around the flanks of Dunns Hill. The artefact assemblage was primarily debitage. Several types of stone had been utilised to produce the artefacts including quartz, grey volcanic, grey and brown tuff, black and grey chert, grey silcrete and grey porphyry. The highest level of site complexity in terms of raw material variation was apparent along the Wallace's Creek Fire Trail where most artefact scatters contain between two and four different types of raw material.

Site occurrence across the landscape showed a strong bias towards the elevated zone where 63% (n = 10) of sites were found. Of the remainder, 31% (n = 5) were found in the intermediate zone, with only one recording in the riverine valley. In terms of possible ecological influence, a trend for sites to occur at ecotones, specifically snow gum forest or woodland/open snow grass terrain was a notable feature. In contrast, very little was found in open snow grass plains such as that at Gibsons Plain and certain parts of the Three Mile catchment.

Knight (pers. comm. 2017) recorded a number of sites in the Yarrangobilly, Rules Point and Tantangara areas in the course of a field-based PhD research project. The sites were recorded in February 2007 and January 2008 and included artefact scatters and isolated finds. The results are described as follows:

- Sites recorded at Yarrangobilly were found along the eastern side of the Yarrangobilly River and in the elevated terrain east of the Yarrangobilly River Valley. In the river valley itself, two artefact scatters were recorded on a slightly elevated spur crest and an alluvial bank overlooking the river, on a walking track a short distance downstream from the Glory Hole Caves complex. Both sites contained five stone artefacts. To the east of the river valley, an isolated find was found at an elevation of 1,307 metres. The artefact occurred on a major ridge top next to a small drainage line.
- At Rules Point, two artefact scatters were found along the upper reaches of a creek draining from Long Plain into the Tumut River. The general location comprises a major pass connecting the river valley with the elevated, treeless plains of the Kiandra/Long Plain area. One scatter, on a low gradient spur crest on the eastern side of the creek, contained six artefacts including five flakes of grey and black chert, quartz, grey tuff and a dark grey volcanic and a single grey chert core. A scatter containing 17 artefacts was recorded in a quarried area on the opposite side of the creek. It contained flakes and a flaked piece of quartz, grey volcanic, brown and grey chert, grey tuff and a banded metamorphic and a hammerstone/pestle manufactured from a dense, crystalline volcanic rock.

- Survey undertaken directly to the east of Tantangara Mountain and Boggy Plain resulted in the recording of a series of artefact scatters and isolated finds apparently associated with the Aboriginal occupation and use of Blackfellows Hill. Three artefact scatters and an isolated find were found on the hill flanks and flats at Wares Yards. The scatters were generally discrete occurrences containing between five to eight artefacts, including flakes, flaked pieces and cores of quartz and several varieties of silcrete, chert, tuff and volcanic stone. To the south, an extensive artefact scatter was recorded at the gap dividing the watersheds of the Eucumbene River and Tantangara Valley. The site was located at 1,423 m AHD and contained 27 artefacts including flakes, flaked pieces, cores and a scraper manufactured from quartz and varieties of silcrete, tuff and chert. On Blackfellows Hill itself, a small artefact scatter containing two black chert flakes was found at a ridge/spur junction at the hill's southern end and a single quartz flake was recorded further north near the base of the main peak.

4.5 Predictive Model of Aboriginal Site Distribution

4.5.1 Archaeological Models of Aboriginal Occupation

According to Johnson (1992), general trends in site location and assemblage attributes include:

- A modal elevation value of 1,300 metres with a noticeable 'peak' in site numbers in the 1,000 m - 1,400 m range typical of the elevated areas of low relief in the Park's north (Johnson 1992: 81);
- Highest levels of artefact scatter complexity were apparent in lower altitude, broad river valleys (Johnson 1992: 94);
- A strong tendency for sites to occur in areas of low gradient, generally in the 3-6 degree range (Johnson 1992: 84); and
- Artefact scatters displayed the highest level of raw material diversity in the north of the Park, with a notable range of cherts. Quartz remained ubiquitous throughout all assemblages and possible external sources of stone, including a Namadgi chert, were also apparent (Johnson 1992: 94).

Knight (2010) found that in the Kiandra Precinct study, the fact that most of the sites were located within snow grass/snow gum ecotones is potentially of considerable significance and appears to parallel archaeological findings in nearby and comparable montane and inter-montane zones such as Cooleman Plain (Cooke 1988) and the Yaouk/Scabby Range area (Knight 2004) and further supports Feary and Vincent's (2007) predictive statement for the precinct. However, Knight (2010) cautioned that the degree to which the current tree line and vegetation species distribution has been altered by historical activity remains unknown and this must be acknowledged. Site distribution according to study area zone also showed a strong bias toward the higher elevation areas. The evidence suggests that substantial activity in the study area's highest locations, such as the elevated ridges over the riverine valley, were preferred locations. Landscape positions such as prominent hilltops and flanks and elongated ridgelines exhibit the highest archaeological signatures. However, this is not universally reflected, and a substantial exception occurs in the apparent total lack of Aboriginal sites along the top of the Kings Cross ridge. Knight (2010) suggests possible explanations for the Kiandra site distribution may include the following:

- *Shelter* Camping locations at the tree line and in the lee of higher ridges and hills may have afforded shelter from wind, while avoiding cold air drainage and possible 'wind-tunnel' effects in the riverine valley and open grassy plains terrain.
- *Ecological diversity* Ecotone locations could have provided a wider range of available food resources and/or more easily accessible foods than the open grassland.
- *Strategic preference and travel* More elevated positions in the landscape provide open views of the surrounding terrain and in many cases comprise natural topographic travel routes, particularly between major watersheds. The ridgeline forming the route for the Wallace's Creek Fire Trail for example is a natural landscape 'pathway' connecting the steep creek and riverine zones of the west with the upper Three Mile Creek catchment and Gibsons Plain. The correspondingly high number of artefact scatters along the ridge top and the proximity of a significant natural cultural feature may reflect the importance of this natural landscape continuity and provide physical evidence of the Aboriginal 'pathway'.
- *Cultural factors* Restriction of certain activities to particular parts of the local terrain may reflect a purposeful, structured cultural division of the landscape that was intimately understood by those who utilised it. Given Kiandra's potential importance as a route of travel to and from ceremonies and as a meeting place associated with such ritual activity, there is scope for the local archaeology to reflect social convention including 'acceptable' and 'preferred' places for travel or activities undertaken by visitors or members of specific groups/gender.

- *Taphonomy* There is substantial potential for extensive site destruction to have occurred in the areas subject to mining activity in the historical period. Archaeological evidence of Aboriginal use of the riverine zones and other alluvial landforms in the study area may well be lacking simply because it has been obliterated by gold extraction methods such as sluicing, dredging and paddocking.

4.5.2 Predictive Model of Site distribution for the Project Area

While the predictive model of site type and location presented in this section considers a comprehensive range of Aboriginal sites, stone artefact distributions are likely to be the most common. Because of high levels of previous European impacts, other site types such as, for example, scarred trees, are less likely to have survived in the project area. Other types such as rock shelters are unlikely to be present simply because of the nature of the local geology in the project area.

Stone artefacts

Stone artefacts are found either on the ground surface and/or in subsurface contexts. Stone artefacts will be widely distributed across the landscape in a virtual continuum, with significant variations in density in relation to different environmental factors. Artefact density and site complexity is expected to be greater near reliable water and the confluence of a number of different resource zones.

Typically, stone artefacts recorded in open contexts are representative of debris which results from flaking stone and will include unmodified flakes, cores and flaked pieces. Actual stone tools such as deliberately formed artefacts (such as scrapers, backed blades or adzes) or pieces which possess evidence of use, generally occur in low frequencies. The detection of artefact scatters depends on ground surface factors and whether the potential archaeological bearing soil profile is visible. Prior ground disturbance, vegetation cover and sediment/gravel deposition can act to obscure artefact scatter presence.

Generally, stone artefact distributions represent a range of stages in what is termed a 'reduction sequence' – the reduction of stone by stages of flaking and/or grinding to make stone tools. The debitage (or debris) from tool making, including partly fashioned implements and finished implements, were discarded or lost on the ground and subsequently incorporated into the archaeological record.

On the basis of a general ethnographic analogy from the Australian desert region, it is inferred that both men and women knapped stone to fashion and resharpen a range of both general tools and gender-specific tools. The flaking methods are freehand percussion, bipolar flaking, and 'chimbling' (application of direct pressure with a small stone presser) to make microblades and microliths. Hatchet heads and other ground stone tools were ground as well as flaked, and some were finished by

pecking or lightly pounding the surface of the stone (such as 'Wiradjuri-style' hatchet heads).

In accordance with the DPIE AHIMS searches, stone artefacts are known to be present in the project area. However, their nature and distribution has not been reported in detail. Given the different environmental contexts present, stone artefacts are predicted to be present in variable densities ranging from very low to moderate or even high.

Grinding Grooves

Grinding grooves are always located on sandstone exposures and are the result of the manufacture and maintenance of ground edge tools. Such tools were generally made of stone; however, bone and shell were also ground to fine points. The location of sites with grinding grooves is dependent on the presence of a suitable rock surface, a fine-grained homogeneous sandstone and a water source. Grinding groove sites may consist of a single groove, or a large number which are sometimes arranged in patterns. They commonly occur as an open site particularly in creek beds, however, are sometimes found in shelter contexts. Usually grinding grooves are located on horizontal sandstone exposures, but they can occasionally be found on vertical surfaces.

A broad temporal framework for the age of grinding groove sites can be inferred on the basis of the age of ground-edge hatchet heads found within archaeological deposits. Across Australia, there is significant variation in the timing of the introduction of ground-edge hatchet technology, and in the south-east, the earliest hatchet heads date to the fourth millennium BP (Dibden 1996: 35; Attenbrow 2004: 241), and no earlier than 3,500 years ago (Hiscock 2008: 155). Grinding groove sites in the local area can be no older than 3,500 years. Given that hatchets were used at the time of European occupation, the use of some grinding groove sites may have spanned this temporal range.

Grinding hatchet heads on stone creates indelible marks on the rock surface and land. Grinding groove sites may have become significant and meaningful locales over time given their reference to an important item of material culture and their strong material presence in the landscape. Sites containing high groove counts are now visually significant marked locales. While the original motivation which led people to choose to grind hatchet heads at a specific place is now not well understood, it is possible that over time and as a place became increasingly embellished with grooves, the meaning and significance of that locale was changed correspondingly. Grinding groove sites may have provided a physical and conceptual reference to the ancestral past and activities of previous generations (Dibden 2011). Because of the enduring materiality of grinding grooves, they may have been meaningfully constituted

expressions of place and mnemonic of past events and personal and group history (*cf*. Peterson 1972: 16).

Given the general absence of sandstone exposures in the activity areas (rough, blocky sandstone does however occur nearby), this site type is unlikely to be present. However, given the requirement to maintain ground edged implements, portable whetstones which satisfy this need may well be found (*cf*. Dibden 2005a).

Burials

Burial/interment sites have been recorded within the wider region. On the Monaro and in the Snowy Mountains, human remains have been found buried in excavated ground contexts (eg. Helms 1895: 404-406; Feary 1996), in limestone caves (eg. Spate 1997: 39) and deposited in standing hollow trees (eg. Helms 1895: 399; Flood 1980: 120).

No burials are known to be present in the proposed activity areas. Aboriginal burials are rarely encountered during field survey. They are not expected to be found in the project area, but the potential cannot be discounted.

Rock Shelter Sites

Rock shelter sites consist of any form of rock overhang that contains artefacts, archaeological deposit and/or art. Common archaeological features of rock shelter sites are: surface artefacts, archaeological deposit including stone artefacts, shell, bone and charcoal, rock drawings, paintings and stencils, engraved imagery and grinding grooves.

The tufa formations located in the cliff lines south and east of Lobs Hole do form small caves and may have been used by Aboriginal people. Elsewhere, rock shelters may form where boulders are arranged in such a way as to provide shelter or protection, such as the rock shelter at Tantangara Dam found during this assessment: AHIMS 57-7-0276.

Scarred and Carved Trees

Scarred and carved trees result from the removal of bark from trees by Aboriginal people for either domestic or ceremonial purposes. These site types can occur anywhere that trees of sufficient age are present, however, in an Aboriginal land use context would most likely have been situated on flat or low gradient landforms in areas suitable for either habitation and/or ceremonial purposes. Bark removal by European people through the entire historic period and by natural processes such as fire blistering and branch fall, make the identification of scarring from a causal point of view very difficult. Accordingly, given the propensity for trees to bear scarring from natural causes their positive identification is impossible unless culturally specific variables such as stone hatchet cut marks or incised designs are evident and

rigorous criteria in regard to tree species/age/size and it specific characteristics in regard to regrowth is adopted.

Nevertheless, the likelihood of trees bearing cultural scarring remaining extant and *in situ* in the study area is low given events such as land clearance and bushfires. Generally scarred trees will only survive if they have been carefully protected such as the trees associated with Yuranigh's grave at Molong where successive generations of European landholders have actively cared for them. The potential for scarred trees to be present in the project area is considered possible but unlikely.

Stone Quarry and Procurement Areas

A lithic quarry is the location of an exploited stone source (Hiscock & Mitchell 1993:32). Sites will only be located where exposures of a stone type suitable for use in artefact manufacture occur. These sites will commonly have evidence of exploitation including extraction and preliminary flaking preparation. The presence of these site types is dependent on the surface exposure of suitable stone. Quarries are a rare site type in this region, however, Comber (1988) recorded numerous quartz quarries on the Monaro. No quarries are known to be present in the activity areas. The potential for quarries to be present in the project area is considered likely given the nature of the geology across the project area. Given the abundance of pebbles in the Yarrangobilly River, this may have been utilised as a stone procurement area.

Ceremonial Places and Sacred Geography

Burbung and ceremonial sites are places which were used for ritual and ceremonial purposes. Possibly the most significant ceremonial practices were those concerned with initiation and other rites of passage such as those associated with death. Sites associated with these ceremonies are burbung grounds and burial sites. Additionally, secret rituals were undertaken by individuals such as clever men. These rituals were commonly undertaken in 'natural' locations such as water holes.

In addition to site specific types and locales, Aboriginal people invested the landscape with meaning and significance; this is commonly referred to as a sacred geography. Natural features are those physical places which are intimately associated with spirits or the dwelling/activity places of certain mythical beings (*cf*. Knight 2001; Boot 2002). Boot (2002) refers to the sacred and secular meaning of landscape to Aboriginal people which has '… legitimated their occupation as the guardians of the places created by their spiritual ancestors'.

While many places in the high country are known in respect of their sacredness, none are reported for the project area.

Contact Sites

These sites are those which contain evidence of Aboriginal occupation during the period of early European occupation. Evidence of this period of 'contact' could potentially be Aboriginal flaked glass, burials with historic grave goods or markers, and debris from 'fringe camps' where Aborigines who were employed by, or traded with the white community, may have lived or camped. The most likely location for contact period occupation sites would be places adjacent to permanent water and located in relative proximity to centres of European occupation such as towns and homesteads. No contact sites are known to be present. The potential for contact sites to be present in the project area is considered possible but low.

5. ABORIGINAL CONSULTATION PROCESS

A formal process of Aboriginal community consultation has been conducted as a component of this assessment in accordance with the guidelines as set out in the NSW DPIE's *Aboriginal cultural heritage consultation requirements for proponents 2010* (NSW DECCW 2010b).

The consultation process was initiated at the beginning of the Snowy 2.0 project during geotechnical works. It has continued throughout the Exploratory Works and Main Works projects.

The consultation process has been documented previously in the following Aboriginal Cultural Heritage Assessment Reports prepared for Snowy 2.0:

- Snowy 2.0 Feasibility Study - Access and Corrective/Emergency Maintenance at Ravine and Tantangara Reservoir Aboriginal Cultural Heritage Assessment Report. Julie Dibden 28 January 2017 (This 2017 ACHA supported AHIP C0003441 issued for the works);
- Snowy 2.0 Exploratory Works – Aboriginal Cultural Heritage Assessment Report. Julie Dibden 20 July 2018.

The consultation process conducted for the project has been documented in these previous reports.

Updated information about Snowy 2.0 and the cultural heritage assessment inclusive of additional areas in the project footprint was provided to RAPS on 13 May 2019.

The Registered Aboriginal Parties (RAPS) for the Snowy 2.0 project are:

- Iris White, on behalf of the Ngarigo people;
- Koomurri Ngunawal Aboriginal Corporation (since deregistered via email on 22/12/17);
- Corroboree Aboriginal Corporation;
- Bega Local Aboriginal Land Council;
- Lindsay Connolly, Steve Connolly and Ramsey Freeman
- Brungle-Tumut Local Aboriginal Land Council,
- Arnold Williams, on behalf of the Ngunnawal Elders Corporation,
- Ellen Mundy,
- John Dixon and
- Toomaroombah Kunama Namadgi Indigenous Corporation.

The project area is located entirely within the Northern MOU group area. Field assistance was provided Leanne Williams, Ramsey Freeman, Janice Williams, Meegan Considine, Steve Connolly, Lorraine Connolly, Lindsay Connolly, Julie Connolly, Imogen Shoemark, Taylor Shoemark, Lawrence Marlowe, Shirly Marlowe, Nioka Marlowe, Matt Marlowe, Lachlan Marlowe, Ron Grosvenor, Leticia Williams, Adrian Obrien, Teesha Freeman, Rodney Penrith, Rob Hetherington, on behalf of the Northern MOU group.

6. ARCHAEOLOGICAL FIELD ASSESSMENT AND RESULTS

6.1 OVERVIEW

The project area has been divided into Survey Units and the archaeological signature of these has been established during the assessment. Survey Units are the framework for the presentation of the heritage status, significance, and appropriate management and mitigation measures. The area of the Exploratory Works and Main Project overlap at Lobs Hole Ravine and Talbingo. Accordingly, the results of the Exploratory Works assessment are included in this section.

A total of 306 Aboriginal object locales have been recorded in surface exposures across the project area. It is likely that some of these encapsulate previous AHIMS sites, particularly at Lobs Hole. As noted previously, the exact nature and location of the AHIMS sites has been unable to be determined due to the limited available information and problematic grid references.

In addition, a program of test excavation has been conducted in a number of Survey Units across the project area at Lobs Hole, Gooandra Hill and Tantangara.

6.2 FIELD SURVEY

6.2.1 Field Survey Methodology

The field survey was designed to assess the archaeological sensitivity of the entire project area. All survey areas have been subject to a reasonably comprehensive assessment. The pedestrian survey methodology entailed walking parallel transects across individual Survey Units with each surveyor situated c. 10 – 20 metres apart. Each Survey Unit was surveyed until the entire area had been systematically inspected. This methodology enabled direct visual inspection of as much of the ground surface of the proposal area as practicable. Vehicle access to certain areas is non-existent. Accordingly, often long traverses were made across country between access points on roads and fire trails.

The approach to recording in the current study has been a 'nonsite' methodology: the elementary unit recorded is an artefact rather than a site (*cf*. Dunnell 1993; Shott 1995). The rationale behind this approach is that artefacts may be directly observed, however, 'sites' are a construction within an interpretative process. Given that it can be expected that full archaeological visibility will not be encountered during the survey, the process of identifying site boundaries (if they exist at all) will not be possible.

The density and nature of the artefact distribution in the study area will vary across the landscape in accordance with a number of behavioural factors which resulted in

artefact discard. While cultural factors will have informed the nature of land use, and the resultant artefact discard, environmental variables are those which can be utilised archaeologically in order to analyse the variability in artefact density and nature across the landscape. Accordingly, in this study, while the artefact is the elementary unit recorded, it is the Survey Unit which is utilised as a framework of recording, analysis, and management (*cf*. Wandsnider & Camilli 1992). Each survey area has been divided into Survey Units, defined according to broad landform morphological types (as defined below), discrete development envelopes and survey traverses.

For ease of presentation, documentation and use, the project area has been divided into discrete survey areas. These are defined according to geographic area, putative proposed impact, discrete road and the like.

The field recording and mapping has been conducted using a mobile GIS system and paper recording forms. The location of Aboriginal objects, historic heritage items and Survey Units has been collected using *Collector*, ArcGIS software. In order to ensure consistency in data collection, all field records were made on recording forms formulated specifically for the project. Three separate forms were used for recording Survey Unit data, Aboriginal Object data and Historical features data. The data collected forms the basis for the documentation of survey results.

Recent additions have been made to the project footprint and these are as yet un-surveyed. However, they have been added to the individual survey areas described in Section 6.2.2 and assigned Survey Unit numbers; their location is shown on relevant mapping in Annexure 3. An assessment has been made of the archaeological potential and sensitivity of each of these un-surveyed Survey Units based on a consideration of their landform characteristics and relevant predictive modelling. Recommendations for whether they warrant further investigations are made in respect of each of these un-surveyed Survey Units in the Impact Management and Mitigation section of this report.

The Survey Unit variables recorded are defined below:

Survey Unit Variables

Landscape variables utilised are conventional categories taken from the *Australian Soil and Land Survey Field Handbook* (McDonald *et al.* 1998). Landforms form the primary basis for defining Survey Unit boundaries.

The following variables were recorded for each Survey Unit (all Survey Units are shown in mapping in Annexure 3).

Morphological type:

- Crest: - element that stands above all or almost all points in the adjacent terrain – smoothly convex upwards in downslope profile. The margin is at the limit of observed curvature.
- Simple slope: - element adjacent below crest or flat and adjacent above a flat or depression.
- Flat.

Slope class and value (ave.):

- Level: <1°.
- Very gentle: 1°.
- Gentle: 3°.
- Moderate: 10°
- Steep: 23°

Soil

Soil type and depth was recorded for each Survey Unit. This observation is based solely on the potential for soil to contain artefacts; it does not imply that artefacts will be present or absent.

Geomorphological processes

The following gradational category was recorded for each Survey Unit:

- eroded
- eroded and aggraded.

Survey Coverage Variables

Survey Coverage Variables are a measure of ground surveyed during the study and the type of archaeological visibility present within that surveyed area. Survey coverage variables provide a measure with which to assess the effectiveness of the survey so as to provide an informed basis for the formulation of management strategies. Specifically, an analysis of survey coverage is necessary in order to determine whether or not the opportunity to observe stone artefacts in or on the ground was achieved during the survey. In the event that it is determined that ground exposures provided a minimal opportunity to record stone artefacts, it may be necessary to undertake archaeological test excavation for determining whether or not stone artefacts are present. Conversely, if ground exposures encountered provided an ideal opportunity to record the presence of stone artefacts, the survey results may be considered to be adequate and, accordingly, no further archaeological work may be required.

Two variables were used to measure ground surface visibility during the study; the area of ground exposure encountered, and the quality and type of ground visibility (archaeological visibility) within those exposures. The survey coverage variables estimated during the survey are defined as follows:

- Ground Exposure (GE) – an estimate of the area of exposures of bare ground; *and*
- Archaeology Visibility (AV) – an estimate of the average levels of potential archaeological surface visibility within those exposures of bare ground. Archaeological visibility is generally less than ground exposure as it is dependent on adequate breaching of the bare ground surface which provides a view of the subsurface soil context. Based on subsurface test excavation results conducted in a range of different soil types across New South Wales it is understood that artefacts are primarily situated 10 - 30 cm below the ground; reasonable archaeological visibility therefore requires breaching of the ground surface to at least a depth of 10 cm (*cf*. Dibden 2005b).

Based on the two visibility variables as defined above, an estimate (Net Effective Exposure – NEE) of the archaeological potential of exposure area within a survey unit has been calculated. The Effective Survey Coverage (ESC) calculation is a percentage estimate of the proportion of the Survey Unit which provided the potential to view archaeological material.

Aboriginal Object Locales

For the purposes of defining the artefact distribution in space it has been labelled as a locale within its respective Survey Unit (eg. Survey Unit 1/Locale 1). It is not assumed that an artefact locale is a discrete 'site', but rather, a *visible* part of the artefact distribution expected to be present across the wider Survey Unit area. All Aboriginal object locales are shown in mapping in Annexure 3.

The measurable area in which artefacts are observed has been noted. In addition, locale specific assessments of survey coverage variables have been made. The prior disturbance to the locale has been noted. Artefact numbers in each locale have been recorded and a prediction of artefact density stated, based on observed density taking into consideration Effective Survey Coverage and a consideration of environmental context.

The data collected forms the basis for the documentation of survey results outlined in the section below.

6.2.2 Field Survey Results

The field surveys are documented in accordance with discrete survey areas in the following sections.

6.2.2.1 Talbingo

The survey at Talbingo Dam/Tumut 3 power station was conducted in March 2018 and was originally documented in the Exploratory Works ACHAR (Dibden 2018a).

The survey results are described in Exploratory Works ACHAR: Table 8 and are not repeated here. No previously recorded sites are present at the Talbingo survey area and none were found during the survey and assessment. Entire landforms were found to have been removed or so altered by prior works that their archaeological potential was negligible.

6.2.2.2 Lobs Hole Ravine

The field survey at Lobs Hole commenced in October 2017 and March 2018 and the results were documented in the Exploratory Works ACHAR (Dibden 2018a). Additional work at Lobs Hole was conducted in October, November and December 2018 and February 2019 as part of the survey for the Main Works ACHAR.

The total survey area at Lobs Hole Ravine has measured 596.2 hectares, of which some 224 hectares has been physically inspected.

Survey Units RSU42 – RSU47 are currently un-surveyed. These survey units encompass recent additions to the project footprint. They are all assessed to be of negligible archaeological potential. These survey units are listed in Table 6 below and their location is shown of the relevant mapping. However, they are not included in the results tables below.

In all Survey Units, vegetation frequently posed a constraint; visibility of ground surfaces was often absent. In forested areas at Lobs Hole and Lobs Hole Ravine Road, undergrowth was often thick and sometimes impenetrable, especially if blackberry was present. Also, at Lobs Hole, blackberry thickets cover relatively large areas along the Yarrangobilly River and Lick Hole Gully. The flats at Lobs Hole were covered in thick grass.

A summary of the field survey results for Lobs Hole is presented in Table 8. The Lobs Hole Survey Units inclusive of those documented in the Snowy 2.0 Exploratory Works ACHAR (Dibden 2018a) are described in Tables 9 and 10. It is noted that there are eleven previously recorded Aboriginal sites are known to be present in the Lobs Hole survey area. Some 88 Aboriginal object sites were recorded during the field assessment (Table 11). The Lobs Hole survey area is assessed to be of variable archaeologically potential with certain micro-topographies found to have an elevated sensitivity.

Table 8 Summary of Aboriginal object site distribution in the Lobs Hole Ravine area.

SU	Previous sites	New sites	Total sites	Impacts
RSU1	0	0	0	Exploratory Works Road and Main Works
RSU2	0	0	0	Exploratory Works Road and Main Works
RSU3	1	3 4 Test Transects	8	Exploratory Works
RSU4	1	2	3	Exploratory Works
RSU5	0	2 5 Test Transects	7	Main Works
RSU6	0	5 2 Test Transects	7	Exploratory Works Road and Main Works
RSU7	0	0	0	Exploratory Works Road and Main Works
RSU8	1	4 Test Transects	5	Exploratory Works Road and Main Works
RSU9	0	0	0	Exploratory Works Road and Main Works
RSU10	0	3 2 Test transects	5	Exploratory Works Road and Main Works
RSU11	2	3 3 Test Transects	8	Exploratory Works Road and Main Works
RSU12	2	1 8 Test Transects	11	Exploratory Works Road and Main Works
RSU13	0	2	2	Main Works
RSU14	0	0	0	Exploratory Works Road and Main Works
RSU15	0	0	0	Main Works
RSU16	0	4	4	Exploratory Works Road and Main Works
RSU17	0	1	1	Main Works
RSU18	0	1	1	Outside
RSU19	0	0	0	Exploratory Works Road and Main Works
RSU20	0	12	12	Outside

SU	Previous sites	New sites	Total sites	Impacts
RSU21	0	0	0	Exploratory Works Road and Main Works
RSU22	0	3	3	Exploratory Works Road and Main Works
RSU23	0	3	3	Exploratory Works Road and Main Works
RSU24	0	1	1	Exploratory Works Road and Main Works
RSU25	3	0	3	Exploratory Works Road and Main Works
RSU26	0	0	0	Main Works
RSU27	0	0	0	Main Works
RSU28	0	0	0	Main Works
RSU29	1	1	2	Main Works
RSU30	0	0	0	Main Works
RSU31	0	0	0	Main Works
RSU32	0	0	0	Main Works
RSU33	0	0	0	Main Works
RSU34	0	0	0	Main Works
RSU35	0	0	0	Main Works
RSU36	0	0	0	Main Works
RSU37	0	0	0	Main Works
RSU38	0	0	0	Main Works
RSU39	0	2	2	Main Works
RSU40	0	0	0	Main Works
RSU41	0	0	0	Main Works
RSU42	0	0	0	Main Works
RSU43	0	0	0	Main Works
RSU44	0	0	0	Main Works
RSU45	0	0	0	Main Works
RSU46	0	0	0	Main Works
RSU48	0	0	0	Main Works
Total	11	77	88	

Table 9 Lobs Hole Ravine: Effective Survey Coverage.

SU ID	SU area (sq. m.)	Area inspected (%)	Area inspected (sq. m.)	GE (%)	GE (sq. m.)	AV (%)	NEC (sq. m.)	ESC (%)	Exposures
RSU1	211932	10	21193	3	636	30	191	0.09	negligible
RSU2	167382	10	16738	5	837	50	418	0.25	Very low: bare earth and animal tracks.
RSU3	140477	40	56191	1	562	60	337	0.24	Very low: bare earth and animal tracks.
RSU4	52568	90	47312	30	14193	80	11355	21.60	Very low: bare earth and animal tracks.
RSU5	59984	60	35991	1	360	40	144	0.24	Very low: bare earth and animal tracks.
RSU6	106169	40	42468	2	849	70	595	0.56	Very low: bare earth and animal tracks.
RSU7	54686	20	10937	0	0	0	0	0.00	Very low: bare earth and animal tracks.
RSU8	73494	30	22048	1	220	40	88	0.12	Very low: bare earth and animal tracks.
RSU9	15958	5	798	1	8	70	6	0.04	Very low: bare earth and animal tracks.
RSU10	27368	60	16421	2	328	80	263	0.96	Very low: bare earth and animal tracks.
RSU11	53754	50	26877	1	269	40	108	0.20	Very low: bare earth and animal tracks.
RSU12	137160	40	54864	4	2195	60	1317	0.96	Very low: bare earth and animal tracks.
RSU13	56240	20	11248	1	112	70	79	0.14	Very low: bare earth and animal tracks.

SU ID	SU area (sq. m.)	Area inspected (%)	Area inspected (sq. m.)	GE (%)	GE (sq. m.)	AV (%)	NEC (sq. m.)	ESC (%)	Exposures
RSU14	41663	5	2083	1	21	60	12	0.03	Very low: bare earth and animal tracks.
RSU15	30071	5	1504	5	75	80	60	0.20	Very low: bare earth and animal tracks.
RSU16	107508	35	37628	5	1881	80	1505	1.40	Very low: bare earth and animal tracks.
RSU17	54155	50	27077	3	812	80	650	1.20	Very low: bare earth and animal tracks.
RSU18	441337	30	132401	2	2648	80	2118	0.48	Very low: bare earth and animal tracks.
RSU19	324617	20	64923	5	3246	80	2597	0.80	Very low: bare earth and animal tracks.
RSU20	166602	40	66641	1	666	60	400	0.24	Very low: bare earth and animal tracks.
RSU21	1015802	20	203160	1	2032	60	1219	0.12	Very low: bare earth and animal tracks.
RSU22	57868	25	14467	1	145	60	87	0.15	Very low: bare earth and animal tracks.
RSU23	247291	20	49458	1	495	60	297	0.12	Very low: bare earth and animal tracks.
RSU24	40776	40	16310	2	326	80	261	0.64	Very low: bare earth and animal tracks.
RSU25	83248	40	33299	2	666	80	533	0.64	Very low: bare earth and animal tracks.
RSU26	161266	40	64506	10	6451	10	645	0.40	Negligible to very low: bare earth and pig rooting.
RSU27	205541	0	0	0	0	0	0	0.00	Nil

SU ID	SU area (sq. m.)	Area inspected (%)	Area inspected (sq. m.)	GE (%)	GE (sq. m.)	AV (%)	NEC (sq. m.)	ESC (%)	Exposures
RSU28	37493	90	33744	5	1687	80	1350	3.60	Very low: bare earth and animal tracks.
RSU29	54185	70	37929	5	1896	30	569	1.05	Very low: bare earth and animal tracks.
RSU30	70821	90	63739	5	3187	80	2550	3.60	Very low: bare earth and animal tracks.
RSU31	142157	80	113725	10	11373	80	9098	6.40	Low: bare earth and animal tracks.
RSU32	184901	40	73960	2	1479	10	148	0.08	Very low: bare earth and animal tracks.
RSU33	166269	60	99761	2	1995	10	200	0.12	Very low: bare earth, erosion and animal tracks.
RSU34	25612	50	12806	5	640	70	448	1.75	Very low: bare earth, sheet erosion and animal tracks.
RSU35	99559	90	89603	1	896	70	627	0.63	Negligible
RSU36	20156	60	12093	5	605	10	60	0.30	Very low: bare earth, erosion and animal tracks.
RSU37	152871	90	137584	1	1376	1	14	0.01	Negligible: bare earth and rabbit activities.
RSU38	91047	70	63733	1	637	1	6	0.01	Negligible
RSU39	393358	30	118007	5	5900	70	4130	1.05	Very low: bare earth and animal tracks.
RSU40	238891	80	191112	5	9556	80	7644	3.20	Very low: bare earth and animal tracks.
RSU41	149595	80	119676	5	5984	40	2394	1.60	Very low: bare earth and animal tracks.

SU ID	SU area (sq. m.)	Area inspected (%)	Area inspected (sq. m.)	GE (%)	GE (sq. m.)	AV (%)	NEC (sq. m.)	ESC (%)	Exposures
Total area	5961828		2244017		87246		54521	0.91	

Table 10 Lobs Hole Ravine: A description of Survey Units.

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
RSU1	628044. 6037763	628223. 6039044	A lower simple slope landform of variable gradients from moderate to steep. The aspect is westerly. Vegetation is regrowth forest with a thick shrubby understory and thickets of blackberry. Geology is meta-sedimentary shale presenting as shatter, cobbles and outcrops. Occasional exposures of low [c. 2 m max.] escarpment outcropping. Elsewhere the area is slightly rocky to rocky. Soil is a skeletal gravelly loam and depth varies from very shallow up to 10 cm. The landform is eroding.	The SU is highly disturbed. The main disturbance within the survey unit is previous timber extraction for domestic and mining use. Other disturbances include natural erosional processes, mining activities i.e. construction of water race and road.	Very low/ negligible	Nil recorded
RSU2	627823. 6038005	628089. 6039134	A gently undulating river flat landform directly adjacent to Yarrangobilly River. Vegetation is regrowth forest with a thick shrubby understory and thickets of blackberry. Soils are alluvial and deep. The landform would be subject to periodic flooding. Surface river cobbles are visible throughout the SU, most likely a result of flood events as well as eroding	The SU is highly disturbed. The main disturbance within the survey unit is previous timber extraction for mining and domestic use. Other disturbances include mining, construction of water	Moderate	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			conglomerate bedrock. Depositional context.	race/road and natural erosional processes.		
RSU3	626834. 6037907	628280. 6037746	A very gently undulating river flat landform directly adjacent to Yarrangobilly River. Vegetation is mainly regrowth forest with a thick shrubby understory and thickets of blackberry. Soils are alluvial and deep. Surface river cobbles are visible throughout the SU, most likely a result of flood events as well as eroding conglomerate bedrock. Depositional context. The landform would be subject to periodic flooding.	The SU is highly disturbed. Disturbances is previous timber extraction for mining and domestic use. Other disturbances include mining, construction of water race/road and natural erosional processes.	Low/Moderate	AHIMS #56-6-0009 *RSU3/L1* AHIMS #56-6-0495 *RSU3/L2* AHIMS #56-6-0496 *RSU3/L3* AHIMS #56-6-0497 Test Tran 1 Test Tran 2 Test Tran 3 Test Tran 4
RSU4	626834. 6037911	626705. 6038354	A crest/knoll landform with an open aspect. Northern end of knoll slopes steeply to river flat. Vegetation is cleared with an occasional regrowth sapling, scattered shrubs and blackberry. Geology is shale presenting as low outcropping, shatter, cobbles and gravels. Traces of good quality quartz was observed within the background stone profile, some of which is likely to be artefactual. Soil is	The SU is highly disturbed. The main disturbance includes previous clearance, original homestead site, copper mining activities, cultivation and gardening. Other disturbances include braided dirt 4wd vehicle tracks, recreational use	Low	AHIMS #56-6-0045 *RSU4/L1* AHIMS #56-6-0498 *RSU4/L2* AHIMS #56-6-0499

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			skeletal and shallow. The landform is highly eroded.	and natural erosional processes.		
RSU5	626765. 6038102	626577. 6038570	The landform is a river flat directly adjacent to Yarrangobilly River. Vegetation is patches of regenerating dry sclerophyll forest and open grassland. Soils are alluvial and deep. Surface river cobbles are visible throughout the SU, most likely a result of flood events as well as eroding conglomerate bedrock. Depositional context. The landform would be subject to periodic flooding. Depositional context.	The SU is highly disturbed. The main disturbances are copper mining activities, previous clearance, cultivation and gardening. Other disturbances include braided dirt 4WD vehicle tracks, modern camp sites and natural erosional processes.	Moderate	*RSU5/L1* AHIMS #56-6-0492 *RSU5/L2* AHIMS #56-6-0493 Test Tran 1 Test Tran 2 Test Tran 3 Test Tran 4 Test Tran 5
RSU6	626563. 6038141	626520. 6038637	An undulating crest of gentle to moderate gradient with a north easterly aspect. Vegetation is regenerating dry sclerophyll forest and open grassland. Geology is shale, presenting as outcropping, cobbles and gravels. The SU is rocky and highly eroded to bedrock in several areas. Soil is a skeletal gravelly loam and depth varies from very shallow up to 10 cm. The landform is eroding.	Disturbances are previous clearance, copper mining activities, historic occupation, unformed vehicle tracks and recreation.	Moderate/high	*RSU6/L1* AHIMS #56-6-0494 *RSU6/L2* AHIMS #56-6-0491 *RSU6/L3* AHIMS #56-6-0489 *RSU6/L4* AHIMS #56-6-0490 *RSU6/L5* AHIMS

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
						#56-6-0541 Test Tran 1 Test Tran 2
RSU7	625939. 6038408	626381. 6038621	A gently undulating crest landform with a north easterly aspect. Vegetation is regenerating dry sclerophyll forest with a scrubby undergrowth. Geology is shale presenting as outcropping, cobbles, shatter and gravels. SU is rocky. Several exposures of bedrock outcrops. Soil is a skeletal gravelly loam and depth varies from very shallow up to 10 cm. The landform is eroding.	Disturbances are previous clearance, historic occupation including 1920 school, formed and unformed vehicle tracks and recreation.	Moderate	Nil recorded
RSU8	626550. 6038617	626173. 6038961	The landform is a river flat directly adjacent to Yarrangobilly River. Vegetation is patches of regenerating dry sclerophyll forest and open grassland. Soils are alluvial and deep. Surface river cobbles are visible throughout the SU, most likely a result of flood events as well as eroding conglomerate bedrock. The landform would be subject to periodic flooding. Depositional context.	Disturbances are previous clearance, cultivation, gardening, mining, braided vehicle tracks and recreation.	Low	AHIMS #56-6-0043 Test Tran 1 Test Tran 2 Test Tran 3 Test Tran 4
RSU9	626223. 6038599	626124. 6038885	A simple slope of steep gradient with a northerly aspect. Vegetation is patches of regenerating dry sclerophyll forest. Geology is shale presenting as outcropping, cobbles, shatter and gravels.	The main disturbance is previous timber extraction for domestic and mining use. Other disturbance includes a	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			Soils are skeletal and very gravelly. The landform is eroding.	formed dirt vehicle track.		
RSU10	626142. 6038654	626025. 6039021	A crest landform with a northerly aspect. Vegetation is regenerating native shrubs; mostly grassland. Geology is shale presenting as outcropping, cobbles, shatter and gravels. Soil is a skeletal gravelly loam and depth varies from very shallow up to 10 cm. The landform is eroding.	Disturbances are previous clearance, historic occupation including police station, formed and unformed vehicle tracks and recreation.	Moderate/high	*RSU10/L1* AHIMS #56-6-0484 *RSU10/L2* AHIMS #56-6-0485 *RSU10/L3* AHIMS #56-6-0486 Test Tran 1 Test Tran 2
RSU11	625700. 6038734	626110. 6039080	The landform is a very gently undulating river flat directly adjacent to Yarrangobilly River. The aspect is open. Vegetation is patches of regenerating dry sclerophyll forest and open grassland. Soils are alluvial and deep. Surface river cobbles are visible throughout the SU, most likely a result of flood events as well as eroding conglomerate bedrock. The landform would be subject to periodic flooding. Depositional context.	SU is highly disturbed. Disturbances are previous clearance, cultivation, gardening, historic occupation including the Washington Hotel, braided [formed and unformed] dirt vehicle tracks and recreation.	Low	AHIMS #56-6-0041 AHIMS #56-6-0047 *RSU11/L1* AHIMS #56-6-0487 *RSU11/L2* AHIMS #56-6-0488 Test Tran 1 Test Tran 2 Test Tran 3
RSU12	625700. 6038734	626110. 6039080	The landform is a very gently undulating river flat directly adjacent to	Disturbance includes previous clearance,	Moderate/high	AHIMS #56-6-0042

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			Yarrangobilly River. The aspect is open. Vegetation is patches of regenerating dry sclerophyll forest and open grassland. Soils are alluvial and deep. Surface river cobbles are visible throughout the SU, most likely a result of flood events as well as eroding conglomerate bedrock. The landform would be subject to periodic flooding. Depositional context.	cultivation, gardening, braided [formed and unformed] dirt vehicle tracks and recreation.		AHIMS #56-6-0046 *RSU12/L1* AHIMS #56-6-0537 Test Tran 1 Test Tran 2 Test Tran 3 Test Tran 4 Test Tran 5 Test Tran 6 Test Tran 7 Test Tran 8
RSU13	625526. 6039474	625463. 6039162	A crest landform of low elevation with a south westerly aspect. Vegetation in regenerating dry sclerophyll forest and open grassland. Geology is shale presenting as outcropping, cobbles, shatter and gravels. Soils are skeletal and very gravelly. The landform is eroding.	The main disturbance is previous timber extraction for domestic and mining use. Other disturbance includes a formed dirt vehicle track and a major transmission line in the northeastern corner of the SU.	Low	*RSU13/L1* AHIMS #56-6-0483 *RSU13/L2* AHIMS #56-6-0478
RSU14	625680. 6039417	626438. 6039390	A simple slope of moderate to steep gradient with a westerly aspect. SU becomes very steep along western boundary. Vegetation is regenerating dry sclerophyll forest. Geology is shale	The main disturbance is previous timber extraction for domestic and mining use. Other disturbance includes	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			presenting as outcropping, cobbles, shatter and gravels. Soils are skeletal and very gravelly. The landform is eroding.	earlier pastoral activities.		
RSU15	625934. 6039145	626558. 6039131	A sloping crest landform of moderate gradient with a southerly aspect. Vegetation is regenerating dry sclerophyll forest. Geology is meta-sedimentary shale presenting as outcrops, shatter, cobbles and gravels. The SU is slightly rocky. Increased levels of rock at higher elevations. Soils are a shallow skeletal gravelly loam with a maximum depth of 5cm. Erosional context	The main disturbance is previous timber extraction for domestic and mining use. Other disturbance includes earlier pastoral activities.	Low	Nil recorded
RSU16	625871. 6039011	626571. 6039160	A very narrow sloping spur crest of c. 15 m wide of very gentle gradient. The aspect is westerly. Vegetation is a regenerating dry sclerophyll forest. Geology is a mixture of conglomerate and meta-sedimentary shale presenting as outcrops, shatter, cobbles and gravels. High levels of shale shatter and exposures of eroded bedrock. Areas of highly weathered sandstone conglomerate boulders comprising of waterworn cobbles located on the lower slope.	The main disturbance is previous timber extraction for domestic and mining use. Other disturbance includes earlier pastoral activities.	Low	*RSU16/L1* AHIMS #6-6-0479 *RSU16/L2* AHIMS #56-6-0480 *RSU16/L3* AHIMS #56-6-0481 *RSU16/L4* AHIMS #56-6-0482
RSU17	626658. 6038178	626644. 6037763	A crest landform overlooking major water course to the east. The aspect is northerly. Vegetation regenerating dry sclerophyll	The main disturbance is previous timber extraction for domestic	Low	*RSU17/L1* AHIMS #56-6-0477

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			forest with areas of blackberry thicket. Geology is shale and sandstone conglomerate. Shale presenting as outcropping, shatter, cobbles and gravels. Soils are a shallow skeletal gravelly loam. Erosional context	and mining use. Other disturbance includes earlier pastoral activities and historic occupation including dwellings etc of 'Struggle Street'.		
RSU18	626255. 6037617	627342. 6037529	A series of gentle simple slopes of gentle to steep gradients with a northerly aspect. Vegetation is regenerating dry sclerophyll forest, wattle regrowth with some grassland. Numerous thickets of blackberry. Erosional context.	The main disturbance is previous timber extraction for domestic and mining use. Other disturbance includes earlier historic occupation, rabbit and pastoral activities.	Low	*RSU18/L1* AHIMS #56-6-0476
RSU19	628321. 6037830	628289. 6039033	A steep simple slope landform with a north westerly aspect. Vegetation is dry sclerophyll forest. Geology is meta-sedimentary shale presenting as outcrops, shatter, cobbles and gravels. The SU is slightly rocky. Increased levels of rock at higher elevations. Erosional context. Soils are a shallow skeletal gravelly loam.	The main disturbance is previous timber extraction for domestic and mining use.	Negligible	Nil recorded
RSU20	628712. 6027495	627141. 6031868	Generally, gently undulating crest landform with a northerly aspect. Vegetation is a dry sclerophyll forest. Geology is meta-sedimentary shale presenting as outcrops, shatter, cobbles	The main disturbance is the construction of a main transmission line as well as previous timber extraction for	Low	*RSU20/L1* AHIMS #56-6-0471 *RSU20/L2* AHIMS

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			and gravels. The SU is slightly rocky. Soils are a shallow skeletal gravelly loam. Erosional context.	domestic and mining use.		#56-6-0472 *RSU20/L3* AHIMS #56-6-0473 *RSU20/L4* AHIMS #56-6-0474 *RSU20/L5* AHIMS #56-6-0475 *RSU20/L6* AHIMS #56-6-0465 *RSU20/L7* AHIMS #56-6-0466 *RSU20/L8* AHIMS #56-6-0468 *RSU20/L9* AHIMS #56-6-0467 *RSU20/L10* AHIMS #56-6-0470 *RSU20/L11* AHIMS #56-6-0469

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
						RSU20/L12 AHIMS #56-6-0464
RSU21	629075. 6027804 629052. 6027813	626360. 6038292 628995. 6028252	Gently undulating crest landform at south end, becoming steep to north. The aspect is mostly northerly. Vegetation is a dry sclerophyll forest. Geology is meta-sedimentary shale presenting as outcrops, shatter, cobbles and gravels. The SU is slightly rocky. Soils are a shallow skeletal gravelly loam. Erosional context.	The main disturbance is previous timber extraction for domestic and mining use.	Low	Nil recorded
RSU22	625213. 6039987	624901. 6039838	A crest landform with a south westerly aspect. Vegetation is a regenerating dry sclerophyll forest. Geology is meta-sedimentary shale presenting as outcrops, shatter, cobbles and gravels. The SU is rocky with numerous outcrops of exposed bedrock. Soils are a shallow skeletal gravelly loam. Erosional context.	The main disturbance is previous timber extraction for domestic and mining use. Other disturbance includes SMA activities.	Low	*RSU22/L1* AHIMS #56-6-0507 *RSU22/L2* AHIMS #56-6-0505 *RSU22/L3* AHIMS #56-6-0504
RSU23	625132. 6040059	624350. 6040552	A gentle to moderate simple slope landform with a south westerly aspect. Regenerating dry sclerophyll forest. Thickets of blackberry. Geology is meta-sedimentary shale presenting as outcrops, shatter, cobbles and gravels. The SU is rocky with numerous outcrops of exposed	The main disturbance is previous timber extraction for domestic and mining use. Other disturbance includes SMA and recreational activities.	Low	*RSU23/L1* AHIMS #56-6-0506 *RSU23/L2* AHIMS #56-6-0503 *RSU23/L3* AHIMS

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			bedrock. Soils are a shallow skeletal gravelly loam. Erosional context.			#56-6-0502
RSU24	625535. 6039474	625163. 6040069	Gently undulating crest landform at south end, becoming steep to north. Vegetation is a dry sclerophyll forest. Geology is meta-sedimentary shale presenting as outcrops, shatter, cobbles and gravels. Soils are a shallow skeletal gravelly loam. Erosional context.	The main disturbance is the clearance, construction and maintenance of a formed dirt vehicle track. Other disturbance includes timber extraction, and earlier pastoral activities.	Low	*RSU24/L1* AHIMS #56-6-0536
RSU25	627154. 6031875	627038. 6032150	Gently undulating crest landform with a northerly aspect. Vegetation is a dry sclerophyll forest. Geology is meta-sedimentary shale presenting as outcrops, shatter, cobbles and gravels. Soils are a shallow skeletal gravelly loam. Erosional context.	The main disturbance is the clearance, construction and maintenance of a transmission line and access track.	Low	AHIMS #56-6-0038 AHIMS #56-6-0039 AHIMS #56-6-0040
RSU26	626252. 6037036	626516. 6036680	A series of narrow [c. 10 – 20 m wide] spur crests of gentle to moderate gradient with a west north westerly aspect. Vegetation is Eucalypt and wattle regrowth woodland with an understorey of grasses with areas of impenetrable infestations of blackberry and briar rose. Geology is shale presenting as outcrops, shatter, cobbles and gravels. The SU is	The main disturbances the clearance and earlier pastoral activities.	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			very slightly rocky. Soil is a skeletal shallow light brown gravelly loam. The SU is comprised of large amorphous landforms situated well away from water.			
RSU27	624449. 6040841	623769. 6041532	A steep to very steep simple slope with a south westerly aspect. This SU was visually assessed from road and not surveyed by foot [extremely steep, treacherous and dangerous]. Vegetation is dense shrub with an occasional Eucalypt tree. Geology is shale. Archaeological potential is negligible.	Original clearance and grazing	Negligible	Nil recorded
RSU28	625780. 6038747	625724. 6038716	A series of short moderate to steep simple slopes with gradients ranging from 20° to 32°. The aspect is mainly northerly. SU dissected by minor drainage lines. Vegetation is scattered shrubs with occasional small Eucalypt becoming very dense in areas. Heavy infestations of blackberry throughout SU. Geology is a mix of conglomerate and meta-sedimentary shales presenting as outcrops, cobble, gravels and very high levels of shatter. The SU is very rocky. Tuff and chert occurring naturally as rounded and angular pebbles. Traces of low-quality quartz was observed in the background stone profile, none of which is	Minor to moderate levels of disturbance from mining and early pastoral activities. Other disturbances include erosion and animal tracks.	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			likely to be artefactual. Soils are skeletal and very gravelly. The landform is eroding.			
RSU29	625813. 6038660	625975. 6038474 625903. 6038554 626075. 6038496	A very gently to gently undulating crest landform with a south-westerly aspect. Vegetation is an open mixed age Eucalypt forest with an understorey of banksias and heath. Geology is metasedimentary presenting as outcrops, shatter, cobbles and gravels. Large area of smooth conglomerate boulder outcropping along break of slope along western boundary of SU. Outcrops are greater than 2 m wide. Soils are a shallow brown gravelly silty loam. Landform is eroding.	Minor to moderate levels of disturbance from mining and early pastoral activities. Other disturbances include erosion and animal tracks.	Negligible	AHIMS #56-6-0048 RSU29/L1 AHIMS #56-6-0540
RSU30	626078. 6038191	625811. 6038568	Moderate to steep simple slopes with gradients ranging from 20° to 32°. The aspect is mainly westerly. SU dissected by minor drainage lines. Vegetation is scattered shrubs with occasional small Eucalypt becoming very dense in areas. Heavy infestations of blackberry throughout SU. Geology is a mix of conglomerate and meta-sedimentary shales presenting as outcrops, cobble, gravels and high levels of shatter. The SU is very rocky. Tuff and chert occurring naturally as rounded and angular	Minor to moderate levels of disturbance from early pastoral activities. Other disturbances include erosion and animal tracks.	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			pebbles. Traces of low-quality quartz was observed in the background stone profile, none of which is likely to be artefactual. Soils are skeletal and very gravelly. The landform is eroding.			
RSU31	625515. 6039751	625767. 6039948	A very narrow [c. 20 – 30 m wide] spur crest of gentle to moderate gradient with a south westerly aspect. Very steep slopes off the crest. Vegetation on upper slope is an open scrub with grasses becoming an open Eucalypt forest with an understorey of heath and banksia on the lower slope. Geology is a metasedimentary presenting as shatter, cobbles and gravels. Occasional small discrete bedrock outcropping. SU becomes very rocky at higher elevations. Soil is a gravelly loose loam.	Minor to moderate levels of disturbance from mining and early pastoral activities. Other disturbances include erosion and animal tracks.	Negligible	Nil recorded
RSU32	625181. 6040057	624899. 6040789	Moderate to steep simple slopes with gradients ranging from 20° to 32°. The aspect is mainly south westerly. SU dissected by minor drainage lines. Vegetation is scattered shrubs with occasional small Eucalypt becoming very dense in areas. Heavy infestations of blackberry throughout SU. Geology is a mix of conglomerate and meta-sedimentary shales presenting as	Minor to moderate levels of disturbance from early pastoral activities. Other disturbances include erosion and animal tracks.	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			outcrops, cobble, gravels and high levels of shatter. The SU is very rocky. Tuff and chert occurring naturally as rounded and angular pebbles. Traces of low-quality quartz was observed in the background stone profile, none of which is likely to be artefactual. Soils are skeletal and very gravelly. The landform is eroding.			
RSU33	625264. 6040094	625332. 6040418 625176. 6040041	A very narrow [c. 40 m max.] gentle to moderate gradient sloping spur crest landform. The aspect is southerly. Vegetation is an open Eucalypt forest with a thick understorey of shrubs greater than 1.5 m tall. Geology is metasedimentary presenting as outcrops, shatter, cobbles and gravels. The SU varies from very slightly rocky to very rocky on the higher elevations. Soil is a very gravelly silty loam. The landform is steep, eroded and amorphous.	Moderate level of disturbances at southern end of SU from the clearance and construction of a transmission line/ easement.	Negligible	Nil recorded
RSU34	625349. 6039841	625360. 6039906 625389. 6040045 625326. 6040031	A sloping spur crest of moderate gradient with a southerly aspect. Vegetation is an open Eucalypt forest with an understorey of wattle and heath. Geology is metasedimentary presenting as outcrops, cobbles and gravels. The SU very slightly rocky. Traces of quartz was observed in the background stone profile, some of	Moderate level of disturbances at southern end of SU from the clearance and construction of a transmission line/ easement.	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			which is likely to be artefactual. Soil is very gravelly and shallow. The landform is steep, eroded and amorphous.			
RSU35	625457. 6039771	625356. 6039848	A simple slope landform of moderate gradient with a southerly aspect. Vegetation is a dense forest of Eucalypt, blackberry, wattles and grasses. Forest floor has a thick cover of litterfall. Geology is metasedimentary presenting as gravels. Soil is rich brown slightly gravelly loam. The landform is aggrading.	Minor levels of disturbance from pastoral activities.	Negligible	Nil
RSU36	626511. 6037668	626524. 6037601 626537. 6037630	A simple slope of moderate to steep gradient with a north westerly aspect. SU becomes very steep along southern boundary. Vegetation is dense heath with an occasional Eucalypt. Geology is sandstone/conglomerate presenting as outcrops, cobbles and gravels. The SU is slightly rocky. Soil is a slightly gravely fine red brown silty loam.	Minor levels of disturbance from earlier pastoral and mining activities.	Negligible	Nil recorded
RSU37	625649. 6039636	625690. 6039674 625870. 6039744	A spur crest landform of very gentle gradient. Vegetation is very dense banksia with scattered Eucalypts. Geology is a combination, conglomerate on the lower slope and mid to upper slope is metasedimentary presenting as shatter, cobbles and gravels.	Disturbances include a cemetery, burrow pit and earlier pastoral activities.	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
RSU38	625487. 6039722	625899. 6039846	A spur crest landform of very gentle gradient. Vegetation is very dense banksia with scattered Eucalypts. Geology is a combination, conglomerate on the lower slope and mid to upper slope is metasedimentary presenting as shatter, cobbles and gravels.	Disturbances include roads earlier pastoral activities.	Negligible	Nil recorded
RSU39	623870. 6041512	624588. 6042182	A simple slope landform of very steep gradient. Vegetation is very dense banksia with scattered Eucalypts (Plate 6).	Disturbances include roads earlier pastoral activities.	Negligible/very low	*RSU39/L1* AHIMS #56-6-0539 *RSU39/L2* AHIMS #56-6-0538
RSU40	622370. 6042178	624453. 6042207	A simple slope landform of steep gradient. Vegetation is very dense banksia with scattered Eucalypts (Plate 7).	Historic clearance and pastoral	Negligible	Nil recorded
RSU41	625999. 6038005	626524. 6038155	A spur crest landform of moderate gradient. Vegetation is forest (Plate 8).	Historic clearance and pastoral	Negligible	Nil recorded

Table 11 Lobs Hole Ravine: Aboriginal object descriptions.

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
RSU3	*RSU3/L1* AHIMS #56-6-0495	627704	6038078	Two stone artefacts recorded on a vehicle track on the flat encompassed by RSU3. The artefacts were 3 m apart. The area is highly disturbed by historic and modern recreational use.	Tuff flake 27x16x3mm. Tuff core 40x30x27 mm.	Very low to low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
RSU3	*RSU3/L2* AHIMS #56-6-0496	627673	6038084	Two stone artefacts recorded on a deeply eroded vehicle track on the flat encompassed by RSU3. The artefacts were 6 m apart. The area is highly disturbed by historic and modern recreational use.	Qtz flake 18x16x3mm. Tuff core 43x34x8mm.	Very low to low
RSU3	*RSU3/L3* AHIMS #56-6-0497	627641	6038087	One stone artefact recorded on a deeply eroded vehicle track on the flat encompassed by SU3. The area is highly disturbed by historic and modern recreational use.	Tuff proximal 3x34x8 mm.	Very low to low
RSU4	*RSU4/L1* AHIMS #56-6-0498 incl. of AHIMS #56-6-0045	626704	6038275	A low-density distribution of stone artefacts (<1 per sq. m) across the entire knoll landform (all RSU4): visible in almost any areas of ground exposure. The landform is highly disturbed and significantly eroded; shale bedrock is frequently exposed. There is little to no topsoil and hence no subsurface archaeological potential. Stone artefacts are mixed with historical debris/artefacts, such as glass, ceramics, porcelain and metal. The site contains *in situ* pebbles and cobbles. Note, grid reference is a nominal point location and denotes centre of knoll.	Tuff and quartz flaked artefacts.	Low
RSU4	*RSU4/L2* AHIMS	626599	6038247	One stone artefact on the spoil of an old ?mine pit. The artefact is highly disturbed	Tuff flake 63x45x18mm.	Low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
	#56-6-0499			and has no associated subsurface potential.		
RSU5	*RSU5/L1* AHIMS #56-6-0492	626799	6038327	Two stone artefacts recorded on a vehicle track on the flat encompassed by RSU5. The artefacts were 5 m apart. The area is highly disturbed by historic and modern recreational use.	Tuff flake 48x35x16mm. Tuff flake 37x35x7mm.	Low
RSU5	*RSU5/L2* AHIMS #56-6-0493	626774	6038362	Nine stone artefacts recorded on a vehicle track on the flat encompassed by RSU5. The artefacts were distributed along a section of road measuring 25 m. The area is highly disturbed by historic and modern recreational use. The adjacent areas in the landform are predicted to contain moderate/high artefact density but possibly highly disturbed.	Qtz flake 20x10x3mm. Tuff bifacial core with peb cortex 25x40x20m. Qtz flake 20x10x3mm. Tuff flake frag 20x13x6 mm. Chert flake frag with possible retouch 20x18x6 mm. Silcrete flake 23x46x8 mm. Tuff flake 27x35x10 mm. Chert flake frag 21x10x7 mm. Chert flake 32x29x5mm. Tuff flake piece 38x22x19 mm.	Moderate to high
RSU6	*RSU6/L1* AHIMS #56-6-0494	626474	6038393	Stone artefact recorded on a road exposure on the southeast side of RSU6. There is sparse good quality quartz, some of which may be artefactual but is crushed from vehicle traffic. Also, numerous pieces of buried tuff likely to be	Tuff flake 20x20x5 mm.	Negligible to very low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				artefactual. The area is highly disturbed and generally eroded to bedrock with high levels of shatter.		
RSU6	*RSU6/L2* AHIMS #56-6-0491	626522	6038555	Stone artefact recorded on a road exposure on the southeast side of RSU6. There is sparse good quality quartz, some of which may be artefactual. The area is highly disturbed and generally eroded to bedrock and high levels of shale shatter.	Tuff flake frag 27x18x10 mm with pebble cortex.	Negligible to very low
RSU6	*RSU6/L3* AHIMS #56-6-0489	626522	6038358	One stone artefact in large (10 x 2 m) bare earth patch on east side of RSU6. The site is facing 120° with a gentle gradient. It is highly disturbed and eroded. It has no subsurface archaeological potential.	Chert flake appears to have retouch from ventral on 1 margin 35x20x5 mm.	Negligible
RSU6	*RSU6/L4* AHIMS #56-6-0490	626534	6038365	Three stone artefacts in large (5 x 10 m) bare earth patch on east side of RSU6. The site is facing 120° with a gentle gradient. It is highly disturbed and eroded. It has no subsurface archaeological potential.	Tuff flake 28x12x3 mm. Qtz flake frag 12x10x2 mm. Tuff flake 17x28x10 mm.	Negligible
RSU6	*RSU6/L5* AHIMS #56-6-0541	626378	6038367	A scatter of artefacts primarily exposed along upslope angled road cutting where curve in road traces crest of spur line. The slope-crest interface is of gentle gradient with a northerly aspect. Visible site extent is linear 60 x 1.5 m with a high potential for site to extend outward from exposure. Ground exposure within the	Tuff grey right LCS damage on distal 30x23x8 mm. Tuff buff flake 40% terrestrial cortex broad Hertzian feather 32x24x12 mm. Tuff buff flake gull wing Hertzian feather	Low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				site area was assessed at 40% with archaeological visibility of 60%. Ground exposures away from site was very low due to thick forest debris with mainly very discrete areas of erosion providing bare earth for inspection. Artefacts listed are a representative sample. Additional artefacts continue upslope to road intersection of Mine Trail and Lobs Hole Ravine Road. Disturbances include formed dirt vehicle tracks, original clearing and mining.	31x12 x6 mm. Tuff buff distal feather 20x15 x3 mm. Tuff buff medial 12x15x2 mm. Tuff buff flake gullwing Hertzian feather 12x12x2 mm. Tuff buff flaked piece 14x10x2 mm. Tuff buff medial 2 dorsal ridges 16x10x3 mm. Tuff buff flake broad Hertzian feather damaged margin 18x17x2 mm. Tuff buff distal feather 26x18x3 mm. Qtz medial 9x11x3 mm. Volcanic cobble anvil heavy pitting one surface 135x90x50 mm.	
RSU10	*RSU10/L1* AHIMS #56-6-0484	626059	6038964	Stone artefacts recorded on road exposures on the northwest side of RSU10. The area is highly disturbed and eroded to bedrock and high levels of shatter and *in situ* cobbles. The area encompassed by the visible artefacts measured c. 30 x 10 m. Artefacts listed are a representative sample.	Tuff multidirectional core 70x60x40mm. Tuff flake 31x25x5 mm. Tuff flake 5x26x11mm. Tuff flake frag 30x24x8 mm. Tuff scraper 50x40x15 mm. Flaked pebble each opposing end	Moderate

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
					unifacially flaked 150x105x30mm. Flaked pebble each opposing end and margins unifacially flaked 173x109x30 mm.	
RSU10	*RSU10/L2* AHIMS #56-6-0485	626117	6038935	Two artefacts on a vehicle track on northeast end of RSU10. The area is highly disturbed and eroded to bedrock and high levels of shatter and *in situ* cobbles. The area encompassed by the visible artefacts measured c. 9 x 2 m.	Tuff proximal 31x15x5 mm. Tuff flake 54x47x10 mm	Low to moderate
RSU10	*RSU10/L3* AHIMS #56-6-0486	626087	6038871	Two stone artefacts on a vehicle track on RSU10. The area is highly disturbed and eroded to bedrock and high levels of shatter and *in situ* cobbles. The area encompassed by the visible artefacts measured c. 40 x 2 m. Artefacts listed are a representative sample; at least another 20 artefacts at road junction.	Tuff distal pos. steep retouch and use wear 40x35x12 mm. Tuff bifacial core 45x37x30 mm.	Low to moderate
RSU11	*RSU11/L1* AHIMS #56-6-0487	625886	6038900	Stone artefact on a track. The area is disturbed.	Tuff flake 70x45x20 mm pebble cortex.	Low
RSU11	*RSU11/L2* AHIMS #56-6-0488	625923	6038957	Stone artefacts in fabric and eroding out of the pisé walls of the Washington Hotel.	Tuff and quartz flaked artefacts.	N/A
RSU12	*RSU12/L1* AHIMS	625829	6038992	>100 artefacts on erosional exposures and a vehicle track on in RSU12. The area is	No recording.	Moderate to high

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
	#56-6-0537			highly disturbed and eroded to bedrock and high levels of shatter and *in situ* cobbles. The area encompassed by the visible artefacts measured c. 20 x 10 m.		
RSU13	*RSU13/L1* AHIMS #56-6-0483	625481	6039362	One stone artefact found in a bare earth patch in RSU13. The scald measured 30 x 30 m on the crest proper. Ground exposure was estimated to be 30% with archaeological visibility in that exposure 30%. *In situ* pebbles occur locally.	Tuff flake 40x42x10 mm pebble cortex.	Negligible
RSU13	*RSU13/L2* AHIMS #56-6-0478	625492	6039216	One stone artefact found in a bare earth patch at the south end in RSU13 at the edge of the crest. The landform has a gentle gradient and aspect to SE. The scald measured 4 x 3 m on the crest proper. Ground exposure was estimated to be 60% with archaeological visibility in that exposure 80%. The site is highly eroded to bedrock and shale shatter.	Tuff flake 22x30x8 mm.	Negligible
RSU16	*RSU16/L1* AHIMS #56-6-0479	625888	6039148	Two stone artefacts found in a small bare earth patch in RSU16. The landform has a gentle gradient and aspect to the northwest. Ground exposure was estimated to be 80% with archaeological visibility in that exposure 70%. The site is eroded to bedrock.	Tuff flake 38x14x9 mm. Tuff blade flake 29x16x5 mm.	Negligible
RSU16	*RSU16/L2* AHIMS	626019	6039190	One stone artefact found in an animal track in RSU16 on an upper slope. The	Tuff distal flake 57x52x15 mm.	Negligible

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
	#56-6-0480			landform has a moderate gradient and aspect to NW. Ground exposure was estimated to be 80% with archaeological visibility in that exposure 80%. The site is highly eroded to bedrock and shale shatter and has no subsurface archaeological potential.		
RSU16	*RSU16/L3* AHIMS #56-6-0481	625996	6039198	Three stone artefacts found in an erosional scald in RSU16 on a mid-slope. The exposure measured c. 3 x 3 m. The landform has a moderate gradient and aspect to NW. Ground exposure was estimated to be 50% with archaeological visibility in that exposure 20%. The site is highly eroded to bedrock and shale shatter and has no subsurface archaeological potential.	Tuff flake 30x20x10 mm. Tuff flaked piece 40x30x5 mm. Tuff distal flake 50x47x25 mm with pebble cortex.	Negligible
RSU16	*RSU16/L4* AHIMS #56-6-0482	625894	6039170	Four stone artefacts found in an erosional scald in RSU16 on a gentle gradient simple slope. The exposure measures c. 5 x 2 m. The landform has a moderate gradient and aspect to NW. Ground exposure was estimated to be 40% with archaeological visibility in that exposure 80%. The site is highly eroded to bedrock and shale shatter and has no subsurface archaeological potential.	Tuff flake 24x18x7 mm. Tuff flake 38x19x11 mm. Qtz proximal flake 28x20x8 mm. Tuff flake 41x23x15 mm Tuff flake frag 14x26x6 mm with pebble cortex.	Negligible

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
RSU17	*RSU17/L1* AHIMS #56-6-0477	626656	6038018	Four stone artefacts found in a bare rocky area in RSU17 on a flat crest. The exposure measures c. 10 x 5 m. The site is highly eroded to bedrock and has no subsurface archaeological potential.	Tuff flake 18x15x2 mm. Tuff flake 16x12x3 mm. Tuff flaked piece 43x39x16 mm. Tuff flake 27x14x3 mm.	Negligible
RSU18	*RSU18/L1* AHIMS #56-6-0476	626507	6037719	One stone artefact found in a bare earth exposure in RSU18 on a moderate gradient simple slope. The exposure measures c. 10 x 5 m. Ground exposure was estimated to be 70% with archaeological visibility in that exposure 60%. The site is highly disturbed and eroded. It has no subsurface archaeological potential.	Chert flake 36x26x5 mm.	Negligible
RSU20	*RSU20/L1* AHIMS #56-6-0471	628110	6027769	One stone artefact found on a vehicle track in RSU20 on a broad amorphous crest. The exposure measures c. > 10 x 2 m. Ground exposure was estimated to be 40% with archaeological visibility in that exposure 90%. The site is disturbed. Artefact density is predicted to be low.	Qtz flake 15x10x2 mm bipolar.	Low
RSU20	*RSU20/L2* AHIMS #56-6-0472	627218	6028452	Two stone artefacts (10 m apart) found on a vehicle track in RSU20 on a slope adjacent to a minor drainage line. The exposure measures c. > 10 x 2 m. Ground exposure was estimated to be 60% with archaeological visibility in that exposure	Chert retouched geometric artefact 23x18x6 mm. Volcanic (coarse) flake 39x26x9 mm.	Low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				90%. The site is disturbed. Artefact density is predicted to be low.		
RSU20	*RSU20/L3* AHIMS #56-6-0473	627121	6028561	Eight stone artefacts found on a vehicle track in RSU20 on a broad amorphous crest. The exposure measures c. > 20 x 2 m. Ground exposure was estimated to be 60% with archaeological visibility in that exposure 90%. The site is disturbed. Artefact density is predicted to be low.	Chert flake 20x19x4 mm. Qtz flake frag (possible) 20x14x9 mm. Uncertain material, retouched artefact (distal) 20x13x5 mm. Fine grained volcanic flake frag 30x12x7mm. Uncertain material, flake frag 17x7x2mm. Qtz flake frag 24x13x11 mm. Chert flake frag 17x15x3 mm. Qtz flake frag 24x13x4 mm.	Low
RSU20	*RSU20/L4* AHIMS #56-6-0474	627097	6030124	Six stone artefacts found in an erosional scald in RSU20 on a broad crest in the electricity easement. The exposure measures c. 8 x 2 m. Ground exposure was estimated to be 90% with archaeological visibility in that exposure 70%. The site is disturbed. Artefact density is predicted to be low.	Tuff flake 34x28x9 mm. Chert flake 20x18x6 mm. Chert flake frag 28x9x7 mm. Tuff flake 20x17x6mm. Chert flake frag 17x8x2 mm. Tuff flake 22x16x7 mm.	Low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
RSU20	*RSU20/L5* AHIMS #56-6-0475	627149	6030256	One stone artefact found in an erosional scald in RSU20 on a lower simple slope in the electricity easement. The exposure measures c. 3 x 1m. The gradient is gentle, and the aspect is to the east. Ground exposure was estimated to be 90% with archaeological visibility in that exposure 70%. The site is disturbed. Artefact density is predicted to be low.	Porphyry flake 28x18x7 mm.	Low
RSU20	*RSU20/L6* AHIMS #56-6-0465	627086	6030289	One stone artefact found on a track in RSU20 on a broad crest in the electricity easement. The exposure measures c. >3 x 2 m. Ground exposure was estimated to be 40% with archaeological visibility in that exposure 70%. The site is disturbed. Artefact density is predicted to be low.	Porphyry flake 29x20x12 mm.	Low
RSU20	*RSU20/L7* AHIMS #56-6-0466	627132	6030426	Two stone artefacts found in an erosional scald in RSU20 on a lower simple slope in the electricity easement. The gradient is gentle, and the aspect is to the east. The exposure measures c. 4 x 3 m. Ground exposure was estimated to be 70% with archaeological visibility in that exposure 70%. The site is disturbed. Artefact density is predicted to be low.	Silcrete distal 14x22x4 mm. Qtz flake 14x16x5 mm.	Low
RSU20	*RSU20/L8* AHIMS #56-6-0468	627070	6030417	One stone artefact found on a track in RSU20 on a broad crest in the electricity easement. The exposure measures c. >3 x	Silcrete flake 42x28x11 mm.	Low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				3 m. Ground exposure was estimated to be 70% with archaeological visibility in that exposure 70%. The site is disturbed. Artefact density is predicted to be low.		
RSU20	*RSU20/L9* AHIMS #56-6-0467	627126	6030521	Three stone artefacts found in an erosional scald in RSU20 on a lower simple slope in the electricity easement. The gradient is gentle, and the aspect is to the east. The exposure measures c. 10 x 1 m. Ground exposure was estimated to be 80% with archaeological visibility in that exposure 70%. The site is disturbed. Artefact density is predicted to be low.	Tuff flake 12x22x3 mm. Silcrete core 35x33x24 mm. Silcrete flake 12x12x2 mm.	Low
RSU20	*RSU20/L10* AHIMS #56-6-0470	627068	6030671	One stone artefact found on a track in RSU20 on a broad crest in the electricity easement. The gradient is gentle, and the aspect is to the east. The exposure measures c. >3 x 3 m. Ground exposure was estimated to be 70% with archaeological visibility in that exposure 70%. The site is disturbed. Artefact density is predicted to be low.	Tuff bidirectional core pebble cortex.	Low
RSU20	*RSU20/L11* AHIMS #56-6-0469	627058	6030837	One stone artefact found on a track in RSU20 on a broad crest in the electricity easement. The gradient is gentle, and the aspect is to the east. The exposure measures c. >3 x 3 m. Ground exposure was estimated to be 70% with	Tuff proximal 23x15x4 mm.	Low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				archaeological visibility in that exposure 70%. The site is disturbed. Artefact density is predicted to be low.		
RSU20	*RSU20/L12* AHIMS #56-6-0464	627049	6031129	One stone artefact found on a track in RSU20 on a broad crest in the electricity easement. The gradient is gentle, and the aspect is to the east. The exposure measures c. >3 x 3 m. Ground exposure was estimated to be 70% with archaeological visibility in that exposure 70%. The site is disturbed. Artefact density is predicted to be low.	Quartzite flake 47x36x13 mm.	low
RSU22	*RSU22/L1* AHIMS #56-6-0507	624978	6039859	One stone artefact found on a track in RSU22. The landform is a moderate/steep gradient simple slope and the aspect is to the west. The exposure measures c. >3 x 3 m. Ground exposure was estimated to be 90% with archaeological visibility in that exposure 80%. The site is disturbed, and the landform is highly eroded. Artefact density is predicted to be very low.	Tuff flake 29x23x9 mm.	Very low
RSU22	*RSU22/L2* AHIMS #56-6-0505	624940	6039871	One stone artefact found on a track in RSU22. The landform is a moderate gradient simple slope and the aspect is to the west. The exposure measures c. 10 x 10 m. Ground exposure was estimated to be 90% with archaeological visibility in that exposure 80%. The site is disturbed,	Tuff flake 40x27x10 mm.	Very low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				and the landform is highly eroded. Artefact density is predicted to be very low.		
RSU22	*RSU22/L3* AHIMS #56-6-0504	624955	6039963	One stone artefact found on a track in RSU22. The landform is a moderate gradient simple slope and the aspect is to the west. The exposure measures c. 20 x 10 m. Ground exposure was estimated to be 90% with archaeological visibility in that exposure 80%. The site is disturbed, and the landform is highly eroded. Artefact density is predicted to be very low.	Tuff flake 38x40x10 mm. Also, possible qtz flake 10 m to north.	Very low
RSU23	*RSU23/L1* AHIMS #56-6-0506	625083	6040240	One stone artefact found in an erosional scald in RSU23 on a lower simple slope. The gradient is gentle, and the aspect is to the WNW. The exposure measures c. 2 x 1 m. Ground exposure was estimated to be 50% with archaeological visibility in that exposure 20%. The site is disturbed. Artefact density is predicted to be low.	Tuff flake 55x35x18 mm.	Low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
RSU23	*RSU23/L2* AHIMS #56-6-0503	624656	6040472	One stone artefact found in an erosional scald in RSU23 on a crest. The gradient is gentle, and the aspect is to the SW. The exposure measures c. 2 x 1 m. Ground exposure was estimated to be 5% with archaeological visibility in that exposure 5%. The site is disturbed. Artefact density is predicted to be low.	Tuff compression flake 55x35x18 mm.	Low
RSU23	*RSU23/L3* AHIMS #6-6-0502	624911	6040455	One stone artefact found in an area of pig rooting in RSU23 on a simple slope. The gradient is gentle, and the aspect is to the SW. The exposure measures c. 10 x 4 m. Ground exposure was estimated to be 70% with archaeological visibility in that exposure 50%. The site is highly disturbed. Artefact density is predicted to be very low.	Tuff flake 38x35x10 mm.	
RSU24	*RSU24/L1* AHIMS #56-6-0536	625432	6039689	Seven stone artefacts found on and adjacent to the Powerline Road. The landform is a crest measuring c. 20 m wide. The exposure measures c. 40 x 15 m. Ground exposure was estimated to be 70% with archaeological visibility in that exposure 50%. The site is highly disturbed by clearance and road grading. Artefact density is assessed to be very low.	Tuff flake 25x19x7 mm. Tuff flake 23x21x6 mm. Qtz flaked piece with pebble cortex 25x18x13 mm. Tuff bidirectional core 72x61x47 mm. Tuff flake 50x65x24 mm. Qtz flake frag 19x11x3 mm. Chert micro-blade core 32x18x15 mm.	Very low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
RSU25	AHIMS #56-6-0038	627213	6031884	The site is a single artefact.	Site unable to be relocated	Low
RSU25	AHIMS #56-6-0039	627013	6031984	The site is an artefact scatter located on a surface erosion.	Site unable to be relocated	Low
RSU25	AHIMS #56-6-0040	627213	6031984	The site is an artefact scatter located on a track.	Site unable to be relocated	Low
RSU29	*RSU29/L1* AHIMS #56-6-0540	625867	6038625	Two stone artefacts recorded on a very gently sloping crest with an open aspect, c. 60 m west of powerline corridor. The artefacts were 4 m apart. Site extent is 10 x 1 m. Ground exposure was estimated to be 40% with archaeological visibility in that exposure 60%. There is no ground exposure away from site. The landform is significantly eroded. There is little topsoil and hence limited subsurface archaeological potential.	Greenstone hatchet hammer dressed breakage on working end some remnant edge polish elliptical cross section 180x65x30 mm. Volcanic anvil river cobble with polished surface and deep concentrated central pitting broken laterally 65x63x52 mm (Plate 9).	Negligible
RSU39	*RSU39/L1* AHIMS #56-6-0539	624377	6041639	One artefact located in a very sloping drainage depression with a north westerly aspect. Original artefact location most likely in valley bottom and basal slope interface zone, now exposed along shoreline of Talbingo Reservoir. Ground exposure was estimated to be 70% with archaeological visibility in that exposure 75%. Site area 4 x 10 m and has some	Tuff yellow distal possible notch use wear along one margin 32x21x5 mm.	Negligible to very low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				potential upslope from site as the site is highly disturbed by water action erosion.		
RSU39	*RSU39/L2* AHIMS #56-6-0538	624466	6041750	Two artefacts exposed along a graded vehicle track on a lower slope of gently gradient with a north westerly aspect. Site area is 5 x 3 m, c. 20 m from a drainage line. There is some potential for the site to extend upslope from visible exposure. Ground exposure within the site area was assessed at 20% with archaeological visibility of 40%. Ground exposure away from site was nil. Disturbances include road construction and maintenance activities.	Tuff flake platform preparation possible backing 25x25x8 mm. Tuff grey core 40% waterworn cortex 5 negative scars 3 of these blade scars 2 platforms 50x45x30 mm.	Very low



Plate 6 Lobs Hole Ravine: RSU39 looking 80°.



Plate 7 Lobs Hole Ravine: RSU40 looking 80°.

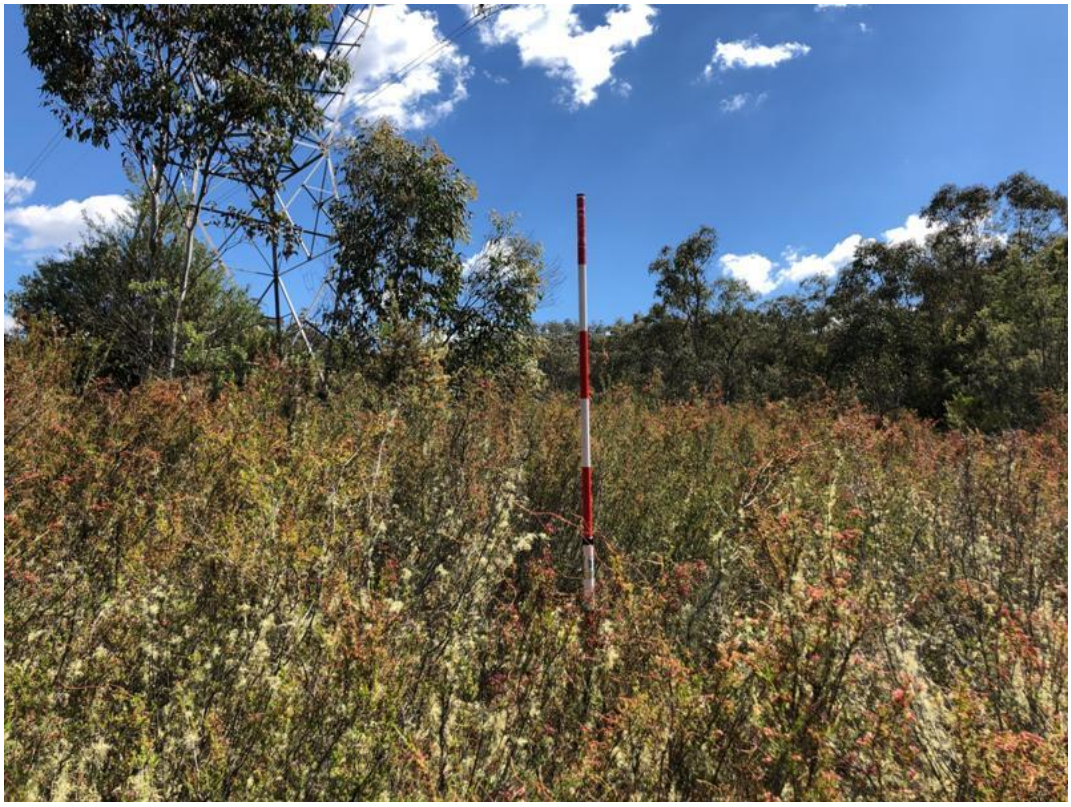


Plate 8 Lobs Hole Ravine: RSU41 looking 280°.



Plate 9 Lobs Hole Ravine: RSU29/L1: ground edge hatchet head.

6.2.2.3 Marica

The field survey at Marica was conducted in October 2017, March 2018, October 2018 and January 2019. The Marica survey area has been subject to a reasonably comprehensive field survey. The Marica survey area includes an area between the highway (in the east) and the escarpment (in the west), in addition to the ridges which descend westward from the Great Dividing Range to Lobs Hole.

The total survey area at Marica has measured 323.7 hectares, of which some 133.3 hectares has been physically inspected. Survey Units MSU9 – MSU10 are currently un-surveyed. These encompass recent additions to the project footprint. They are each assessed to be of negligible archaeological potential. These survey units are listed in Table 10 below and their location is shown on the relevant mapping. However, they are not included in the results tables below.

In all Survey Units vegetation posed a significant constraint; exposures of ground surfaces were generally absent. The area between the highway and the Great Dividing Range is a mix of open grassland and snow gum woodland. Ground exposures were negligible. The area west of the Great Dividing Range is forested, and undergrowth was found to be often thick and sometimes impenetrable, especially in gully contexts. Ground surfaces are frequently covered in fallen timber and thick leaf and bark litter.

A summary of the survey results for the Marica area is presented in Table 12. The Marica Survey Units are described in the Tables 13 and 14. It is noted that no previously recorded Aboriginal object sites are known to be present in the Marica survey area and none were recorded during the field assessments. However, several areas assessed to be Archaeologically Sensitive Landforms have been recorded; these are listed in Table 15.

Table 12 Summary of Aboriginal object site distribution in the Marica area.

SU	Previous sites	New sites	Total sites	Impacts
MSU1	0	0	0	Main Works
MSU2	0	1	1	Main Works
MSU3	0	1	1	Main Works
MSU4	0	2	2	Main Works
MSU5	0	0	0	Main Works
MSU6	0	0	0	Main Works
MSU7	0	0	0	Main Works
MSU8	0	0	0	Main Works
MSU9	0	0	0	Main Works
MSU10	0	0	0	Main Works
Total	0	4	4	

Table 13 Marica: Effective Survey Coverage.

SU ID	SU area (sq. m.)	Area inspected (%)	Area inspected (sq. m.)	GE (%)	GE (sq. m.)	AV (%)	NEC (sq. m.)	ESC (%)	Exposures
MSU1	216424	60	129855	0	0	0	0	0	Negligible: thick grass cover: bare earth, burrows.
MSU2	98442	70	68910	1	689	50	345	0.35	Very low: thick grass cover: bare earth, burrows.
MSU3	118036	90	106232	1	1062	30	319	0.27	Very low: thick grass cover: bare earth, animal diggings and burrows.
MSU4	285777	90	257200	1	2572	10	257	0.09	Very low: thick grass cover: bare earth, burrows.
MSU5	129910	40	51964	1	520	10	52	0.04	Very low: Thick bush.
MSU6	1111389	40	444556	1	4446	10	445	0.04	Very low: Thick bush.
MSU7	1229811	20	245962	1	2460	10	246	0.02	Very low: Thick bush.
MSU8	46738	60	28043	2	561	50	280	0.6	Very low: thick grass cover: bare earth, animal tracks, diggings and burrows.
Total	3236528		1332721		12309		1943	0.060	

Table 14 Marica: A description of Survey Units.

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
MSU1	635500. 6037603	634981. 6037598	A series of simple slopes of very gentle to gentle gradients with easterly and westerly aspects. The SU traverses two drainage lines. Vegetation on the higher ground is grassland and heath and the low-lying areas are damp and covered in	High level of disturbance located close to the Snowy Mountain Highway c. 30 – 50 m corridors on the eastern and western	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			thick tussock and heath. Geology is a mix of basalt and metasedimentary presenting as outcrops, cobbles and gravels. The SU is slightly rocky with occasional exposures of discrete and low boulder outcropping. Broad amorphous landscape and frequently boggy (Plate 10).	side of road. Impacts include modified drainage line; concrete culverts; imported materials, cut and benching. Other areas have minor previous impacts – earlier pastoral activity, mining, animal tracks and burrows.		
MSU2	634981. 6037598	634839. 6037721	A crest landform of very gentle gradient with a northerly aspect. Vegetation is dense cover of spindly snow gum forest with grass and heath understorey. Occasional damp and tussock covered level areas within crest landform. Geology is metasedimentary with quartz veins. Quality of quartz is low, none of which is likely to be artefactual. The SU is very slightly rocky. Soil is very fine sandy loam with a depth greater than 30 cm.	Minor previous impacts – earlier pastoral activity and wombat burrows.	Very low to low	*MSU2/L1* AHIMS #56-6-0501
MSU3	634839. 6037721	634501. 6037871	A simple slope of gentle to very gentle gradient with a westerly aspect. A minor shallow drainage line traverses the SU. Vegetation within the SU changes from open snow gum forest with thick cover of heath and tussock to open tussock country. Geology is meta- sedimentary	Minor previous impacts – earlier pastoral activity and wombat burrows.	Very low	*MSU3/L1* AHIMS #56-6-535

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			presenting as outcrops and gravels. The SU is slightly rock. Soil is a slightly gravelly brown silty loam greater than 30cm in depth. Boggy ground exposed to elements with very small shelter belts.			
MSU4	634501. 6037871	633858. 6037996	A gently to very gently undulating plateau landform with a mainly open aspect. Vegetation on the lower elevations area tussock and heath with a change to dense snow gum forest on the higher points. Geology is metasedimentary and shale presenting as shatter and gravels. Very occasional low and discrete quartz boulder outcropping. Poor and good quality quartz are present, some of which is possibly artefactual. SU is sheltered to the west by a high ridge and adjacent to a major water course, Eucumbene River, with clear views down the valley (Plate 11).	Minor previous impacts – earlier pastoral activity and wombat burrows.	Very low	*MSU4/L1* AHIMS #56-6-0500 *MSU4/L2* AHIMS #56-6-534
MSU5	633858. 6037996	633606. 6038239	Ridge crest; very gently undulating; open aspect; sedimentary bedrock; very shallow soils; woodland context.	Moderate disturbance from road construction.	Very low	Nil recorded
MSU6	633606. 6038239	630903. 6038587	Ridge crest; undulating; heavily wooded; conglomerate geology with an abundance of water worn cobbles and pebbles.	Some disturbance from road construction.	Negligible	Nil recorded
MSU7	630903. 6038587	628267. 6038065	Ridge crest with steep valley sides; heavily wooded; conglomerate geology	Undisturbed.	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			with an abundance of water worn cobbles and pebbles.			
MSU8	635281. 6037327	635418. 6037321	An amorphous crest landform of level to very gentle gradient with an open aspect. Vegetation is open snow gum forest with a grass understorey. Geology is a meta-sedimentary shale presenting as outcrops, shatter, cobbles and gravels. The SU is slightly rocky in places with exposed bedrock. Low traces of quartz are visible in the background stone profile, none of which is likely to be artefactual. Soil is fine brown silty loam and depth varies from shallow to a maximum of 30 cm.	Minor previous impacts – earlier pastoral activity and horse tracks.	Negligible	Nil recorded

Table 15 Marica: Aboriginal object descriptions.

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
MSU2	*MSU2/L1* AHIMS #56-6-0501	634900	6037613	A saddle with wetland both sides; sheltered and close to a major creek. Area measures c. 100 x 50 m.	Archaeologically sensitive landform	Moderate
MSU3	*MSU3/L1* AHIMS #56-6-0535	634611	6037599	Area measuring 50 m E/W x 100 m N/S. A level to very gently sloping bench on a spur crest with a westerly aspect. The elevated mostly level area is bounded by two drainage lines, is sheltered and overlooks the Eucumbene River valley. Some large areas of outcrops up to 15 x 10 m and occasional low and discrete small boulders. Soil is a slightly gravelly brown loam and depth varies from shallow	Archaeologically sensitive landform	Uncertain; however possibly low density

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				to a maximum of 50 cm. Ground exposure was negligible. Disturbances include animal burrows and historic pastoral activities.		
MSU4	*MSU4/L1* AHIMS #56-6-0500	634054	6037923	A spur crest measuring 75 m N/S x 50 m E/W. The area is sheltered in woodland with minimal prior disturbance. Artefact density uncertain; however possibly low density	Archaeologically sensitive landform	Uncertain; however possibly low density
MSU4	*MSU4/L2* AHIMS #56-6-0534	634309	6037856	Area measuring 80 m E/W x 50 m N/S. A very gentle simple slope with an easterly aspect adjacent to Eucumbene River and sheltered to the west by a high ridge. Ground exposure was negligible. Disturbances include animal burrows and historic pastoral activities.	Archaeologically sensitive landform	Uncertain; however possibly low density

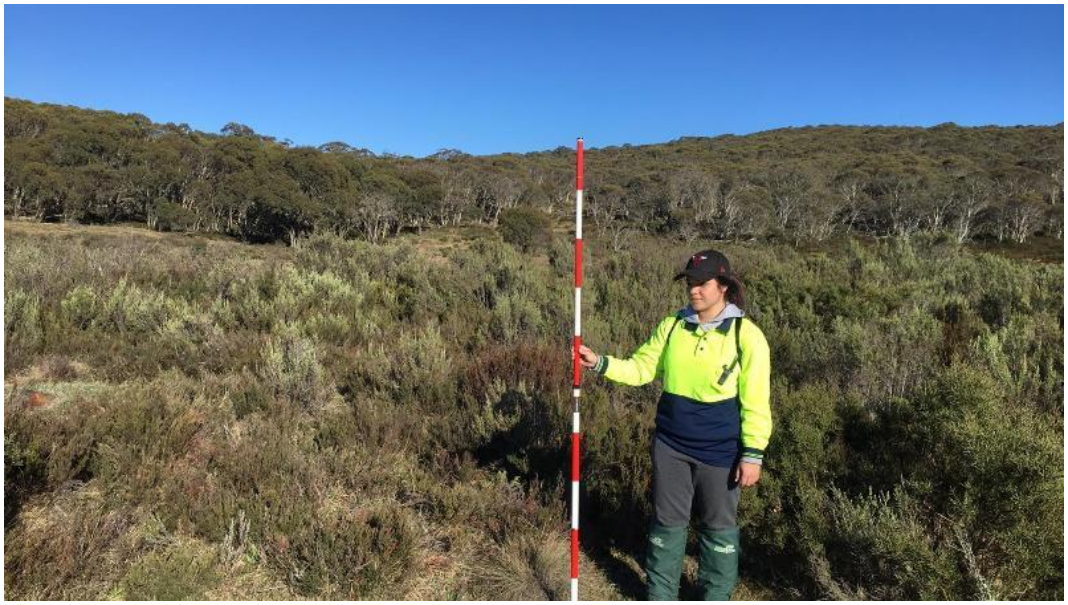


Plate 10 Marica: MSU1 looking 280°.

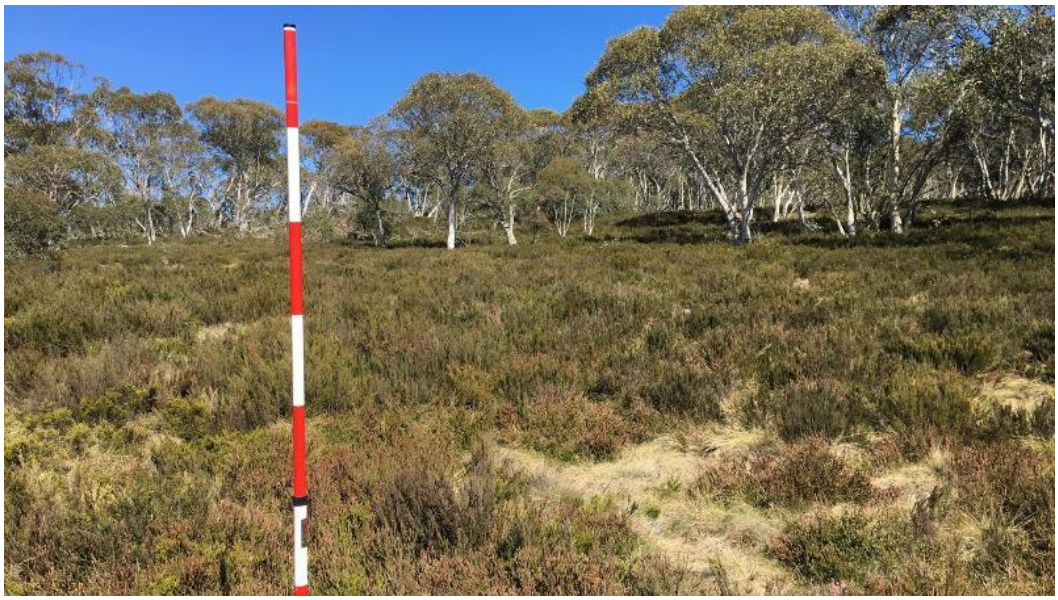


Plate 11 Marica: MSU4 looking 280°.

6.2.2.4 Gooandra Hill

The field survey at Gooandra Hill was conducted in March 2018, October 2018 and January 2019. The Gooandra Hill survey area has been subject to a reasonably comprehensive field survey. Test excavation was also carried out in certain areas which are no outside the development footprint.

The total survey area at Gooandra Hill has measured 243.1 hectares, of which some 122.5 hectares has been physically inspected. Survey Units GHSU14 – GHSU15 are currently un-surveyed. These encompass recent additions to the project footprint. They are each assessed to be of very low archaeological potential. These survey units are listed in Table 18 below and their location is shown on the relevant mapping. However, they are not included in the results tables below.

In all Survey Units, vegetation posed a significant constraint; visibility of ground surfaces was generally absent. The area is a mix of open grassland and snow gum woodland. Ground exposures were across the area were negligible.

A summary of the survey results for the Gooandra Hill area is presented in Table 16. The Gooandra Hill Survey Units are described in the Table 17 and 18. No previously recorded Aboriginal object locales are known to be present in the Gooandra Hill survey area. Some 17 sites were recorded during the field assessments (Table 19. A program of test excavation was also undertaken in this area, as documented in Section 6.3.

Table 16 Summary of Aboriginal object site distribution in the Gooandra Hill area.

SU	Previous sites	New sites	Total sites	Impacts
GHSU1	0	12 Test Transect 1 Test Transect 2 Test Transect 3 Test Transect 4 Test Transect 5 Test Transect 6	12	Nil
GHSU2	0	0	0	Nil
GHSU3	0	5	5	Nil
GHSU4	0	0	0	Nil
GHSU5	0	0	0	Nil
GHSU6	0	0	0	Nil
GHSU7	0	0	0	Nil
GHSU8	0	0	0	Nil
GHSU9	0	0	0	Nil
GHSU10	0	0	0	Nil
GHSU11	0	0	0	Nil
GHSU12	0	0	0	Main project
GHSU13	0	0	0	Nil

SU	Previous sites	New sites	Total sites	Impacts
GHSU14	0	0	0	Main works
GHSU15	0	0	0	Main works
Total	0	17	17	

Table 17 Gooandra Hill: Effective Survey Coverage.

SU ID	SU area (sq. m.)	Area inspected (%)	Area inspected (sq. m.)	GE (%)	GE (sq. m.)	AV (%)	NEC (sq. m.)	ESC (%)	Exposures
GHSU1	1549356	50	774678	1	7747	30	2324	0.15	Very low to negligible: bare earth.
GHSU2	238021	50	119011	1	1190	30	357	0.15	Very low to negligible: bare earth.
GHSU3	238860	50	119430	1	1194	30	358	0.15	Very low to negligible: bare earth.
GHSU4	90292	50	45146	1	451	30	135	0.15	Very low to negligible: bare earth.
GHSU5	163798	50	81899	1	819	30	246	0.15	Very low to negligible: bare earth.
GHSU6	113611	50	56806	1	568	30	170	0.15	Very low to negligible: bare earth.
GHSU7	5113	75	3835	0	0	0	0	0.00	Nil
GHSU8	4056	75	3042	0	0	0	0	0.00	Nil
GHSU9	2259	75	1694	1	17	1	0	0.01	Very low to negligible: bare earth.
GHSU10	6498	75	4873	0	0	0	0	0.00	Nil
GHSU11	3563	75	2672	0	0	0	0	0.00	Nil
GHSU12	4473	75	3355	1	34	5	2	0.04	Very low to negligible: bare earth.
GHSU13	10968	75	8226	1	82	5	4	0.04	Very low to negligible: bare earth.
Total	2430866		1224665		12102		3597	0.15	

Table 18 Gooandra Hill: A description of Survey Units.

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
GHSU1	636791. 6039751	636803. 6037203	Plateau; broad amorphous undulating crest. Vegetation is both woodland and grassland. Numerous springs traverse the SU. Geology is basalt bedrock; occasional scree slopes, cobble pavement and scattered cobbles. Large areas of boggy ground where springs flow sometimes over shallow rocky ground.	A 330kVa transmission line extends N/S through site. Occasional rabbit, pig and wombat diggings. The remainder of the survey unit is	Very low to low generally	*Gooandra SU1/L1* AHIMS #57-4-0313 *Gooandra SU1/L2* AHIMS #57-4-0314

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
				relatively undisturbed.		*Gooandra SU1/L3* AHIMS #57-4-0315 Gooandra SU1/L4 AHIMS #57-4-0316 *Gooandra SU1/L5* AHIMS #57-4-0317 *Gooandra SU1/L6* AHIMS #57-4-0326 *Gooandra SU1/L7* AHIMS #57-4-0325 *Gooandra SU1/L8* AHIMS #57-4-0323 *Gooandra SU1/L9* AHIMS #57-4-0324 *Gooandra SU1/L10*

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
						AHIMS #57-4-0405 *Gooandra SU1/L11* AHIMS #57-4-0408 *Gooandra SU1/L12* AHIMS 57-4-0404
GHSU2	636393. 6038194	637009. 6037821	A series of simple slopes of moderate gradient with a north-easterly aspect. Vegetation is woodland. Geology is basalt presenting as outcropping bedrock.	Apparently relatively undisturbed.	Negligible	Nil recorded
GHSU3	636342. 6038699	637358. 6038250	A drainage depression landform. Vegetation is grasses, tussock and bog species. A wet and boggy landform.	Apparently relatively undisturbed, except for horse pugging	Negligible	*Gooandra SU3/L1* AHIMS #57-4-0322 *Gooandra SU3/L2* AHIMS #57-4-0321 *Gooandra SU3/L3* AHIMS #57-4-0320 *Gooandra SU3/L4*

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
						AHIMS #57-4-0319 *Gooandra SU3/L5* AHIMS #57-4-0318 Test Tran 1 Test Tran 2 Test Tran 3 Test Tran 4 Test Tran 5 Test Tran 6 Test Tran 7 Test Tran 8 Test Tran 9 Test Tran 10 Test Tran 11 Test Tran 12
GHSU4	636839. 6038749	636995. 6038302	A series of simple slopes of moderate gradient with a south-easterly aspect. Vegetation is woodland. Geology is basalt presenting as outcropping bedrock.	Undisturbed	Negligible	Nil recorded
GHSU5	636937. 6038876	638149. 6038410	A series of simple slopes of moderate gradient with a south-easterly aspect. Vegetation is woodland. Geology is basalt presenting as outcropping bedrock.	Undisturbed	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
GHSU6	635994. 6037818	635812 6037473	A simple slope landform (a broad amorphous landform) with a southerly aspect and gentle to moderate gradient. The underlying geology is basalt of the Gooandra Volcanics which occurs as occasional compact rock outcrops. The soils are gravelly loam c. 30 cm deep. The north end of the SU is covered with thick regrowth forest with a cleared powerline corridor. The vegetations trends to heath/ grassland at the southern end.	Historic mining and pastoral activity. A powerline corridor traverses the SU	Negligible	Nil recorded
GHSU7	635819. 6037473	635690. 6037243	A broad, amorphous crest landform of gentle gradient with a southerly aspect. Vegetation of grasses and shrubs. Geology is metamorphic presenting as outcrops. Soil is a gravelly loam of a depth greater than 30 cm (Plate 12).	A powerline corridor traverses the SU	Negligible	Nil recorded
GHSU8	635672. 6037214	635581. 6037030	A very gentle to gentle gradient broad simple slope with an open to northerly aspect. Vegetation is grass and shrubland. Geology is metamorphic presenting as outcrops. Soil is a gravelly loam of a depth greater than 30cm.	A powerline corridor traverses the SU	Negligible	Nil recorded
GHSU9	635581. 6037030	635530. 6036948	A very gently sloping crest landform with an open aspect. Vegetation is snow gum with an understorey of grasses and shrubs. Geology is shale presenting as outcrops. Soil is a gravelly loam of a	A powerline corridor traverses the SU	Very low	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			depth greater than 30 cm. The SU is an elevated, well-drained surface with tree cover, overlooking river and tributary valley setting. Best sheltered position in local setting and therefore has some potential for increased artefact density.			
GHSU10	635530. 6036948	635373. 6036676	An upper simple slope landform of varying gradients from very gentle to moderate at the southern end of SU. The aspect is westerly. Vegetation is open grassland with shrubs. Geology is shale presenting as outcrops. Soil is a gravelly loam to a maximum depth of 20 cm. SU is stable.	A powerline corridor traverses the SU	Negligible	Nil recorded
GHSU11	635355. 6036646	635275. 6036483	A flat boggy plain of very gentle gradient with an open to west south westerly aspect. Vegetation is open grassland. Geology is shale. Soil is loam to a depth greater than 30 cm. The landform is aggrading. SU is open, amorphous, exposed and a frost hollow.	A powerline corridor traverses the SU	Negligible	Nil recorded
GHSU12	635275. 6036483	635167. 6036314	A very gently undulating crest with an open aspect. Vegetation is open grassland. Geology is shale presenting as outcrops. Soil is a gravelly loam to a maximum depth of 30 cm. SU is stable. SU is open, amorphous, exposed and a frost hollow (Plate 13).	A powerline corridor traverses the SU	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
GHSU13	635180. 6036079	635181. 6036063	A very gently undulating flat landform with an open aspect. Vegetation is open grassland with shrubs. Geology is Gooandra volcanics presenting as outcrops. Soil is a gravelly loam.	A powerline corridor traverses the SU	Negligible	Nil recorded

Table 19 Gooandra Hill: Aboriginal object descriptions.

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
GHSU1	*Gooandra SU1/L1* AHIMS #57-4-0313	636294	6037924	Archaeological Sensitive Landform: Elevated rise on the edge of woodland adjacent to a spring. Area measures c. 200 m NE/SW x 50 m.	Archaeologically sensitive landform	Uncertain, possibly low/moderate density.
GHSU1	*Gooandra SU1/L2* AHIMS #57-4-0314	636629	6037434	Archaeological Sensitive Landform: Knoll on the crest landform. Area measures c. 300-400 m x 200 m.	Archaeologically sensitive landform	Uncertain, possibly low/moderate density.
GHSU1	*Gooandra SU1/L3* AHIMS #57-4-0315	636835	6037518	Archaeological sensitive Landform: Elevated rise on the edge of woodland adjacent to a spring. Area measures c. 300 m N/S x 75 m E/W.	Archaeologically sensitive landform	Uncertain; possibly low to moderate density.
GHSU1	*Gooandra SU1/L4* AHIMS #57-4-0316	636994	6037645	Archaeological sensitive Landform: Elevated rise on the edge of woodland adjacent to three spring fed ponds. Area measures c. 100 m x100m.	Archaeologically sensitive landform	Uncertain; possibly low to moderate density
GHSU1	*Gooandra SU1/L5* AHIMS #57-4-0317	637114	6037602	One artefact in a 1 x 1 m bare earth patch on a slightly elevated bench.	Fine grained silcrete flake cream with red/brown	Uncertain; possibly low to moderate density.

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
					inclusions Hertzian feather 25x15x5 mm. Micro flaking from ventral consistent with scraping use.	
GHSU1	*Gooandra SU1/L6* AHIMS #57-4-0326	637161	6037539	One artefact on a slightly elevated area on a broad bench. Area to the north of the site has some potential.	Milky quartz flake fragment 29x25x9 mm.	Uncertain; possibly low to moderate density.
GHSU1	*Gooandra SU1/L7* AHIMS #57-4-0325	637225	6037673	Elevated knoll at the edge of the crest before it drops down to the north. Area measuring c. 100 x 100 m.	Archaeologically sensitive landform	Uncertain; possibly low to moderate density.
GHSU1	*Gooandra SU1/L8* AHIMS #57-4-0323	636630	6039080	Elevated rise adjacent to a spring. Area measuring 75 x 75 m.	Archaeologically sensitive landform	Uncertain; potentially moderate density.
GHSU1	*Gooandra SU1/L9* AHIMS #57-4-0324	636672	6039489	Elevated rise adjacent to a spring. Area measuring c. 200 m E/W x 100 m N/S.	Archaeologically sensitive landform	Very low
GHSU1	*Gooandra SU1/L10* AHIMS #57-4-0405	636276	6038666	Plateau ridge crest adjacent to a major spring; flat with an open aspect. Area measuring c. 100 m N/S x 30 m E/W.	Archaeologically sensitive landform	Uncertain; potentially moderate density.
GHSU1	*Gooandra SU1/L11* AHIMS #57-4-0408	637212	6038974	Plateau ridge crest knoll adjacent to a spring at western end; flat with an open aspect. Area measuring c. 300 m E/W x 150 m N/S.	Archaeologically sensitive landform	Uncertain; potentially low/ moderate density.
GHSU1	*Gooandra SU1/L12* AHIMS #57-4-0404	636397	6039213	Plateau ridge crest knoll; flat with an open aspect. Area measuring c. 100 m N/S x 50 m E/W.	Archaeologically sensitive landform	Very low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
GHSU3	*Gooandra SU3/L1* AHIMS #57-4-0322	636394	6038604	Elevated rise in a drainage depression adjacent to a spring head measuring 80 x 80 m.	Archaeologically sensitive landform	Uncertain; however, possibly moderate density.
GHSU3	*Gooandra SU3/L2* AHIMS #57-4-0321	636871	6038283	Elevated rise adjacent to a drainage depression and a bog; measuring 80 x 80 m.	Archaeologically sensitive landform	Uncertain; potentially low/ moderate density
GHSU3	*Gooandra SU3/L3* AHIMS #57-4-0320	636767	6038285	Series of gently sloping forested toe slopes fingering down into the drainage depression and separated by spring fed minor drains.	Archaeologically sensitive landform	Uncertain; potentially low density.
GHSU3	*Gooandra SU3/L4* AHIMS #57-4-0319	637173	6038286	Terminal flat spur crest adjacent to a drainage line on a shale bedrock with shallow soil.	Archaeologically sensitive landform	Uncertain; potentially low density.
GHSU3	*Gooandra SU3/L5* AHIMS #57-4-0318	636901	6038869	Sheltered area to the southeast of a high bank which provides protection from north westerly prevailing weather. Vegetation is woodland and the ASL is adjacent to spring head.	Archaeologically sensitive landform	Uncertain; potentially low/moderate density.



Plate 12 Gooandra Hill: GHSU7 looking 270°.



Plate 13 Gooandra Hill: GHSU13 looking 340°.

6.2.2.5 Wallaces Creek Fire Trail

The field survey at Wallaces Creek Fire Trail was conducted in March 2018 and January 2019. The Wallaces Creek Fire Trail survey area has been subject to a reasonably comprehensive field survey. This survey extended from the Snowy Mountains Highway, west to Wallaces Creek Fire Trail and hence, northward along the fire trail to Marica.

The total survey area at Wallaces Creek Trail has measured 243.1 hectares, of which some 122.5 hectares has been physically inspected. In all Survey Units, vegetation frequently posed a constraint; visibility of ground surfaces was generally absent. The area is a mix of open grassland and snow gum woodland. Ground exposures were generally negligible.

A summary of the survey results for the Wallaces Creek Fire Trail area is presented in Table 20. The Wallaces Creek Fire Trail Survey Units are described in Tables 21 and 22. It is noted that no previously recorded Aboriginal sites are known to be present in the Wallaces Creek Fire Trail survey area. Some 20 Aboriginal object locales were recorded during the field assessments (Table 23). The Wallaces Creek Fire Trail survey area is assessed to be reasonably archaeologically sensitive.

The Wallaces Creek Fire Trail survey area is now outside the development footprint.

Table 20 Summary of Aboriginal object site distribution in the Wallaces Creek Fire Trail area.

SU	Previous sites	New sites	Total sites	Impacts
WSU1	0	0	0	Nil
WSU2	0	0	0	Nil
WSU3	0	0	0	Nil
WSU4	0	1	1	Nil
WSU5	0	0	0	Nil
WSU6	0	0	0	Nil
WSU7	0	2	2	Nil
WSU8	0	0	0	Nil
WSU9	0	5	5	Nil
WSU10	0	0	0	Nil
WSU11	0	0	0	Nil
WSU12	0	0	0	Nil
WSU13	0	2	2	Nil
WSU14	0	0	0	Nil
WSU15	0	0	0	Nil
WSU16	0	10	10	Nil
Total	0	20	20	

Table 21 Wallaces Creek Fire Trail: Effective Survey Coverage.

SU ID	SU area (sq. m.)	Area inspected (%)	Area inspected (sq. m.)	GE (%)	GE (sq. m.)	AV (%)	NEC (sq. m.)	ESC (%)	Exposures
WSU1	27855	60	16713	1	167	10	17	0.06	Negligible: thick tussock and grass cover.
WSU2	50687	60	30412	1	304	10	30	0.06	Negligible: thick tussock and grass cover.
WSU3	20316	60	12189	1	122	10	12	0.06	Negligible: thick tussock and grass cover.
WSU4	22773	75	17080	5	854	10	85	0.38	Very low: thick grass cover: bare earth, burrows.
WSU5	11915	75	8936	5	447	20	89	0.75	Very low: thick grass cover: bare earth, burrows.
WSU6	3752	75	2814	5	141	5	7	0.19	Very low: thick grass cover: bare earth, burrows.
WSU7	25637	60	15382	1	154	10	15	0.06	Negligible: thick tussock and grass cover.
WSU8	36146	75	27110	1	271	10	27	0.08	Negligible: thick tussock and grass cover.
WSU9	331782	60	199069	5	9953	30	2986	0.90	Very low: thick grass cover: bare earth, burrows.
WSU10	105276	60	63165	1	632	10	63	0.06	Negligible: thick tussock and grass cover.
WSU11	58096	60	34857	1	349	10	35	0.06	Negligible: thick tussock and grass cover.
WSU12	116195	80	92956	1	930	10	93	0.08	Negligible: thick tussock and grass cover.
WSU13	86058	75	64544	1	645	20	129	0.15	Very low: thick grass cover: bare earth, burrows.
WSU14	93600	60	56160	1	562	20	112	0.12	Very low: thick grass cover.

SU ID	SU area (sq. m.)	Area inspected (%)	Area inspected (sq. m.)	GE (%)	GE (sq. m.)	AV (%)	NEC (sq. m.)	ESC (%)	Exposures
WSU15	382881	80	306305	5	15315	40	6126	1.60	Very low: thick grass cover: bare earth, burrows.
WSU16	41214087	75	30910565	5	1545528	50	772764	1.88	Very low: thick grass cover: bare earth, vehicle track, burrows.
Total	42587055		31858258		1576373		782592	1.84	

Table 22 Wallaces Creek Fire Trail: A description of Survey Units.

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
WSU1	635139. 6035369	630848. 6028697	Open plain flat landform with a minor drainage line; open aspect. Grassland with boggy areas. Rocky landscape with some reefing, and cobbles and bedrock close to the surface. Gravelly loam. Metamorphic/ basalt geology. A very large, amorphous landform, generally boggy.	Relatively stable and undisturbed.	Negligible	Nil recorded
WSU2	630848. 6028697	634405. 6035469	Low elevation crest landform with very gently sloping sides and surfaces; boggy. Basalt geology with occasional low boulders. Grassland with heath. Broad amorphous landscape and frequently boggy.	Minor previous impacts. Transmission easement and earlier pastoral activity.	Negligible	Nil recorded
WSU3	634405. 6035469	634251. 6035495	Drainage depression landform with very gentle gradient and an open aspect. Trending to boggy; intermittent scald ponds/depressions. Basalt geology with gravelly loam. Grassland with heath.	Minor previous impacts: earlier pastoral activity.	Negligible	Nil recorded
WSU4	634251. 6035495	634141. 6035397	Low elevation crest landform with very gently sloping sides and surfaces; well	Minor previous impacts: earlier pastoral activity.	Very low	*WSU4/L1* AHIMS

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			drained. Basalt geology with occasional low boulders on high points. Snow gum woodland with heath.			#56-6-0526
WSU5	634141. 6035397	634103. 6035516	Flat landform; probable frost hollow. Grassland with boggy areas. Bedrock boulders. Gravelly loam. Basalt geology with a gravely loam soil. Scalds/front heave patches.	Minor previous impacts: earlier pastoral activity.	Negligible	Nil recorded
WSU6	634103. 6035516	634095. 6035599	Drainage depression landform with very gentle gradient and a northerly aspect. Trending to boggy. Basalt geology with gravelly loam. Grassland with heath. Amorphous and exposed landform	Minor previous impacts: earlier pastoral activity.	Negligible	Nil recorded
WSU7	634095. 6035599	633910. 6035447	Low elevation crest landform sloping to the north; well drained. Basalt geology with occasional outcropping bedrock. Vegetation is snow gum woodland with a heath understorey.	Minor previous impacts: earlier pastoral activity.	Very low	*WSU7/L1* AHIMS #56-6-0527 *WSU7/L2* AHIMS #56-6-0525
WSU8	633910. 6035447	633951. 6035722	Drainage depression landform with very gentle gradient. Treeless frost hollow. Vegetation is grassland with heath. The SU is very boggy. The geology is basalt. Soil is a gravelly loam.	Minor previous impacts: earlier pastoral activity.	Negligible	Nil recorded
WSU9	633951. 6035722	633631. 6035719	A crest landform of gentle to very gentle gradient with a northerly aspect. crest and crest offshoots all part of the same system overlooking creek valley and associated tributary drainage lines. Vegetation is	Minor previous impacts: earlier pastoral activity.	Negligible-to very low	*WSU9/L1* AHIMS #56-6-0524 *WSU9/L2* AHIMS

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			snow gum forest. Geology is metamorphic and is present as cobble and gravels. Traces of quartz are present, some of which is possibly artefactual. SU is slightly rocky to rocky, with exposed bedrock outcropping on high points. Soil is a gravelly loam up to 50 cm deep. The landform is stable.			#56-6-0523 *WSU9/L3* AHIMS #56-6-0522 WSU9/L4 AHIMS #56-6-0521 *WSU9/L5* AHIMS #56-6-0520
WSU10	633631. 6035719	633655. 6035524	A very gently sloping boggy drainage depression roughly N-S trending. The vegetation is grasses and heath. The Geology is basalt and the area are slightly rocky. Soil is a saturated gravelly loam. The landform is an amorphous, boggy terrain with no shelter. It is one of several local lower-lying zones occurring between a series of linear/elongated minor spur crest features.	Minor previous impacts: earlier pastoral activity.	Negligible	Nil recorded
WSU11	633366. 6035485 centre		A flat drainage depression [frost hollow] with a northerly aspect. The vegetation are grasses and shrubs. The Geology is metamorphic presenting as outcropping, shatter and gravels. Reefing outcrops at points within the SU. The landform is mostly boggy terrain with no shelter.	Minor to moderate previous impacts: some mining at northern end of SU and earlier pastoral activity.	Negligible	Nil recorded
WSU12	633328. 6035876	632975. 6035171	A level to very gently sloping drainage depression with a northerly aspect. The	Moderate to high previous impacts:	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			vegetation are grasses, shrubs, riparian/bog species. The Geology is basalt/ metamorphic interface with a very occasional reefing outcrop. Quartz is present in background stone profile within creek gravels. Soil is an alluvium and slope wash aggregation in base. Feeder valley bottom – flowing creek [minimum 2nd order] largely spring fed at head and along fringes [ie. basal slopes/creek edge]. Boggy low-lying zone; periodically inundated tussock flats.	mining and earlier pastoral activity. Most of this SU is a mining site/complex.		
WSU13	632910. 6035154	633268. 6035867	A series of low relief spur crests of very gentle to almost level gradient with an easterly aspect. Vegetation is grass shrubland with scattered snow gums. Geology is a basalt/metamorphic presenting as gravels, boulders and cobbles. The SU is very slightly rocky. Traces of quartz are present, some of which is possibly artefactual. Soil is a very fine sandy loam. Series of low gradient elevated spur toes at edge of riparian corridor/basal slope zone, interspersed with short feeder spring-fed drainage lines connecting with creek.	Minor to moderate previous impacts: some mining and earlier pastoral activity.	Very low	*WSU13/L1* AHIMS #56-6-0519 *WSU13/L2* AHIMS #56-6-0518
WSU14	633376. 6035826	633052. 6035200	A series of low relief spur crests of very gentle to almost level gradient with a westerly aspect. Vegetation is grass and	Minor to moderate previous impacts: some mining along drainage	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			heath. Geology is a basalt/ metamorphic presenting as gravels and cobbles in drainage lines. The SU is very slightly rocky. Traces of quartz are observed within the background stone profile. Soil is a gravelly loam to loam. Series of generally low gradient elevated spur toes at edge of riparian corridor/basal slope zone, interspersed with short feeder spring-fed drainage lines connecting with creek. Open exposed terrain with few trees.	lines, races along face of slope and earlier pastoral activity.		
WSU15	632844. 6035105	633074. 6036020	An upper unit of simple slope of gentle gradient with an easterly aspect. Vegetation is snow gum woodland. Geology is basalt. Traces of low-quality quartz are observed within the background stone profile. Higher elevation crest and sloping crest surfaces; further from springs and creek water.	Minor previous impacts: earlier pastoral activity.	Negligible	Nil recorded
WSU16	632685. 6034963	633585. 6037689	A ridge crest landform of gentle to very gentle gradient with an open aspect. A major ridge within the landscape of 1,450 m asl at the highest point. Vegetation is open snow gum forest with a grass and heath understory. Geology is metamorphic shale presenting as outcrops and shatter. SU is slightly rocky with increased outcropping on higher points. Traces of	Minor to moderate previous impacts: formed vehicle track, vegetation clearance, animal diggings, bare earth patches, possible scalping of some areas and earlier pastoral activity.	Very low to low	*WSU16/L1* AHIMS #56-6-0516 *WSU16/L2* AHIMS #56-6-0515 *WSU16/L3* AHIMS #56-6-0517

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			quartz are present, some of which is possibly artefactual. Naturally occurring black chert was observed in the background stone profile. Soil is a gravelly loam to a very fine gravelly loam, ranging in depth from skeletal up to 30 cm [max.].			*WSU16/L4* AHIMS #56-6-0514 *WSU16/L5* AHIMS #56-6-0513 *WSU16/L6* AHIMS #56-6-0512 *WSU16/L7* AHIMS #56-6-0510 *WSU16/L8* AHIMS #56-6-0511 *WSU16/L9* AHIMS #56-6-0509 *WSU16/L10* AHIMS #56-6-0508

Table 23 Wallaces Creek Fire Trail: Aboriginal object descriptions.

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
WSU4	*WSU4/L1* AHIMS #56-6-0526	634182	6035447	Three stone artefacts located along a vehicle track on a knoll with subsurface potential (60 m EW x 60 m NS). Area of ground exposure was	Tuff flake grey possible recent edge damage 2% terrestrial cortex 38x35x11 mm. Grey tuff proximal	Very low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				assessed at 2% with archaeological visibility of 5%. There was no ground exposure away from site. Site located on an elevated rise above Kiandra Plain. Disturbances include animal burrows and historic pastoral activities.	broad Hertzian 15x12x3 mm. Tuff cream proximal bending 9x7x3 mm.	
WSU7	*WSU7/L1* AHIMS #56-6-0527	634057	6035628	Area measuring 75 m EW x 50 m NS. A very gentle terminal end of a crest adjacent to an active Spring head. Ground exposure was negligible. Disturbances include animal burrows and historic pastoral activities.	Archaeologically sensitive landform	Low
WSU7	*WSU7/L2* AHIMS #56-6-0525	633965	6035507	Area measuring 80 m NS x 50 m EW. A very gentle crest. Ground exposure was negligible. Disturbances include animal burrows and historic pastoral activities.	Archaeologically sensitive landform	Low
WSU9	*WSU9/L1* AHIMS #56-6-0524	633825 633785	6035651 6035648	Artefacts in an area c. 40 m x 20 m in a broader area of ASL measuring 100 m N/S x 40 m E/W. Ground exposure within the site area was assessed at 10% with archaeological visibility of 30%. Ground exposure away from site was no more than 5% with archaeological visibility of 5%. Disturbances include bare earth scalds; horse pads; pig diggings;	Sample of 18 artefacts observed recorded: Tuff flake green brown mottled 10% terrestrial cortex focal Hertzian possible use wear along distal margin 25x24x5 mm. Tuff green brown mottled flake frag 20x9x3 mm. Chert green grey mottled medial notched on one margin – originating	Very low to low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				rabbit burrows and historic pastoral activities.	from ventral face possible use wear along opposite margin to notch good quality material 20x9x5 mm. Tuff green mottled proximal broad Hertzian 18x24x6 mm.	
WSU9	*WSU9/L2* AHIMS #56-6-0523	633561 Bench #1 633581 Bench #2	6035613 Bench #1 6035652 Bench #2	Area measuring 60 m x 60 m includes two small benches on a crest of a very gentle gradient and a northerly aspect. ASL area elevated above plain; shelter from the south. Crest slightly rocky with exposures of reef outcropping and shallow soils – 20 cm deep (max.). Ground exposure was negligible. Disturbances include animal burrows and historic pastoral activities.	Archaeologically sensitive landform	Low
WSU9	*WSU9/L3* AHIMS #56-6-0522	633804	6035217	One stone artefact located on a sheltered level bench of a crest with subsurface potential (50 m x 50 m). The site area is 5 x 3 m. Ground exposure within the site area was assessed at 80% with archaeological visibility of 10%. Ground exposure away from site was no more than 1% with archaeological visibility of 10%. Disturbances include wombat, horse, rabbit and historic pastoral activities.	Tuff flake light grey step broad 38x32x12 mm.	Very low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
WSU9	*WSU9/L4* AHIMS #56-6-0521	633701	6035237	One stone artefact located on a sheltered level bench of an upper crest above Kiandra Plain. The site area is 2 x 2 m and has potential to extend outward from exposure c.40 m x 40 m. Ground exposure within the site area was assessed at 60% with archaeological visibility of 10%. Ground exposure away from site was 0%. Disturbances include localised wombat diggings and historic pastoral activities.	Tuff flake grey gull wing broad feather 30x34x11 mm.	Very low
WSU9	*WSU9/L5* AHIMS #56-6-0520	633307 NE 633167 SW	6035450 NE 6035386 SW	Area measuring 40 m x 40 m on a crest of a very gentle gradient and a northerly to open aspect. ASL area elevated above Plain. Vegetation is open forest with an understorey of grasses and heath. Geology is a mix of basalt and metasedimentary presenting as sparse outcropping and cobbles. The SU is slightly rocky. Soil to a depth of 20 cm (max.). Ground exposure within the site area was assessed at 1% with archaeological visibility of 30%. Disturbances include wombat and rabbit burrows and historic pastoral activities.	Archaeologically sensitive landform	Negligible
WSU13	*WSU13/L1* AHIMS	632989	6035318	Two stone artefacts located directly above creek line on a level to very	Quartzite waterworn cobble hammerstone/grindstone/top-	Very low to low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
	#56-6-0519 (Plate 14)			gently sloping bench of a spur crest with subsurface potential (60 m NS x 100 m EW). The exposed site area is 1 x 1 metres. Vegetation is grassland with sparse trees and heath. Geology is a mix of basalt and meta sedimentary presenting as sparse outcropping and cobbles. The SU is very slightly rocky. A moderate level of quartz boulders and gravels are present across the site area, some of which is possibly artefactual. Ground exposure within the site area was assessed as negligible. Disturbances include historic mining, possible hut site and pastoral activities.	stone pitting both ends and ground along one long margin polish is evident on one of the flat surfaces 98x74x50 mm. Quartz boulder ?anvil/stone procurement area] embedded in ground with evidence of pounding – possible Hertzian cones and crushing scattered across the top surface of the exposed section of boulder; numerous quartz chips scattered around base of boulder 850x700mm. Quartzite hammerstone above located half embedded in ground c. 25 cm north of quartz boulder.	
WSU13	*WSU13/L2* AHIMS #56-6-0518	632920	6035344	At least 14 stone artefacts scattered across an area of 4 x 20 m located on a level crest, downslope and to the east of an old hut ruin. The aspect is easterly. A sample of artefacts were recorded. A further 5 tuff flakes and 1 core at 632888. 6035379 in wombat digging area 2m x 1m. The site has a high potential to extend outward from exposure. Geology is basalt and the SU is very slightly rocky. Ground	Sample recorded: Quartz distal rotation flake axial termination 16x10x4 mm. Grey tuff flake 40% terrestrial cortex 46x29x11 mm. Grey tuff distal feather 18x16x3 mm. Grey tuff blade flake mid dorsal ridge; feather focal 19x14x4 mm. Grey tuff distal mid dorsal ridge axial termination;	Very low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				exposure within the site area was assessed at 1% with archaeological visibility of 20%. Ground exposure away from site was 0%. Disturbances include old hut site, wombat and rabbit burrows and historic pastoral activities.	22x14x4 mm. Grey tuff flake 3 negative scars plunging 51x33x11 mm. Grey tuff flake fragment 13x6x3 mm. Grey tuff flake frag dorsal ridge 17x11x6mm.	
WSU16	*WSU16/L1* AHIMS #56-6-0516	632847	6035803	Two artefacts located in an area 1 m x 10 m on a ridge crest landform of a very gentle gradient sloping to the east. The aspect is open. Vegetation is open snow gum forest with grass understorey. Geology is shale presenting as outcrops, shatter and gravels. Areas within the SU are highly eroded down to bedrock and skeletal soils. Traces of quartz were observed within the background stone profile, some of which may be artefactual. Ground exposure within the site area was assessed at 40% with archaeological visibility of 100%. There is nil potential for the site to contain subsurface material. The site has some potential to extend outward from exposure and away from highly disturbed areas. Disturbances include erosion, possible mechanical works and historic pastoral activities.	Grey volcanic flake overhang removal axial termination 26x65x19mm. Grey volcanic distal feather 40% terrestrial cortex 27x27x14 mm.	Negligible to very low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
WSU16	*WSU16/L2* AHIMS #56-6-0515	632818	6035767	One stone artefact located on a ridge crest landform of a very gentle gradient sloping to the east. The aspect is open. Vegetation is open snow gum forest with grass understorey. Geology is shale presenting as outcrops, shatter and gravels. The site area is 3 x 1 m and has some potential to extend outward from exposure. Soil depth at site is greater than 30 cm. Ground exposure within the site area was assessed at 80% with archaeological visibility of 50%. Ground exposure away from site was negligible. Disturbances include vehicle wheel tracks, erosion and historic pastoral activities.	Grey tuff flake broad Hertzian feather 37x52x13 mm.	Very low
WSU16	*WSU16/L3* AHIMS #56-6-0517	632786	6035746	Six stone artefacts located on vehicle track on a ridge crest landform of a very gentle gradient sloping to the east. The aspect is open. c. 100 m between SU16 locales 1, 2 and 3; located on the same ridge crest landform. Vegetation is open snow gum forest with grass understorey. Geology is shale presenting as outcrops, shatter and gravels. The site area is 3 x 2 m and has potential to extend outward from exposure. Soil depth at site is greater than 30	All very similar material. Cream tuff flake broad Hertzian feather 33x27x10 mm. Cream tuff flake broad Hertzian feather some edge damage 27x37x8 mm. Cream tuff distal feather 27x20x8 mm. Cream tuff flake broad Hertzian recent distal damage 25x39x11 mm. Cream tuff flaked piece 10% cortex 50x42x12 mm.	Very low to low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				cm. Ground exposure within the site area was assessed at 80% with archaeological visibility of 80%. Ground exposure away from site was negligible. Disturbances include vehicle wheel tracks, erosion and historic pastoral activities.	Cream tuff flaked piece 67x48x9mm.	
WSU16	*WSU16/L4* AHIMS #56-6-0514	632736 632735	6035381 6035336	Seven stone artefacts located on vehicle track on a ridge crest landform of a very gentle gradient sloping to the east. The aspect is open. Vegetation is open snow gum forest with grass understorey. Geology is metamorphic shale presenting as outcrops, shatter, cobbles and gravels. The SU is slightly rocky. High levels of quartz were observed within the background stone profile, some of which may be artefactual. The site area is 3 x 40 m and has potential to extend outward from exposure. There is no subsurface potential within site area. Ground exposure within the site area was assessed at 30% with archaeological visibility of 60%. Ground exposure away from site was no more than 1% with archaeological visibility of 20%. Disturbances	Grey tuff medial 2 dorsal ridges 14x24x5 mm. Grey silcrete flake focal 3 negative scars angled step termination 49x22x9 mm. Grey tuff flaked piece; core fragment 46x22x18 mm. Black chert medial mid dorsal ridge 11x11x3 mm. Black chert flake broad feather 25x24x4 mm. Yellow tuff flake frag some remnant bulb 2 negative scars 10% cortex 44x40x12 mm. Black chert flaked piece 20x18x5 mm.	Very low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				include vehicle wheel tracks, erosion and historic pastoral activities.		
WSU16	*WSU16/L5* AHIMS #56-6-0513 (Plate 15)	632712	6035179	Three stone artefacts located on vehicle track on a ridge crest landform of a very gentle gradient. The aspect is basically open. Geology is shale presenting as outcrops, shatter, cobbles and gravels. The SU is slightly rocky. High levels of quartz were observed within the background stone profile, some of which may be artefactual. The site area is 20 x 1 m and has moderate potential to extend outward from exposure. Ground exposure within the site area was assessed at 3% with archaeological visibility of 60%. Ground exposure away from site was no more than 1% with archaeological visibility of 20%. Disturbances include vehicle wheel tracks, erosion and historic pastoral activities.	Grey tuff flake focal feather 30x22x9 mm. Grey tuff core fragment split in half single platform 3 negative scars 40x45x29 mm. Grey tuff flake 63x 36x19 mm.	Negligible
WSU16	*WSU16/L6* AHIMS #56-6-0512	632691	6034949	One stone artefact located on vehicle track on a ridge crest landform of a gentle gradient, a gentle pitch on ridge top. The aspect is northerly. Geology is shale presenting as outcrops, shatter, cobbles and gravels. The SU is very slightly	Grey silcrete core 10 negatives minimum 2 rotations 46x60x42 mm.	Very low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				rocky. Traces of quartz were observed within the background stone profile. The site area is 2 x 1 m and has low potential to extend outward from exposure. Ground exposure within the site area was assessed at 1% with archaeological visibility of 5%. Ground exposure away from site was negligible. Disturbances include vehicle wheel tracks and historic pastoral activities.		
WSU16	*WSU16/L7* AHIMS #56-6-0510	632964	6036192	Two stone artefacts located on vehicle track on a ridge crest landform of a very gentle gradient with an open aspect. Geology is shale presenting as outcrops, shatter, cobbles and gravels. The SU is very slightly rocky. Traces of quartz were observed within the background stone profile, some of which is possibly artefactual. The site area is 3 x 1 m and has moderate potential to extend outward from exposure. Ground exposure within the site area was assessed at 30% with archaeological visibility of 40%. Ground exposure away from site was negligible. Disturbances include vehicle wheel tracks, imported	Grey tuff flake broad axial 38x49x13 mm. Grey tuff flake 33x24x11 mm.	Negligible

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				materials, track maintenance and historic pastoral activities.		
WSU16	*WSU16/L8* AHIMS #56-6-0511	633178	6036739	Two stone artefacts located on vehicle track on a ridge crest landform of a very gentle gradient with a southerly aspect. Geology is shale. Traces of quartz were observed within the background stone profile, some of which is possibly artefactual. The site area is 4 x 1.5 m and has moderate potential to extend outward from exposure. Ground exposure within the site area was assessed at 75% with archaeological visibility of 60%. Ground exposure away from site was negligible. Disturbances include vehicle wheel tracks and historic pastoral activities.	Yellow grey tuff flake broken laterally - conjoins broad axial 34x32x11 mm. Red brown chert flake broad axial 21x14x3 mm.	Negligible to very low
WSU16	*WSU16/L9* AHIMS #56-6-0509	633265	6036861	One stone artefact located on a vehicle track on a ridge crest landform of a very gentle gradient with a northerly aspect. Geology is shale. Traces of quartz were observed within the background stone profile, some of which is possibly artefactual. The site area is 4 x 1 m and has moderate potential to extend outward from exposure. Ground	Grey silcrete medial fragment blade flake 15x15x6 mm.	Negligible

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				exposure within the site area was assessed at 40% with archaeological visibility of 75%. Ground exposure away from site was negligible. Disturbances include vehicle wheel tracks and historic pastoral activities.		
WSU16	*WSU16/L10* AHIMS #56-6-0508	633473	6037371	One stone artefact on a level ridge crest landform with an open aspect. Geology is shale presenting as outcrops, shatter, cobbles and gravels. The SU is very slightly rocky to rocky. Traces of quartz were observed within the background stone profile, none of which is artefactual. Stone artefact located on bare earth patch next to low rock 'spine' outcrop, c. 7 m west of vehicle track. The site area is 5 x 1.5 m and has low potential to extend outward from exposure. Ground exposure within the site area was assessed at 60% with archaeological visibility of 40%. Ground exposure away from site was no more than 1% with archaeological visibility of 5%. Disturbances include animal scratching, erosion and historic pastoral activities.	Yellow grey tuff flake broad feather 29x27x8 mm.	Negligible



Plate 14 Wallaces Creek Fire Trail: WSU13/L1 looking 215°.



Plate 15 Wallaces Creek Fire Trail: WSU16/L5 looking 205°.

6.2.2.6 Kings Cross Road

The field survey at Kings Cross Road was conducted in November 2018. The Kings Cross Road survey area has been subject to a reasonably comprehensive field survey. This survey extended from the south west end of Kings Cross Road to its intersection with Link Road.

The total survey area at Kings Cross Road has measured 104.8 hectares, of which some 21 hectares has been physically inspected. In all Survey Units, vegetation frequently posed a constraint; visibility of ground surfaces was often absent. The area is a mix of open grassland and snow gum woodland. Ground exposures were generally negligible. Certain areas were found to be highly disturbed by previous works particularly associated with the construction of the original Snowy Mountains Scheme. Frequently, landforms were highly modified by gross earth works such that the original potential artefact bearing soils very removed.

A summary of the survey results for the Kings Cross Road area is presented in Table 24. The Kings Cross Road Survey Units are described in Tables 25 and 26. It is noted that one previously recorded Aboriginal site is known to be present in the Kings Cross Road survey area. This site is a *modified tree* (AHIMS 56-6-130) which could not be located during the course of the field survey. It is determined that this site is not in the project area.

No Aboriginal objects were recorded during the field assessments. The Kings Cross Road survey area is assessed to be of very low to negligible archaeologically sensitivity.

Table 24 Summary of Aboriginal object site distribution in the Kings Cross Road survey area.

SU	Previous sites	New sites	Total sites	Impacts
KCSU1	0	0	0	Main works
KCSU2	0	0	0	Main works
KCSU3	0	0	0	Main works
KCSU4	0	0	0	Main works
KCSU5	0	0	0	Main works
KCSU6	0	0	0	Main works
KCSU7	0	0	0	Main works
Total	0	0	0	

Table 25 Kings Cross Road: Effective Survey Coverage.

SU ID	SU area (sq. m.)	Area inspected (%)	Area inspected (sq. m.)	GE (%)	GE (sq. m.)	AV (%)	NEC (sq. m.)	ESC (%)	Exposures
KCSU1	63916	20	12783	1	128	10	13	0.02	Negligible, bare earth, edge of road.
KCSU2	52919	20	10584	1	106	10	11	0.02	Negligible, bare earth, edge of road.
KCSU3	35029	20	7006	1	70	10	7	0.02	Negligible, bare earth, edge of road.
KCSU4	12824	20	2565	1	26	10	3	0.02	Negligible, bare earth, edge of road.
KCSU5	44823	20	8965	1	90	10	9	0.02	Negligible, bare earth, edge of road.
KCSU6	101224	20	20245	1	202	10	20	0.02	Negligible, bare earth, edge of road.
KCSU7	737042	20	147408	1	1474	10	147	0.02	Negligible, bare earth, edge of road.
Total	1047777		209555		2096		210	0	

Table 26 Kings Cross Road: A description of Survey Units.

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
KCSU1	625371. 6022617	625864. 6022927	A crest landform of very gentle gradient with an open aspect. Vegetation is Eucalypts, grasses and shrubs. Geology is basalt. Soil is a sub-alpine loam. SU highly disturbed.	The main disturbance is the well-formed dirt road construction [graded, pushed-up rocks, culverts]. Significant road works, grading and raising of road level, culverts either side – deep. Parallel ridges of	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
				pushed up materials both sides of road. Broad areas cleared. Other disturbance includes SMA, ski, recreational and pastoral activities (Plate 16).		
KCSU2	625865. 6022924	626276. 6023143	A simple slope landform of moderate gradient with a north-easterly aspect. Vegetation is Eucalypts, grasses and dense shrubs. Geology is basalt. Soil is a sub-alpine loam. SU highly disturbed.	The main disturbance is the well-formed dirt road construction [graded, pushed-up rocks, culverts]. Significant road works, grading and raising of road level, culverts either side – deep. Parallel ridges of pushed up materials both sides of road. Broad areas cleared. Other disturbance includes SMA, ski, recreational and pastoral activities.	Negligible	Nil recorded
KCSU3	626273. 6023138	626560. 6023053	A simple slope landform of moderate gradient with a south-easterly aspect. Vegetation is grasses and shrubs. Geology is basalt. Soil is a sub-alpine loam. The landform is eroded. SU highly disturbed.	The main disturbance is the well-formed dirt road construction [graded, cut and benched, pushed -up rocks]. Significant road works, dam and dam control house [Dry Dam]. Broad areas cleared. Other disturbance includes SMA,	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
				ski, recreational and pastoral activities.		
KCSU4	626558. 6023053	626665. 6023081	A drainage depression landform of very gentle gradient with an open aspect. Earlier crossing on west side of road. Vegetation is grasses, shrubs and Eucalypts. Geology is basalt. Soil is a gravel bog and sub-alpine loam.	The main disturbance is the well-formed dirt road construction [graded, cut and benched, pushed -up rocks]. Significant road works, infilled crossing, ford and erosion. Broad areas cleared. Other disturbance includes SMA, ski, recreational and pastoral activities.	Negligible	Nil recorded
KCSU5	626666. 6023083	627127. 6023143	A simple slope landform of moderate gradient with a south south-westerly aspect. Vegetation is Eucalypts, grasses and shrubs. Geology is basalt. Soil is a sub-alpine loam. SU highly disturbed.	The main disturbance is the well-formed dirt road construction [graded, cut and benched, pushed -up rocks]. Significant road works. Broad areas cleared. Other disturbance includes SMA, ski, recreational and pastoral activities.	Negligible	Nil recorded
KCSU6	627127. 6023144	627733. 6022411	A simple slope landform of moderate to steep gradient with a northerly aspect. Vegetation is Eucalypts, grasses and shrubs. Geology is basalt. Soil is a sub-alpine loam. The landform is eroded. SU highly disturbed.	The main disturbance is the well-formed dirt road construction [graded, cut and benched, pushed -up rocks]. Significant road works. Broad areas cleared. Other disturbance includes	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
				SMA, ski, recreational and pastoral activities.		
KCSU7	627732. 6022410	631659. 6027686	A crest landform of gentle gradient with an open aspect. Vegetation is Eucalypts, grasses and shrubs. Geology is dacite/ignimbrite at southern end of SU changing to Gooandra Volcanics appearing at the northern end of the SU. Soil is a sub-alpine loam. SU highly disturbed.	The main disturbance is the well-formed dirt road construction. Significant road works, in-filled sections on small saddles, broad graded areas, quarrying to edge of road. Crest graded often to edge of landform. Broad areas cleared. Other disturbance includes SMA, ski, recreational and pastoral activities (Plate 17).	Negligible	*MS-ST-1* AHIMS #56-6-0130 (could not be relocated)



Plate 16 Kings Cross Road: KCSU1 looking 240°.



Plate 17 Kings Cross Road: KCSU7 looking 0°.

6.2.2.7 Link Road

The field survey at Link Road was conducted in November 2018. The Link Road survey area has been subject to a comprehensive field survey. This survey extended from the intersection with Kings Cross Road, northeast to the intersection with the Snowy Mountains Highway at Kiandra.

The total survey area at Link Road has measured 42.9 hectares, of which some 30.9 hectares has been physically inspected. In all Survey Units, vegetation frequently posed a constraint; visibility of ground surfaces was often absent. The area is a mix of open grassland and snow gum woodland. Ground exposures were generally negligible. Certain areas were found to be highly disturbed by previous works particularly associated with the construction of the road works and historical gold mining.

The Link Road Survey Units are described in Tables 27 and 28. It is noted that no previously recorded Aboriginal sites are known to be present in the Link Road survey area. No Aboriginal objects were recorded during the field assessments. The Link Road survey assessed to be of very low to negligible archaeologically sensitivity.

Table 27 Link Road: Effective Survey Coverage.

SU ID	SU area (sq. m.)	Area inspected (%)	Area inspected (sq. m.)	GE (%)	GE (sq. m.)	AV (%)	NEC (sq. m.)	ESC (%)	Exposures
LSU1	81078	50	40538.8	2	811	10	81	0.10	Very low: bare earth exposures.
LSU2	20671	70	14469.7	1	145	20	29	0.14	Negligible: some bare earth.
LSU3	110892	70	77624.4	1	776	0	0	0.00	Nil
LSU4	38457	70	26920	1	269	10	27	0.07	Negligible: some bare earth.
LSU5	177814	80	142251	2	2845	10	285	0.16	Very low: bare earth exposures.
Total	428911		301804		4846		421	0.10	

Table 28 Link Road: A description of Survey Units.

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
LSU1	631659. 6027686	632210. 6028078	A simple slope landform of moderate gradient with a north-westerly to northerly aspect. Vegetation is Eucalypts, grasses and shrubs. Geology is Gooandra Volcanics. Soil is a sub-alpine loam. The landform is eroded. SU highly disturbed.	The main disturbance is the well-formed dirt road and a tarred road (Link Road) [graded, cut and benched, infilled]. Significant road works. Broad areas cleared. Other disturbance includes SMA, historic mining, recreational and pastoral activities.	Negligible	Nil recorded
LSU2	632209. 6028073	632407. 6028166	A drainage depression landform of very gentle gradient with an open aspect. Earlier crossing on west side of road. Vegetation is grasses and shrubs. Geology is Gooandra Volcanics and alluvial. Soil is a gravel bog and sub-	The main disturbance is the construction of the tarred road [Link Road] and associated works [extensive infilling at southern end of SU]. Significant road works. Quarry. Other disturbance	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			alpine loam. SU highly disturbed (Plate 18).	includes SMA, historic mining and pastoral activities.		
LSU3	632407. 6028167	633096. 6028978	A simple slope landform of moderate gradient with a south to south-easterly aspect. Vegetation is Eucalypts, grasses and shrubs. Geology is Gooandra Volcanics. Soil is a sub-alpine loam. The landform is eroded. SU highly disturbed.	The main disturbance is the construction of the tarred road [Link Road] and associated works. Other disturbance includes SMA, historic mining and pastoral activities.	Negligible	Nil recorded
LSU4	633091. 6028982	633331. 6029262	A level flat landform with an open aspect. Vegetation is grasses, tussock and sparse shrubs. Geology is Gooandra Volcanics. Soil is a sub-alpine loam. The landform is eroded. SU highly disturbed (Plate 19).	The main disturbance is the construction of the tarred road [Link Road] and associated works. Other disturbance includes SMA, historic mining, drainage and pastoral activities.	Negligible	Nil recorded
LSU5	633331. 6029262	634914. 6029634	An undulating valley floor landform of gentle to very gentle gradient with an open to easterly aspect. The vegetation is grasses, shrubs and regrowth. Geology is Gooandra Volcanics presenting as shatter, cobbles and gravels. Rocks within SU are mostly artificially exposed from previous land use impact activities. Soil is a sub-alpine gravelly loam. The	The main disturbance is the construction of the tarred road [Link Road] and associated works. Other disturbance includes SMA, historic mining and pastoral activities.	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			landform is eroded. SU is highly disturbed.			



Plate 18 Link Road: LSU2; looking 30°.



Plate 19 Link Road: LSU4; looking 210°.

6.2.2.8 Three Mile Dam

The field survey at Three Mile Dam was conducted in October and November 2018. The Three Mile Dam survey area has been subject to a reasonably comprehensive field survey. This survey area extended northwest from the intersection with Link Road and hence north along a Transmission Line to the intersection with the highway at Kiandra.

The total survey area at Three Mile Dam has measured 58.1 hectares, of which some 33.4 hectares has been physically inspected.

In all Survey Units, vegetation frequently posed a constraint; visibility of ground surfaces was often absent. The area is a mix of open grassland and snow gum woodland. Ground exposures were generally negligible. Certain areas were found to be highly disturbed by previous works particularly associated with the construction of the transmission line, road access and in some areas, historical gold mining.

A summary of the survey results for the Three Mile Dam area is presented in Table 29. The Three Mile Dam Survey Units are described in Tables 30 and 31. It is noted that no previously recorded Aboriginal sites are known to be present in the Three Mile Dam survey area. Six Aboriginal objects were recorded during the field assessments (Table 32). The Three Mile Dam survey assessed to be generally of very low to negligible archaeologically sensitivity with some small microtopographic landform elements possessing higher sensitivity.

The Three Mile Dam survey area is now outside the development footprint.

Table 29 Summary of Aboriginal object site distribution in the Three Mile Dam area.

SU	Previous sites	New sites	Total sites	Impacts
3MSU1	0	1	1	Nil
3MSU2	0	0	0	Nil
3MSU3	0	0	0	Nil
3MSU4	0	0	0	Nil
3MSU5	0	1	1	Nil
3MSU6	0	0	0	Nil
3MSU7	0	1	1	Nil
3MSU8	0	0	0	Nil
3MSU9	0	1	1	Nil
3MSU10	0	0	0	Nil
3MSU11	0	1	1	Nil
3MSU12	0	0	0	Nil
3MSU13	0	0	0	Nil
3MSU14	0	0	0	Nil
3MSU15	0	0	0	Nil
3MSU16	0	0	0	Nil

SU	Previous sites	New sites	Total sites	Impacts
3MSU17	0	1	1	Nil
Total	0	6	6	

Table 30 Three Mile Dam: Effective Survey Coverage.

SU ID	SU area (sq. m.)	Area inspected (%)	Area inspected (sq. m.)	GE (%)	GE (sq. m.)	AV (%)	NEC (sq. m.)	ESC (%)	Exposures
3MSU1	126492	60	75895	5	3795	20	759	0.60	Very low: vehicle wheel tracks, bare earth and animal burrows.
3MSU2	34875	60	20925	5	1046	20	209	0.60	Very low: vehicle wheel tracks and bare earth.
3MSU3	12835	55	7059	5	353	10	35	0.28	Very low: vehicle wheel tracks, bare earth and animal burrows.
3MSU4	55301	50	27650	2	553	20	111	0.20	Very low: vehicle wheel tracks, bare earth and animal burrows.
3MSU5	10960	60	6576	5	329	1	3	0.03	Very low: vehicle wheel tracks and bare earth.
3MSU6	8714	40	3486	1	35	10	3	0.04	Negligible
3MSU7	14275	75	10707	5	535	10	54	0.38	Very low: vehicle wheel tracks and bare earth.
3MSU8	6442	75	4831	1	48	10	5	0.08	Negligible: very thick cover of grass and tussock.
3MSU9	29784	60	17871	10	1787	20	357	1.20	Low: wheel tracks and animal burrows.
3MSU10	7064	60	4238	1	42	1	0	0.01	Negligible
3MSU11	76441	60	45865	5	2293	30	688	0.90	Very low: vehicle wheel tracks, bare earth and animal burrows.
3MSU12	12885	50	6442	5	322	20	64	0.50	Very low: vehicle wheel tracks and bare earth.
3MSU13	71938	60	43163	5	2158	30	647	0.90	Very low: wheel tracks.
3MSU14	24728	60	14837	5	742	50	371	1.50	Very low: vehicle wheel tracks.
3MSU15	42209	50	21105	5	1055	60	633	1.50	Very low: wheel tracks.
3MSU16	15500	50	7750	5	387	50	194	1.25	Very low: vehicle wheel tracks.
3MSU17	30325	50	15163	5	758	60	455	1.50	Very low: vehicle wheel tracks.

SU ID	SU area (sq. m.)	Area inspected (%)	Area inspected (sq. m.)	GE (%)	GE (sq. m.)	AV (%)	NEC (sq. m.)	ESC (%)	Exposures
	580767		333561		16240		4590	0.79	

Table 31 Three Mile Dam: A description of Survey Units.

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
3MSU1	631001. 6028165	630848. 6028697	Broad undulating ridge crest of very gentle gradient with an open aspect. The vegetation is grassland with occasional heath and some woodland. Geology is metamorphic/shale and occurs as high levels of shatter and occasional low rocky outcrops. Soil is a gravelly loam to a maximum depth of 20 cm. Crest includes zones with 1st order drainage and low relief crests flanking spring fed drainage. A very large, amorphous landform.	The main disturbance is construction and maintenance of a formed, gravelled road adjacent to Three Mile Dam and a cleared transmission line. Moderately to highly disturbed in discrete areas such as near dam and along road. Other disturbance includes animal burrows, earlier pastoral activity (see 3MSU1/H1), historic mining (Three Mile Dam) and SMA camps.	Negligible to very low; areas of greater AD in areas associated with springs.	*3MSU1/L1* AHIMS #56-6-0533
3MSU2	630848. 6028697	631099. 6029169	A simple slope landform of a gentle gradient and southerly aspect. A large, amorphous landform. Vegetation is cleared with occasional snow gum. Geology is mostly shale presenting as cobbles and gravels. Basalt appears at the northern end of the SU. An occasional spine reef is visible. Soil	The main disturbance is the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A transmission line maintenance track c. 2 m wide runs the length of the survey unit. Other	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			is a gravelly sometimes boggy loam. The landform is eroded.	disturbance includes earlier pastoral activity.		
3MSU3	631099. 6029169	631231. 6029372	A landform is a saddle on a crest. The gradient of the saddle is level to very gentle. The aspect is open with big views south and north. Vegetation is a cleared transmission line easement with occasional snow gum. Geology is a mix of metamorphic and basalt presenting as cobbles and gravels. The SU is very slightly rocky. Traces of quartz was observed in the background stone profile and it is possible some may be artefactual. Soils are very gravelly loam to a c. 20 cm (max.) depth; somewhat boggy in areas.	The main disturbance is the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A transmission line maintenance track c. 2 m wide runs the length of the survey unit. Other disturbance includes animal burrows.	Very low	Nil recorded
3MSU4	631231. 6029372	631679. 6030152	An amorphous broad undulating crest landform with a very gentle to gentle gradient. The aspect is northerly. Vegetation is a cleared woodland transmission line easement. Geology is metamorphic/ shale presenting as gravels and occasional cobbles and small boulders Soil is a gravelly loam with some areas of bogginess	The main disturbance is the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A transmission line maintenance track c. 2 m wide runs the length of the survey unit. Other disturbance includes earlier pastoral activity.	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			upslope. Good view of Bogong Mountains.			
3MSU5	631679. 6030152	631770. 6030373	The landform is a very gently undulating valley bottom. The aspect is varied from open to northerly. A spring/soak is in this SU. Vegetation is grassland and shrub. Geology is shale presenting as gravels. Moderate traces of poor and good quality quartz are present as occasional large cobbles and small boulders, some of which could possibly be artefactual. Soil is a gravely loam and up to a maximum depth of 40 - 50 cm. The landform is aggrading.	The main disturbance is the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A maintenance track c. 2 m wide runs the length of the survey unit. Other disturbance includes earlier pastoral activity.	Negligible	*3MSU5/L1* AHIMS #56-6-0532
3MSU6	631770. 6030373	631702. 6030455	A broad drainage depression with a creek channel. The aspect is southerly. Vegetation is a grassland with bog/water species. Geology is a quartz/metamorphic bedrock. Soil is gravelly muddy bog within an inundation zone. A very wet boggy SU.	The main disturbance is the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A maintenance track c. 2 m wide runs the length of the survey unit. Imported gravels and creek crossing modifications along access track. Other disturbance includes earlier pastoral activity.	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
3MSU7	631702. 6030455	631743. 6030642	The landform is a very gently undulating valley bottom. The aspect is open. Vegetation is grassland and shrub. Geology is shale/quartz presenting as gravels and cobbles. Occasional large cobble and small boulders of quartz. Soil is a gravely loam and up to a maximum depth of 40 - 50 cm. The geomorphology is a mix of stable and aggrading.	The main disturbance is the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A maintenance track c. 2 m wide runs the length of the survey unit. Other disturbance includes earlier pastoral activity.	Negligible to very low; areas of greater AD in areas associated with creek line.	*3MSU7/L1* AHIMS #56-6-0531
3MSU8	631743. 6030642	631765. 6030726	A level drainage depression with an open aspect. Vegetation is a grassland with bog/water species. Soil is gravelly muddy bog within an inundation zone. A low-lying boggy drainage depression.	The main disturbance is the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A maintenance track c. 2 m wide runs the length of the survey unit. A modified water crossing along access track. Other disturbance includes earlier pastoral activity.	Negligible	Nil recorded
3MSU9	631765. 6030726	632130. 6031027	The landform is a very gently undulating valley bottom. The aspect is open. Vegetation is grassland and shrub. Geology is shale/quartz presenting as outcrops, gravels and cobbles. Occasional large quartz boulders as	The main disturbance is the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A maintenance track c. 2 m wide runs the length of the survey unit. A modified	Negligible to very low; areas of greater AD in areas associated with boggy drainage line.	*3MSU9/L1* AHIMS #56-6-0530

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			well as quartz and shale reef outcropping. Soil is a gravely loam and up to a maximum depth of 20 cm. The landform is stable.	water crossing along access track. Other disturbance includes earlier pastoral activity.		
3MSU10	632130. 6031027	632129. 6031062	A very gently sloping broad drainage depression with an open aspect. Vegetation is shrubs, grasses and bog species. Geology is metamorphic presenting as gravels and cobbles. Soil is a gravelly bog. The creek line is highly altered through earlier mining activities.	High disturbance associated with mining. Other disturbances are earlier pastoral activity and the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A maintenance track c. 2 m wide runs the length of the survey unit.	Negligible	Nil recorded
3MSU11	632129. 6031062	632491. 6032092	A crest landform of very gentle gradient with an open aspect. Vegetation is grassland and shrub. Geology is varied from metamorphic to basalt and presents as gravels. Some large quartz cobbles and boulders as outcrops. A broad amorphous landform.	The main disturbance is the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A maintenance track c. 2 m wide runs the length of the survey unit. Lengths of imported blue metal gravels along track in the boggy zones. Other disturbance includes earlier pastoral activity.	Negligible	*3MSU11/L1* AHIMS #56-6-0529
3MSU12	632491. 6032092	632680. 6032140	A very gently sloping broad drainage depression/flat with an open aspect. Vegetation is snow	High disturbance associated with mining. Other disturbances are earlier	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			gums and shrubs. Geology is unknown. Soil is a gravelly loam. SU is low lying, slightly hummocky ground with boggy patches and soaks/springs. Boggy drainage line through the SU.	pastoral activity and the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A maintenance track c. 2 m wide runs the length of the survey unit.		
3MSU13	632680. 6032140	633165. 6033084	The landform is an amorphous very gently undulating valley bottom with occasional low relief crests. The aspect is open. Vegetation is grassland and shrub. Geology is varied from metamorphic and basalt. SU is slightly rocky. Soil is a gravely /rubbly loam and up to a maximum depth of 20 cm. The landform is stable.	The main disturbance is the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A maintenance track c. 2 m wide runs the length of the survey unit. Other disturbance includes earlier pastoral activity.	Negligible	Nil recorded
3MSU14	633165. 6033084	633463. 6033016	A level to very gently undulating boggy valley bottom/flat with an open aspect. Vegetation is grassland. Geology is varied from metamorphic to basalt presenting as gravels and an occasional outcrop. High levels of quartz observed within the background stone profile, none of which is likely to be artefactual. Soil is boggy.	The main disturbance is construction of the existing transmission line. A maintenance track c. 2 m wide runs the length of the survey unit. Lengths of imported blue metal gravels along track in the boggy zones. Other disturbance includes earlier pastoral activity.	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
3MSU15	633463. 6033016	633942. 6033188	A broad and amorphous very gently undulating valley bottom with an open aspect. Vegetation is grassland. Geology is metamorphic presenting as gravels. Occasional reef outcropping in general area. High levels of quartz gravel observed within the background stone profile. Soil is gravelly loam up to a maximum depth of 30 cm. Landform is stable.	Moderate disturbance associated with transmission line construction. Road access. Earlier pastoral activity and mining in local area.	Negligible	Nil recorded
3MSU16	633942. 6033188	634107. 6033242	A level to very gently undulating flat with an open aspect. SU is periodically boggy. Vegetation is grassland and shrubs. Geology is metamorphic presenting as gravels. Soil is a gravelly loam.	The main disturbance t is construction of the existing transmission line. A maintenance track c. 2 m wide runs the length of the survey unit. Other disturbance includes earlier pastoral activity.	Negligible	Nil recorded
3MSU17	634107. 6033242	634515. 6033384	A broad amorphous crest landform of very gentle gradient with an open aspect. Vegetation is grassland and shrubs. Geology is metamorphic presenting as gravels. Traces of quartz was observed in the background stone profile. Soil is a gravelly loam up to a depth of 20 cm [max.].	The main disturbance is construction of the existing transmission line. A maintenance track c. 2 m wide runs the length of the survey unit. Other disturbance includes earlier pastoral activity.	Negligible; area of greater AD in area associated with creek line.	*3MSU17/L1* AHIMS #56-6-0528

Table 32 Three Mile Dam: A description of Aboriginal Object Locales.

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
3MSU1	*3MSU1/L1* AHIMS #56-6-0533 (Plate 20)	630721	6028467	One artefact located on a very gently undulating crest gentle with an open aspect. The site area is 2 x 1 m and is located on a vehicle track. The site has some potential to extend outward from exposure. Ground exposure within the site area was assessed at 90% with archaeological visibility of 80%. Ground exposure away from site was negligible. Soil within the area is a very gravelly semi-skeletal loam. Good quality quartz was observed within the background stone, some of which is possibly artefactual. Disturbances include wombat burrowing and clearance and erosion from transmission line construction and maintenance.	Tuff core 49x57x22 mm 30% terrestrial cortex 2 platforms 6 neg scars.	Very low
3MSU5	*3MSU5/L1* AHIMS #56-6-0532	631789	6030353	Elevated rise above creek measuring 40 x 40 m. The aspect is northerly. Ground exposures within area of ASL were negligible due to thick grass cover. Good exposure and archaeological visibility on vehicle track, no artefacts were located. Quartz outcrops and moderate levels of quartz gravels were observed. Some quartz may possibly be artefactual. ASL close to permanent water and food resource zone. Disturbances include clearance and erosion from transmission line track construction and maintenance.	Archaeologically sensitive landform	Low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
3MSU7	*3MSU7/L1* AHIMS #56-6-0531	631686	6030568	An elevated rise above creek measuring 80 m (EW) x 50 (NS) m. The aspect is south easterly. Ground exposures within area of ASL were negligible due to thick grass cover. High levels of quartz, varying in quality, was observed within the background stone, some of which is possibly artefactual. ASL close to permanent water and food resource zone. Disturbances include clearance of transmission line track construction and maintenance and occasional bare earth scalds.	Archaeologically sensitive landform	Low
3MSU9	*3MSU9/L1* AHIMS #56-6-0530	632117	6030970	A very low crest in a very gently undulating valley floor adjacent to creek. The area of ASL measures 40 m (EW) x 50 (NS) m. Ground exposure away from vehicle track was negligible due to thick cover of grasses. Vegetation is grassland with low heath. Geology is metasedimentary presenting as outcrops, shatter, cobbles and gravels. Soil is shallow, maximum depth of c. 20 cm. Nearby mining activities may have impacted this landform.	Archaeologically sensitive landform	Low
3MSU11	*3MSU11/L1* AHIMS #56-6-0529 (Plate 21)	632357	6031547	One artefact located on crest landform of gentle gradient with an easterly aspect. The site area is 0.4 x 0.4 m and is located on bare earth caused from rabbit diggings. Artefact exposed in area were European material is also present. Ground exposure within the site	Grey tuff flake 44x77x14 mm	Negligible

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				area was assessed at 1% with archaeological visibility of 20%. Ground exposures away from site area were low with mainly discrete areas of animal burrows providing bare earth for inspection. The site potentially may extend outward from exposure. Soil within the area is a very gravelly semi-skeletal loam. Highly disturbed area associated with historic site: SU11/H1. Other disturbances include animal burrowing, clearance and erosion from transmission line construction and maintenance.		
3MSU17	*3MSU17/L1* AHIMS #56-6-0528	634479	6033358	An elevated rise above major water course measuring 40 m(NE) x 50 m (SW) metres. The aspect is open. The area is sheltered to the north-west by a higher ridge. Areas of metasedimentary outcropping. Highly incised vehicle track with imparted gravels traverses ASL. Area away from this disturbed area has potential. Disturbances include vehicle track. Nearby Snowy Mountains Highway construction activities may have impacted this landform.	Archaeologically sensitive landform	Low



Plate 20 Three Mile Dam: 3MSU1/L1 looking 350°.



Plate 21 Three Mile Dam: 3MSU11/L1 looking 230°.

6.2.2.9 Gooandra Fire Trail

The field survey at Gooandra Fire Trail was conducted in October and November 2018. The Gooandra Fire Trail survey area has been subject to a reasonably comprehensive field survey. This survey extended from the intersection with Snowy Mountains Highway eastwards to Bullocks Hill Trail.

The total survey area at Gooandra Fire Trail has measured 300.9 hectares, of which some 170.8 hectares has been physically inspected. Survey Unit GSU23 is currently un-surveyed. This encompasses a recent addition to the project footprint. GSU23 traverses Zinc Ridge which has been surveyed on numerous occasions by NSW Archaeology Pty Ltd during the previous Geotech investigations. The area is assessed to be of very low archaeological potential. GSU23 is listed in Table 33 below and its location is shown on the relevant mapping. However, it not included in the results tables below.

In all Survey Units, vegetation frequently posed a constraint; visibility of ground surfaces was often absent. The area is a mix of open grassland and snow gum woodland. Ground exposures were generally negligible or otherwise very low. Certain areas were found to be highly disturbed by previous works particularly associated with the construction of road access and in some areas, historical gold mining.

A summary of the field survey results for the Gooandra Fire Trail is presented in Table 33. The Gooandra Fire Trail Survey Units are described in Tables 34 and 35. No previously recorded Aboriginal sites are known to be present in the Gooandra Fire Trail survey area. Two Aboriginal object sites were recorded during the field assessment (Table 36). The Gooandra Fire Trail survey assessed to be generally of very low to negligible archaeologically sensitivity with some small microtopographic landform elements possessing higher sensitivity.

Table 33 Summary of Aboriginal object site distribution in the Gooandra Fire Trail survey area.

SU	Previous sites	New sites	Total sites	Impacts
GSU1	0	0	0	Main works
GSU2	0	0	0	Main works
GSU3	0	0	0	Main works
GSU4	0	0	0	Main works
GSU5	0	0	0	Main works
GSU6M (Six Mile diggings)	0	0	0	Main works
GSU6	0	0	0	No
GSU7	0	0	0	Main works
GSU8	0	0	0	Main works

SU	Previous sites	New sites	Total sites	Impacts
GSU9	0	0	0	Main works
GSU10	0	0	0	Main works
GSU11	0	0	0	Main works
GSU12	0	0	0	Main works
GSU13	0	0	0	Main works
GSU14	0	0	0	Main works
GSU15	0	1	1	Main works
GSU16	0	0	0	Main works
GSU17	0	0	0	Main works
GSU18	0	1	1	Main works
GSU19	0	0	0	No
GSU20	0	0	0	Main works
GSU21	0	0	0	Main works
GSU22	0	0	0	Main works
GSU23	0	0	0	Main works
Total	0	2	2	



Plate 22 Gooandra Fire Trail: GSU18/L1 looking 290°.

Table 34 Gooandra Fire Trail: Effective Survey Coverage.

SU ID	SU area (sq. m.)	Area inspected (%)	Area inspected (sq. m.)	GE (%)	GE (sq. m.)	AV (%)	NEC (sq. m.)	ESC (%)	Exposures
GSU1	105528	50	52764	5	2638	20	528	0.50	Very low: bare earth, animal tracks and graded vehicle track.
GSU2	14471	60	8682	5	434	1	4	0.03	Very low: bare earth, animal tracks and graded vehicle track.
GSU3	82580	75	61935	5	3097	20	619	0.75	Very low: bare earth, animal tracks and graded vehicle track.
GSU4	99815	25	24954	0	0	0	0	0.00	Nil
GSU5	28204		0		0		0	0.00	Very low: bare earth, animal tracks and graded vehicle track.
GSU6M	120727	60	72436	70	50706	10	5071	4.20	Low to moderate: bare earth and mining landscape.
GSU6	27174	50	13587	1	136	10	14	0.05	Negligible
GSU7	88926	75	66694	0	0	0	0	0.00	Very low: thick grass and shrubs: bare earth, animal tracks and graded vehicle track.
GSU8	123838	60	74303	5	3715	10	372	0.30	Very low: bare earth, animal tracks and graded vehicle track.
GSU9	54926	80	43940		0		0	0.00	Very low: bare earth, animal tracks and graded vehicle track.
GSU10	26069	50	13034	2	261	20	52	0.20	Negligible
GSU11	16250	50	8125	1	81	1	1	0.01	Negligible
GSU12	51579	60	30947	5	1547	30	464	0.90	Very low: bare earth, animal tracks and graded vehicle track.
GSU13	18539	60	11124	5	556	10	56	0.30	Very low: bare earth, animal burrows and graded vehicle track.
GSU14	93922	80	75138	5	3757	30	1127	1.20	Very low: bare earth, animal burrows and limited vehicle wheel tracks.

SU ID	SU area (sq. m.)	Area inspected (%)	Area inspected (sq. m.)	GE (%)	GE (sq. m.)	AV (%)	NEC (sq. m.)	ESC (%)	Exposures
GSU15	169886	75	127415	5	6371	25	1593	0.94	Very low: bare earth, animal tracks/burrows and vehicle wheel tracks.
GSU16	52215	75	39162	5	1958	35	685	1.31	Very low: bare earth, animal burrows and vehicle wheel tracks.
GSU17	76412	75	57309	5	2865	90	2579	3.38	Very low: bare earth, animal burrows and vehicle wheel tracks.
GSU18	478937	60	287362	1	2874	30	862	0.18	Negligible: thick grass cover: bare earth.
GSU19	60578	50	30289	1	303	30	91	0.15	Negligible: thick grass cover: bare earth.
GSU20	225865	50	112933	5	5647	30	1694	0.75	Very low: bare earth, and graded vehicle track.
GSU21	880202	50	440101	2	8802	40	3521	0.40	Very low: bare earth, animal burrows and vehicle wheel tracks.
GSU22	111972	50	55986	5	2799	50	1400	1.25	Low: bare earth, animal tracks, erosion and vehicle wheel tracks.
Total	3008616		1708220		37821		20731	0.69	

Table 35 Gooandra Fire Trail: A description of Survey Units.

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
GSU1	635290. 6035660	635330. 6035367	A crest landform of very gentle gradient with an open aspect. An amorphous landscape; broad setting and mostly well back from water. Some areas of SU subject to periodic dampness. Vegetation is grass and shrubland. Geology is metamorphic	The main disturbance is construction and maintenance of a vehicle track c. 2 to 3 m wide and runs the length of the survey unit. Other	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			shale presenting as outcrops, shatter, cobbles and gravels. Occasional spine reefs visible. Soil is a gravelly, very sandy silty loam and up to a depth of 30 cm. The landform is stable.	disturbance includes pastoral grazing.		
GSU2	635330. 6035367	635392. 6035386	A simple slope landform of very gentle gradient with an easterly and southerly aspect. A sloping amorphous landscape. Vegetation is grassland. Geology is shale presenting as outcrops, shatter, cobbles and gravels. Very occasional bedrock outcropping. Traces of quartz is present, none of which is likely to be artefactual. Soil is a silty gravelly loam. The landform is stable.	The main disturbance is construction and maintenance of a vehicle track c. 2 to 3 m wide and runs the length of the survey unit. Other disturbance includes pastoral grazing and horse impacts.	Negligible	Nil recorded
GSU3	635392. 6035386	635790. 6035081	A crest landform of very gentle gradient with an easterly and southerly aspect. Vegetation is grassland and shrubs. Geology is shale with some quartz presenting as shatter, cobbles and gravels. Bedrock outcropping within the SU ranges from slightly rocky to rocky. Traces of quartz is present, none of which is likely to be artefactual. Soil is a loam/ gravelly loam and up to a depth of 30 cm. Low gradient crest features flanking/overlooking river corridor.	The main disturbance is construction and maintenance of a vehicle track c. 2 to 3 m wide and runs the length of the survey unit. Other disturbance includes pastoral grazing and an area of mechanical benching associated with SU3/H1.	Very low	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			The landform is both stable and eroding.			
GSU4	635437. 6035396	635820. 6035273	A level drainage depression landform with an open aspect and incorporates a major local watercourse [Eucumbene River]. Vegetation is grasses and riparian species. Geology is shale. Soil is a bog/alluvium. SU is low-lying and within the inundation zone. Landform is aggrading.	The main disturbance is construction and maintenance of a vehicle track c. 2 to 3 m wide and runs the length of the survey unit. Other disturbance includes pastoral grazing and horse impacts.	Negligible	Nil recorded
GSU5	635820. 6035273	636011. 6035344	A crest landform of very gentle gradient with a southerly aspect. An amorphous landscape; broad setting and well back from water. Vegetation is grasses and shrubs. Geology is shale and quartz presenting as shatter, cobbles and gravels. The SU is slightly rocky with areas of bedrock outcropping visible. Traces of quartz is present, none of which is likely to be artefactual. Soil is a gravelly loam. The landform is eroding.	The main disturbance is construction and maintenance of a vehicle track c. 2 to 3 m wide and runs the length of the survey unit. Other disturbance includes mining, pastoral grazing, animal tracks and burrows.	Negligible	Nil recorded
GSU6	635885. 6035077	636041. 6035244	A very gentle to level drainage depression landform with a southerly aspect. Vegetation is grasses, shrubs and wetland species. Geology is shale. Soil is a bog/alluvium. SU is a low-	The main disturbance is construction and maintenance of a vehicle track c. 2 to 3 m wide and runs the length of the survey unit. Other	Negligible to low	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			lying, waterlogged boggy zone. Landform is aggrading.	disturbance includes widespread mining and pastoral grazing.		
GSU7	636041. 6035244	636444. 6035186	A simple slope landform of very gentle gradient with a westerly and southerly aspect. A broad sloping amorphous landscape. Vegetation is grassland and shrubs. Geology is shale presenting as gravels. Very occasional bedrock outcropping. Traces of quartz is present, some of which is possibly artefactual. Soil is a gravelly loam of a depth up to 30 cm. The landform is stable.	The main disturbance is construction and maintenance of a vehicle track c. 2 to 3 m wide and runs the length of the survey unit. Other disturbance includes mining and pastoral grazing.	Negligible	Nil recorded
GSU8	636444. 6035186	636678. 6035630 637093. 6035912	A crest landform of very gentle gradient on a ridge with an open aspect. A broad amorphous landscape. Vegetation is grasses with snow gum woodland/forest. Geology is shale presenting as shatter, cobbles and gravels. The SU is very slightly rocky with occasional areas of exposed bedrock outcropping. Traces of quartz is present. Soil is a slightly gravelly loam up to a depth of 30 to 40 cm. The landform is stable.	The main disturbance is construction and maintenance of a vehicle track c. 2 to 3 m wide and runs the length of the survey unit. Other disturbance includes pastoral grazing and animal burrows.	Negligible	Nil recorded
GSU9	636681. 6035633	637077. 6036008	A multi spring fed open drainage depression of very gentle to gentle gradient with an easterly aspect. The	The main disturbance is construction and maintenance of a vehicle	Very low	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			depression is interfingered by a series of slightly elevated crest units. Vegetation is grasses with fringing snow gum. Geology is a mix of shale and basalt presenting as shatter, cobbles and gravels. The SU is very slightly rocky with occasional exposures of bedrock outcropping. Traces of quartz is present. Soil is a loam/gravelly loam up to a depth of 30 cm.	track c. 2 to 3 m wide and runs the length of the survey unit. Other disturbance includes trade construction along southeast edge of unit, pastoral grazing and animal burrows.		
GSU10	637077. 6036008	637042. 6036059	A drainage depression of very gentle gradient with a north easterly aspect. Vegetation is grasses and bog. Geology is shale presenting as shatter, cobbles and gravels and some basalt appearing on the higher points. The SU is very slightly rocky with occasional areas of exposed bedrock outcropping. Soil is possibly a gravelly loam. The SU is a wet inundated bog zone.	The main disturbance is construction and maintenance of a vehicle track c. 2 to 3 m wide and runs the length of the survey unit. Other disturbance includes pastoral grazing.	Very low	Nil recorded
GSU11	637042. 6036059	637216. 6036150	A simple slope landform of moderate gradient with an easterly aspect. A steep sloping amorphous landscape. Vegetation are grasses and heath. Geology is a mix of shale and basalt. The SU is very slightly rocky with	The main disturbance is construction and maintenance of a vehicle track c. 2 to 3 m wide and runs the length of the survey unit. Other	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			occasional bedrock outcropping exposures.	disturbance within the SU includes pastoral grazing.		
GSU12	637262. 6036198	637474. 6036203	A broad amorphous crest landform of very gentle gradient with a south westerly aspect. Vegetation is grassland with shrubs. Geology is metamorphic shale presenting as outcrops, shatter, cobbles and gravels. Very occasional bedrock outcropping exposures. Soil is a gravelly loam up to a depth of 30 cm (max.). Soil verging on skeletal at some high points within the SU. The landform is stable.	The main disturbance is a vehicle track c. 2 to 3 m wide and runs the length of the survey unit. Much of the SU appears to be capped with imported material. Other disturbances include pastoral and animal burrows.	Negligible	Nil recorded
GSU13	637227. 6035950	637091. 6035912	A broad amorphous simple slope landform of gentle to moderate with an easterly aspect. Vegetation is grassland and heath. Geology is metamorphic shale presenting as outcrops, shatter, cobbles and gravels. The SU is slightly rocky with occasional bedrock outcropping exposures present. Soil is a gravelly loam up to a depth of 30 cm (max.). The landform is stable.	The main disturbance is a vehicle track c. 2 to 3 m wide and runs the length of the survey unit. Other disturbances include pastoral and animal burrows.	Negligible	Nil recorded
GSU14	637496. 6036158	638021. 6036498	A simple slope landform of gentle gradient with a northerly aspect. A sloping amorphous landscape. Vegetation is grassland and shrubs.	The main disturbance is construction and maintenance of a vehicle track c. 2 to 3 m wide and	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			Geology is metamorphic presenting as outcrops, shatter, cobbles and gravels. Very occasional bedrock outcropping. Traces of quartz is present, none of which is likely to be artefactual. Soil is a gravelly sub-alpine loam up to a depth of 30 cm. At 637970.6036439 a spring fed/soak fed 1st order drainage line – steep setting in simple slope background. The landform is stable.	runs the length of the survey unit. Other disturbance includes pastoral, erosion and animal burrows.		
GSU15	638021. 6036498	638686. 6037443	A very gently to gently sloping crest with a northerly aspect. Vegetation is snow gum with an understorey of grasses and shrubs. Geology is metamorphic - shale presenting as shatter, cobbles and gravels. Occasional spines of bedrock outcropping on higher points. Soil is a gravelly loam/loam and up to a depth of 30 to 40 cm.	The main disturbance is construction and maintenance of a vehicle track c. 2 to 3 m wide and runs the length of the survey unit. Other disturbances include vehicle track maintenance, animal tracks and burrows.	Negligible	*GSU15/L1* AHIMS #57-4-0409
GSU16	638686. 6037443	638689. 6037802	A rolling, lower elevation crest of very gentle gradient with a northerly aspect. Vegetation is grassland with occasional stands of snow gums. Geology is metamorphic. Soil is a very fine sandy, occasionally gravelly loam and has a minimum depth of 40 cm. The lower relief crest surfaces lead directly into major local riparian	The main disturbance is construction and maintenance of a vehicle track c. 2 to 3 m wide and runs the length of the survey unit. Other disturbances include pastoral, animal tracks and burrows.	Very low	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			valley with notable springs and good water. The landform is stable.			
GSU17	638689. 6037802	639002. 6038239	A broad amorphous crest landform with a knoll of very gentle gradient with an open aspect. Vegetation is grassland with snow gums. Geology is metamorphic occurring as shatter, cobbles and gravels. Occasional exposures of bedrock. Soil is a gravelly loam and has a minimum depth of 30-40 cm. The landform is stable.	The main disturbance is construction and maintenance of a vehicle track c. 2 to 3 m wide and runs the length of the survey unit. Other disturbances include pastoral and animal activities.	Negligible	Nil recorded
GSU18	639002. 6038239	639886. 6038757	A broad amorphous crest landform of very gentle gradient with an open aspect. Vegetation is open grassland. Geology is [?]metamorphic presenting as outcrops, shatter, cobbles and gravels. Very occasional bedrock outcropping exposures. Soil is a silty loam up to a depth of 30 cm (max.). A broad treeless crest/slope complex in valley. Landform is stable.	The main disturbance is a vehicle track c. 2 to 3 m wide and runs the length of the survey unit. Other disturbances include pastoral and animal activities.	Negligible	*GSU18/L1* AHIMS #57-4-0383
GSU19	639885. 6038756	639957. 6038738	A drainage depression landform and flat with a north-south aspect. SU comprises part of a valley floor [Tantangara Plain], a riparian corridor and near the confluence of Gooandra and Tantangara Creeks. Vegetation is open grassland. Geology	Disturbances include pastoral and animal impacts.	Very low	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			is metamorphic. Soil is alluvium/ colluvium and slope base/creek flat interface. SU is sheltered, level and adjacent to good water. Landform is aggrading.			
GSU20	640186. 6037971	639192. 6038214	A broad, amorphous crest and simple slope landform of very gentle gradient with an open aspect. SU is a valley bottom, crest and slope. Vegetation is grassland. Geology is grando-diorite presenting as shatter, cobbles and gravels. Occasional bedrock outcrops. Soil is a gravelly loam and up to a maximum depth of 40 cm. Landform is stable.	The main disturbance is a vehicle track and runs the length of the survey unit. Other disturbances include pastoral, animal tracks and burrows.	Negligible	Nil recorded
GSU21	639942. 6038644	641337. 6038322	A broad amorphous crest landform of very gentle gradient with an open aspect. Vegetation is open grassland with woodland. Geology is [?]metamorphic presenting as outcrops, shatter, cobbles and gravels. Very occasional bedrock outcropping exposures. Soil is a silty loam up to a depth of 30 cm (max.). Landform is stable.	The main disturbance is a vehicle track c. 2 to 3 m wide and runs the length of the survey unit. Other disturbances include pastoral and animal activities.	Very low	Nil recorded
GSU22	641337. 6038322	641635. 6038492	A broad undulating crest landform of gentle gradient. The aspect is south easterly. Vegetation is open woodland with grassland understorey. Geology	The main disturbance is a vehicle track c. 2 to 3 m wide and runs the length of the survey unit. Other	Low	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			is volcanic presenting as outcrops, shatter, cobbles and gravels. Very occasional bedrock exposures. Soil is a silty loam up to a depth of 30 cm (max.). Landform is stable.	disturbances include pastoral and animal activities.		

Table 36 Gooandra Fire Trail: A description of Aboriginal Object Locales.

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
GSU15	*GSU15/L1* AHIMS #57-4-0409	638426	6036916	One artefact located on the western side of a crest landform of very gentle gradient. The aspect is westerly. The site area is 4 x 2 m, a patch of bare earth (horse pad), located c. 10 metres from a vehicle track. Ground exposure within the site area was assessed at 80% with archaeological visibility of 50%. There was no ground exposure away from site. There is unlikely to be *in situ* sub surface deposit within site. The artefact distribution has potential to extend further outwards from exposure. Occasional areas of low bedrock rock exposures. Traces of low-quality quartz was observed within the background stone profile. Disturbance in the wider area includes vehicle track, horses, erosion and pastoral.	Grey chert flake focal Hertzian feather 10x8x2 mm.	Low
GSU18	*GSU18/L1* AHIMS #57-4-0383	639122	6038234	One artefact located on a crest landform of gentle gradient with an open to easterly aspect. The exposure area is 10 x 2 m and is located on a	Grey tuff flake focal feather 3 negatives 22x20x4 mm.	Negligible

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
	(Plate 22)			vehicle track. Ground exposure within the site area was assessed at 60% with archaeological visibility of 100%. There was no ground exposure away from site. There is unlikely to be *in situ* subsurface deposit within site area. Traces of low-quality quartz was observed within the background stone. Disturbances include vehicle track, erosion and pastoral.		

6.2.2.10 Nungar Creek Fire Trail

The field survey at Nungar Creek Fire Trail was conducted in October 2018. The Nungar Creek Fire Trail survey area has been subject to a reasonably comprehensive field survey. This survey extended along Bullocks Hill Trail to the junction with Nungar Creek Fire Trail and hence eastward along Nungar Creek Trail to the intersection with Tantangara Dam Fire Trail.

The total survey area at the Nungar Creek Fire Trail has measured 41.1 hectares, of which some 13.7 hectares has been physically inspected. Survey Units NSU5 and NSU6 are currently un-surveyed. These encompass recent additions to the project footprint. The areas are assessed to be of low to very low archaeological potential. These areas are listed in Table 37 below and their location is shown on the relevant mapping. However, they are not included in the results tables below.

In all Survey Units vegetation frequently posed a constraint; exposures of ground surfaces were often absent except for the fire trail exposures. The area is covered with a mix of grassland and open snow gum woodland. Ground exposures were generally negligible. Certain areas were found to be relatively undisturbed.

A summary of the survey results for the Nungar Creek Fire Trail is presented in Table 37. The Nungar Creek Fire Trail Survey Units are described in Tables 38 and 39. No previously recorded Aboriginal sites are known to be present in the Nungar Creek Fire Trail survey area. Three Aboriginal object sites were recorded during the field assessment (Table 40). The Nungar Creek Fire Trail survey area is assessed to be generally of very low archaeologically sensitivity with some small microtopographic landform elements possessing higher sensitivity.

Table 37 Summary of Aboriginal object site distribution in the Nungar Creek Fire Trail survey area.

SU	Previous sites	New sites	Total sites	Impacts
NSU1	0	1	1	Main works
NSU2	0	1	1	Main works
NSU3	0	0	0	Main works
NSU4	0	1	1	Main works
NSU5	0	0	0	Main works
NSU6	0	0	0	Main works
Total	0	3	3	

Table 38 Nungar Creek Fire Trail: Effective Survey Coverage.

SU ID	SU area (sq. m.)	Area inspected (%)	Area inspected (sq. m.)	GE (%)	GE (sq. m.)	AV (%)	NEC (sq. m.)	ESC (%)	Exposures
NSU1	43527	50	21763.4	10	2176	80	1741	4.00	Low: track and bare earth exposures.
NSU2	64966	50	32483.1	10	3248	80	2599	4.00	Low: track and bare earth exposures.
NSU3	81425	20	16285.1	5	814	70	570	0.70	Very low: track and bare earth exposures.
NSU4	220745	30	66223.4	10	6622	90	5960	2.70	Low: track and bare earth exposures.
Total	410663		136755		12861		10870	2.65	

Table 39 Nungar Creek Fire Trail: A description of Survey Units.

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
NSU1	646098. 6036114	645434. 6036020	Undulating simple slope with an easterly aspect and gentle gradient. The vegetation is grassland with snow gum woodland on upper slopes. Shale geology and slightly gravelly silty loam up to a depth of 30 cm. A very large, amorphous landform. Traces of naturally occurring black chert some of which may by artefactual (Plate 23).	The main disturbance is construction and recent grading maintenance of a dirt vehicle track c. 2 to 3 m wide. Earlier pastoral activity.	Negligible in upper slopes/ very low in lower slopes.	*NSU1/L1* AHIMS #57-4-0344
NSU2	645432. 6036020	644562. 6036291	A broad crest landform of very gentle gradient with a northerly aspect. An amorphous landscape. Vegetation is snow gum open forest with an	The main disturbance is construction and recent grading maintenance of a dirt vehicle track c. 2 to 3 m	Negligible	*NSU2/L1* AHIMS #57-4-0390

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			understorey of heath and grasses. Geology is meta-sedimentary/ sandstone presenting as cobbles and gravels. Traces of quartz and black chert was observed within the background stone profile. Soil is a slightly gravelly sandy silty loam.	wide. Earlier pastoral activity.		
NSU3	644561. 6036290	643568. 6036065	A plateau, open plain landform of very gentle gradient with an open aspect. Vegetation is grassland/ heathland with sparse trees on higher elevations. Soil is brown silty loam.	The main disturbance is construction and recent grading/culvert construction/maintenance of a dirt vehicle track c. 2 to 3 m wide. Imported materials evident along track. Braided vehicle tracks away from main vehicle track. Earlier pastoral activity.	Negligible	Nil recorded
NSU4	643568. 6036065	641500. 6048500	An undulating simple slope landform of very gentle to gentle gradient with a northerly and easterly aspect. A broad sloping amorphous landscape. Vegetation is open snow gum forest on upper elevations and grassland on lower elevations. Geology is a meta-sedimentary shale presenting as shatter, cobbles and gravels. Very occasional bedrock outcropping. Traces of low-quality quartz is present, none of which is likely to be	The main disturbance is construction and recent grading maintenance of a dirt vehicle track c. 2 to 3 m wide. Earlier pastoral activity.	Negligible	*NSU4/L1* AHIMS #57-4-0343

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			artefactual. Naturally occurring black chert, good quality, observed in the background stone, some which may be artefactual. Soil is a very slightly gravelly very fine silty loam greater than 30 cm deep.			

Table 40 Nungar Creek Fire Trail: A description of Aboriginal Object Locales.

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
NSU1	*NSU1/L1* AHIMS #57-4-0344 (Plate 24)	646044	6036129	Two stone artefacts on vehicle track 2 m apart.	Black chert longitudinal cone split 29x8x11 mm. Black chert flake 17x16x4 mm.	Negligible
NSU2	*NSU2/L1* AHIMS #57-4-0390	645211 645192	6036017 6036023	All artefacts located on a recently graded vehicle track on a broad very gently undulating crest. The site area is 16 m x 3 m. Ground exposure within the site area was assessed at 80% with archaeological visibility of 90%. There was very limited ground exposure away from site. There is unlikely to be intact subsurface deposit at site. There is likely to be *in situ* sub-surface deposit extending outward from exposure; an approximate area 80 m x 80 m. Traces of quartz was observed within the background stone profile	Fine grained volcanic river cobble possible grindstone frag appears to have polish on both flat sides and hammer damage along margin at one end 60x34x25 mm. Black chert ?flake 10% terrestrial cortex broad Hertzian feather 15x18x3 mm. Black chert flake focal Hertzian feather 21x17x4 mm. Black chert ?flake focal Hertzian step (poor quality) 43x20x5 mm. River pebble	Very low to low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				Disturbances include vehicle track, erosion and pastoral.	flaked around ¾ of edge single platform 70x47x8 mm.	
NSU4	NSU4/L1 AHIMS #57-4-0343	641720 SE 641557 NW	6037891 SE) 6038152 NW	All artefacts were located on a recently graded vehicle track in a saddle on a very gently undulating spur crest. More than 24 artefacts were observed, many have signs of recent edge damage or were broken. The site area is c. 30 m x 3 m. Ground exposure within the site area was assessed at 80% with archaeological visibility of 80%. There was very limited ground exposure away from site. There is unlikely to be intact subsurface deposit at site. There is likely to be *in situ* sub-surface deposit extending outward from exposure; an area c. 100 m (SE) x 200 m (NW). Traces of quartz was observed within the background stone. Disturbances include vehicle track, rabbit warren, erosion and pastoral.	Sample recorded: Black chert flake 37x37x6 mm focal Hertzian feather. Black chert flake 41x44x11 mm focal Hertzian hinge. Black chert LCS 37x19x4 mm feather. Black chert core multi-directional 62x46x26 mm. Quartzite flake crushed platform 36x30x6 mm. Quartz white distal feather 9x15x3 mm.	Very low to low



Plate 23 Nungar Creek Fire Trail: the east end of NSU1 looking east.



Plate 24 Nungar Creek Fire Trail: NSU1/L1 looking west.

6.2.2.11 Tantangara Dam Fire Trail

The field survey at Tantangara Dam Fire Trail was conducted in October 2018. The Tantangara Dam Fire Trail survey area has been subject to a reasonably comprehensive field survey. This survey extends eastward along Tantangara Dam Fire Trail from the junction with Nungar Creek Fire Trail.

The total survey area at Tantangara Dam Fire Trail has measured 108.1 hectares, of which some 79.4 hectares has been physically inspected. Survey Units TFTSU5 and TFTSU6 are currently un-surveyed. These encompass recent additions to the project footprint. The areas are assessed to be of very low archaeological potential. These survey units are shown on the relevant mapping. However, they are not included in the results tables below.

In all Survey Units, vegetation frequently posed a constraint; visibility of ground surfaces was often absent except for the fire trail exposures. The area is a mix of grassland and snow gum woodland. Ground exposures were generally negligible. Certain areas were found to be relatively undisturbed.

The Tantangara Dam Fire Trail Survey Units are described in Tables 40 and 41. No previously recorded Aboriginal sites are known to be present in the Tantangara Dam Creek Fire Trail survey area. No Aboriginal object sites were recorded during the field assessment. The Tantangara Dam Creek Fire Trail survey area is assessed to be generally of negligible to very low archaeologically sensitivity.

Table 41 Tantangara Dam Fire Trail: Effective Survey Coverage.

SU ID	SU area (sq. m.)	Area inspected (%)	Area inspected (sq. m.)	GE (%)	GE (sq. m.)	AV (%)	NEC (sq. m.)	ESC (%)	Exposures
TFTSU1	53453	50	26727	10	2673	40	1069	2.00	Low: graded vehicle track, bare earth and animal burrows.
TFTSU2	12741	60	7644.7	1	76	1	1	0.01	Negligible
TFTSU3	521170	70	364819	1	3648	10	365	0.07	Very low: vehicle track and bare earth.
TFTSU4	494005	80	395204	30	118561	85	100777	20.40	Low/moderate: bare earth, animal tracks and burrows.
Total	1081369		794394		124958		102212	9.45	

Table 42 Tantangara Dam Fire Trail: A description of Survey Units including a list of Aboriginal object locales recorded during survey.

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
TFTSU1	646112. 6036111	646962. 6036264	A series of simple slopes of gentle gradient with an east north-easterly aspect. Vegetation is grassland with scattered Hakea. Geology is meta-sedimentary and shale presenting as shatter, cobbles and gravels. Some areas of conglomerate. Traces of quartz is present, none of which is likely to be artefactual. Some black chert was observed within the background stone profile. Very occasional bedrock outcropping. Soil is a light red brown silty loam. The landform is eroded (Plate 25).	The main disturbance is a vehicle track c. 2 m wide and runs the length of the survey unit. Other disturbance includes pastoral.	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
TFTSU2	646963. 6036264	647224. 6036385	A level open depression landform with an open aspect. A creek flat c. 100 m wide surrounds a wide and incised fast-flowing creek [Nungar Creek] with a gravelly bottom. Vegetation is grassland, tussock and bog species. Geology is uncertain. Soil is a silty loam through to a boggy waterlogged gravelly sediment. The SU is wet and low lying.	The main disturbance is a single vehicle track and runs the length of the survey unit. Other disturbances include pastoral and horse impacts.	Negligible	Nil recorded
TFTSU3	647224. 6036385	647582. 6036922 648359. 6036465 East boundary	A series of undulating simple slopes of gentle to moderate gradient with a west south-westerly aspect. Lower slopes very damp. Vegetation is varied across the SU. Grassland with scattered Hakea on the lower slope. Hakea increasing upslope becoming dense and impassable in places. Upper slope on to crest is sparse snow gums with lots of fallen timber with burning. Drainage line traverses the SU on north-western lower slope. Three springs are located near the southern SU boundary. Geology meta-sedimentary shale presenting as outcrops, shatter and gravels. The area is slightly rocky. Occasional	The main disturbance is a single vehicle track and runs through part of the survey unit. Other disturbance includes pastoral, rabbit warrens and horse tracks.	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			low and discrete boulder outcrops. Soil is a silty loam (Plate 26).			
TFTSU4	647582. 6036922	648120. 6036288	A series of undulating ridge crests of gentle to moderate gradient. The aspect is westerly. Vegetation is open scrubby snow gum woodland on crest proper with a grass understorey. Geology is mainly meta-sedimentary with occasional exposures of volcanic. Geology presenting as outcrops, shatter, cobbles and gravels. Slope gradient and rockiness increasing with elevation. The northern crest is very rocky and highly eroded with high levels of outcropping exposed. Traces of poor-quality quartz was visible in the background stone profile. Soil is a silty loam.	The main disturbance a single vehicle track and runs through part of the survey unit. Other disturbances include erosional, pastoral, wombat burrows, rabbit warrens and horse tracks.	Negligible	Nil recorded



Plate 25 Tantangara Dam Fire Trail: TFTSU1 looking 90°.



Plate 26 Tantangara Dam Fire Trail: TFTSU3 looking 60°.

6.2.2.12 Tantangara Dam Road Transmission Line

The field survey at Tantangara Dam Road Transmission Line was conducted in October 2018. The survey area has been subject to a reasonably comprehensive field survey. This survey extends east along Tantangara Dam Road Transmission Line from the junction with the Snowy Mountains Highway, north to Tantangara Dam.

The total survey area at Tantangara Dam Road transmission line has measured 187.4 hectares, of which some 74.7 hectares has been physically inspected. In all Survey Units, vegetation frequently posed a constraint; visibility of ground surfaces was often absent except for the vehicle track exposures. The vegetation cover is a mix of grassland and snow gum woodland but is cleared under the transmission line. Ground exposures were generally negligible.

A summary of the field survey results for the Tantangara Dam Road Transmission Line area is presented in Table 43. The Tantangara Dam Road Transmission Line Survey Units are described in Tables 44 and 45. It is noted that no previously recorded Aboriginal sites are known to be present in the Tantangara Dam Road Transmission Line survey area. Eleven object sites were recorded during the field assessment (Table 46). The Tantangara Dam Road Transmission Line survey area is assessed to be generally of very low archaeologically sensitivity.

Tantangara Dam Road Transmission Line survey area is now located outside the project area except for where the transmission line crosses Tantangara Road.

Table 43 Tantangara Road Transmission Line: A summary of Aboriginal object distribution.

SU	Previous sites	New sites	Total sites	Impacts
TTxSU1	0	1	1	No
TTxSU2	0	0	0	No
TTxSU3	0	0	0	No
TTxSU4	0	0	0	No
TTxSU5	0	0	0	No
TTxSU6	0	0	0	No
TTxSU7	0	0	0	No
TTxSU8	0	0	0	No
TTxSU9	0	1	1	No
TTxSU10	0	0	0	No
TTxSU11	0	1	1	No
TTxSU12	0	0	0	No
TTxSU13	0	0	0	No
TTxSU14	0	1	1	No
TTxSU15	0	0	0	No
TTxSU16	0	1	1	No
TTxSU17	0	1	1	No
TTxSU18	0	1	1	No

SU	Previous sites	New sites	Total sites	Impacts
TTxSU19	0	0	0	No
TTxSU20	0	0	0	No
TTxSU21	0	1	1	No
TTxSU22	0	0	0	No
TTxSU23	0	0	0	No
TTxSU24	0	1	1	No
TTxSU25	0	0	0	No
TTxSU26	0	0	0	No
TTxSU27	0	0	0	No
TTxSU28	0	0	0	No
TTxSU29	0	0	0	No
TTxSU30	0	0	0	No
TTxSU31	0	0	0	No
TTxSU32	0	0	0	No
TTxSU33	0	0	0	No
TTxSU34	0	0	0	No
TTxSU35	0	0	0	No
TTxSU36	0	1	1	No
TTxSU37	0	0	0	No
TTxSU38	0	0	0	No
TTxSU39	0	1	1	No
TTxSU40	0	0	0	No
TTxSU41	0	0	0	No
Total	0	11	11	

Table 44 Tantangara Road Transmission Line: Effective Survey Coverage.

SU ID	SU area (sq. m.)	Area inspected (%)	Area inspected (sq. m.)	GE (%)	GE (sq. m.)	AV (%)	NEC (sq. m.)	ESC (%)	Exposures
TTxSU1	7442	80	5954	5	298	10	30	0.40	Very low: bare earth, vehicle wheel tracks, wombat burrows.
TTxSU2	34057	10	3406	1	34	0	0	0.00	Negligible
TTxSU3	102789	50	51394	10	5139	70	3598	3.50	Low: erosional scalds, sheet erosion and vehicle track with some areas graded.
TTxSU4	55431	30	16629	5	831	50	416	0.75	Very low: bare earth, animal tracks and vehicle wheel tracks.
TTxSU5	42504	60	25502	5	1275	50	638	1.50	Bare earth, some sheet erosion and vehicle wheel tracks.
TTxSU6	41721	60	25033	5	1252	50	626	1.50	Bare earth and vehicle wheel tracks.
TTxSU7	15362	70	10753	5	538	40	215	1.40	Very low: bare earth and vehicle wheel track.
TTxSU8	4263	80	3411	1	34	0	0	0.00	Negligible
TTxSU9	91021	90	81919	10	8192	10	819	0.90	Low: bare earth, animal burrows, vehicle wheel tracks.
TTxSU10	34051	40	13620	0	0	0	0	0.00	Negligible
TTxSU11	65840	70	46088	10	4609	50	2304	3.50	Low: bare Earth, vehicle wheel tracks and base of transmission pole.
TTxSU12	12225	50	6112	1	61	0	0	0.00	Negligible
TTxSU13	217257	30	65177	5	3259	90	2933	1.35	Very low: bare earth and vehicle wheel tracks.
TTxSU14	39412	30	11823	10	1182	60	709	1.80	Low: small bare earth scalds and vehicle wheel tracks.
TTxSU15	31413	30	9424	2	188	30	57	0.18	Very low: bare earth and vehicle wheel tracks.

SU ID	SU area (sq. m.)	Area inspected (%)	Area inspected (sq. m.)	GE (%)	GE (sq. m.)	AV (%)	NEC (sq. m.)	ESC (%)	Exposures
TTxSU16	72940	40	29176	2	584	10	58	0.08	Very low: bare earth and vehicle wheel tracks.
TTxSU17	13010	30	3903	1	39	85	33	0.26	Very low: bare earth, animal burrows and vehicle wheel tracks.
TTxSU18	10203	50	5101	1	51	70	36	0.35	Very low: bare earth and vehicle wheel tracks.
TTxSU19	52391	30	15717	1	157	10	16	0.03	Negligible: thick grass cover
TTxSU20	13914	30	4174	2	83	50	42	0.30	Very low: bare earth and vehicle wheel tracks.
TTxSU21	9754	40	3902	2	78	10	8	0.08	Very low: bare earth and vehicle wheel tracks.
TTxSU22	86598	10	8660	1	87	0	0	0.00	Negligible
TTxSU23	74715	10	7471	0	0	0	0	0.00	Nil
TTxSU24	30980	20	6196	5	310	60	186	0.60	Very low: bare earth and vehicle wheel tracks.
TTxSU25	20238	30	6072	2	121	10	12	0.06	Negligible
TTxSU26	16012	90	14411	2	288	70	202	1.26	Very low: bare earth, animal tracks and vehicle wheel tracks.
TTxSU27	33753	50	16877	1	169	80	135	0.40	Very low: bare earth and horse pads.
TTxSU28	13011	70	9108	5	455	80	364	2.80	Very low: bare earth and vehicle wheel tracks.
TTxSU29	15011	100	15011	5	751	10	75	0.50	Very low: bare earth, animal tracks and vehicle wheel tracks.
TTxSU30	150130	75	112597	10	11260	30	3378	2.25	Low: bare earth, erosional scalds, animal burrows and vehicle wheel tracks.
TTxSU31	21087	75	15815	15	2372	30	712	3.38	Low: bare earth and vehicle wheel tracks.

SU ID	SU area (sq. m.)	Area inspected (%)	Area inspected (sq. m.)	GE (%)	GE (sq. m.)	AV (%)	NEC (sq. m.)	ESC (%)	Exposures
TTxSU32	36443	75	27332	5	1367	20	273	0.75	Very low: bare earth and vehicle wheel tracks.
TTxSU33	22122	75	16591	5	830	30	249	1.13	Very low: bare earth, animal tracks/burrows and vehicle wheel tracks.
TTxSU34	79809	75	59857	10	5986	20	1197	1.50	Low: bare earth and vehicle wheel tracks.
TTxSU35	10030	60	6018	5	301	20	60	0.60	Very low: bare earth and vehicle wheel tracks.
TTxSU36	13647	75	10235	5	512	25	128	0.94	Very low: bare earth, animal tracks/burrows and vehicle wheel tracks.
TTxSU37	7582	60	4549	1	45	25	11	0.15	Very low: bare earth and vehicle wheel tracks.
TTxSU38	75744	60	45446	2	909		0	0.00	Very low: bare earth and vehicle wheel tracks.
TTxSU39	126508	60	75905	5	3795		0	0.00	Very low: bare earth and vehicle wheel tracks.
TTxSU40	18414	50	9207	0	0	0	0	0.00	Nil
TTxSU41	54744	75	41058	2	821	30	246	0.45	Very low: bare earth and vehicle wheel tracks.
Total	1873577		946636		58263		19765	1.05	

Table 45 Tantangara Road Transmission Line: A description of Survey Units.

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
TTxSU1	645610. 6022869	645717. 6022871	An undulating simple slope landform of gentle to very gentle gradient with a southerly aspect.	The main disturbance is the clearing and construction of the existing transmission line, a	Negligible	*TTxSU1/L1* AHIMS #57-4-0361

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			The simple slopes are intersected with minor drainage lines. The area is grassland with scattered snow gums and low shrubs. The geology is meta-sedimentary and is present as outcrops, cobble and gravels. Traces of quartz of various quality is present, some of which is likely to be artefactual. Soil is a light brown very gravelly sandy silty loam.	corridor c. 40 m wide. A transmission line maintenance track c. 2 m wide runs the length of the survey unit. Parts of the vehicle track have undergone maintenance including gravel importation. Other disturbance includes animal tracks and wombat burrows.		
TTxSU2	645717. 6022871	646097. 6022719	A series of first order drainage lines converging at lower point. The landform is of gentle to very gentle gradient. The aspect is varied from easterly to southerly. The area is boggy and densely covered in heath and sphagnum moss. The geology is meta-sedimentary and is present as gravels. Soil type grades from a brown to light brown sandy silty loam. The landform is aggrading.	The main disturbance is the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A transmission line maintenance track c. 2 m wide runs the length of the survey unit.	Negligible	Nil recorded
TTxSU3	646048. 6022778	646264. 6022593 646296. 6023044	A series of upper to mid simple slopes of gentle to moderate gradient with a southerly aspect. The area is grassland with scattered low shrubs flanked by open Eucalypt forest along both	The main disturbance is the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A transmission line maintenance track c. 2 m wide runs the	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			margins. Geology is meta-sedimentary presenting as high levels of shatter, gravels and cobbles as well as occasional discrete boulder clusters. Moderate traces of poor and good quality quartz are present, some of which could possibly be artefactual. Soil is a reddish brown gravelly fine silty loam c. 15-20 cm (max.) deep.	length of the survey unit. Parts of the vehicle track have undergone maintenance including gravel importation. Other disturbance includes pastoral.		
TTxSU4	646293. 6023046	646324. 6023586	An undulating crest of gentle to moderate gradient with a southerly aspect. The area is cleared open grassland with scattered low shrubs. The geology is shale and siltstone and is present as shatter, cobbles and gravels. Moderate traces of poor and good quality quartz are present, some of which could possibly be artefactual. Soil is a gravelly silty loam c. 20 cm (max.) deep. The landform is eroding on the higher elevations and aggrading on the lower slopes.	The main disturbance the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A transmission line maintenance track c. 2 m wide runs the length of the survey unit. Parts of the vehicle track have undergone maintenance including gravel importation. Other disturbance includes animal tracks.	Negligible	Nil recorded
TTxSU5	646323. 6023586	646349. 6024076	An undulating crest landform of very gentle gradient to the west with an open aspect. The area is	The main disturbance the clearing and construction of the existing transmission line, a	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			an open grassland with scattered shrubs. The geology is shale and is present as shatter, cobbles and gravels. The higher elevations area highly eroded exposing a greater abundance of bedrock. Occasional traces of poor and good quality quartz are present, some of which could possibly be artefactual. Soil is brown gravelly silty loam c. 15 cm (max.) deep.	corridor c. 40 m wide. A transmission line maintenance track c. 2 m wide runs the length of the survey unit. Other disturbance includes pastoral.		
TTxSU6	646347. 6024076	626382. 6024759	A series of upper simple slopes of gentle to moderate gradient with a westerly aspect and traversed by a minor drainage line. The area is grassland with scattered low shrubs. Geology is meta-sedimentary presenting as high levels of shatter, gravels and cobbles as well as occasional discrete boulder clusters. Soil is a brown gravelly silty loam c. 15 – 30 cm (max.) deep.	The main disturbance is the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A transmission line maintenance track c. 2 m wide runs the length of the survey unit.	Negligible	Nil recorded
TTxSU7	646382. 6024759	646380. 6024900	An undulating crest landform of very gentle to gentle gradient with a northerly aspect. The area is an open grassland with scattered low shrubs. The geology is meta-sedimentary and is present as	The main disturbance is the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A transmission line maintenance track c. 2 m wide runs the	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			outcrops, shatter, cobbles and gravels. The meta-sedimentary bedrock outcropping is very low and discrete. Elsewhere the area is very slightly rocky. Soil is dark brown slightly gravelly silty loam. The landform is eroding on the higher elevations and aggrading on the lower slopes.	length of the survey unit. Other disturbance includes earlier pastoral activity.		
TTxSU8	646384. 6024900	646393. 6024974	A drainage depression with a south westerly aspect. There is an incised watercourse with flowing water surrounded by very boggy and pugged earth. Elsewhere the ground is slightly rocky. The geology is Kellys Plain Volcanics and is present as low discrete outcrops, cobbles and gravels. The area is grassland with some occasional juvenile snow gums and low heath shrubs. Elevated areas are eroding, and the gully is aggrading.	The main disturbance the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A transmission line maintenance track c. 2 m wide runs the length of the survey unit. Parts of the vehicle track have undergone maintenance, including culvert and gravel importation. Other disturbance includes pastoral.	Negligible	Nil recorded
TTxSU9	646392. 6024973	646472. 6025551	The lower slopes of a series of low relief spur crests of very gentle to gentle gradient with an easterly aspect. The area is grassland with very occasional shrubs up to 120 cm high. Geology is Kellys Plain	The main disturbance is the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A transmission line maintenance track c. 2 m wide runs the	Negligible to very low	*TTxSU9/L1* AHIMS #57-4-0363

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			Volcanics and outcrops as gravels and cobbles. The volcanic rock comprises of very coarse crystals and is highly eroded. Traces of poor-quality quartz is present, none of which is likely to be artefactual. Soil is a slightly gravelly sandy silty loam c. 40 cm (max.) deep.	length of the survey unit. Parts of the vehicle track have undergone maintenance including contour banking. Other disturbance includes pastoral and animal burrows [mainly wombats].		
TTxSU10	646472. 6024973	646503. 6025722	A very gently sloping spring fed drainage depression with a southerly aspect. The area is hummocky tussock grassland sparsely scattered with Black Sallee Eucalypt. Soil is dark brown silty loam. The landform is aggraded. The SU is low lying and wet.	The main disturbance is the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A transmission line maintenance track c. 2 m wide runs the length of the survey unit. Parts of the vehicle track have undergone maintenance including the construction of an artificial water crossing and gravel importation. Other disturbance includes pastoral.	Negligible	Nil recorded
TTxSU11	646503. 6025721	646558. 6026059	A series of very gently undulating low relief crests with an easterly aspect. The area is open grassland with scattered low shrubs interspersed with minor drainage lines with riparian/bog. Geology is rhyolite/ignimbrite and is present	The main disturbance is the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A transmission line maintenance track c. 2 m wide runs the length of the survey unit. Parts	Negligible to very low	*TTxSU11/L1* AHIMS #57-4-0362

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			as outcrops, cobbles, gravels and shatter. Occasional traces of poor and good quality quartz are present, some of which could possibly be artefactual. Soil is a slightly gravelly silty loam. Elevated areas are eroding.	of the vehicle track have undergone recent maintenance including gravel importation. Directly adjacent to a drainage line is a mechanically levelled area of c. 50 x 100 m with pushed up mounds of soil. Other disturbance includes pastoral.		
TTxSU12	646558. 6026060	646568. 6026092	A very gently sloping drainage depression with an east south-easterly aspect and a very narrow deeply incised fast flowing watercourse. The geology is volcanic. Soil is a silty loam. The SU landform is aggrading.	The main disturbance the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A transmission line maintenance track c. 2 m wide runs the length of the survey unit. A concrete culvert with a layer of imported gravels span the watercourse and low-lying areas. Other disturbance include pastoral.	Negligible	Nil recorded
TTxSU13	646568. 6026060	646666. 6026685 646758. 6027241	An undulating simple slope landform of gentle to moderate gradient with a southerly aspect. The simple slopes are intersected with minor drainage lines. The area is grassland with scattered low shrubs. The geology is a mix of volcanic and meta-sedimentary	The main disturbance the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A transmission line maintenance track c. 2 m wide with areas of grading runs the length of the survey unit. Parts of the vehicle	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			and is present as very low discrete outcrops, cobble and gravels. The volcanic outcropping is only occasional and present as boulders. Elsewhere the ground is very slightly rocky. Traces of poor-quality quartz is present, some of which is possibly likely to be artefactual. Soil is a gravelly silty loam c. 20 cm (max.) deep. Elevated areas are eroding.	track have undergone maintenance including soil and gravel importation.		
TTxSU14	646758. 6027241	646794. 6027530	A broad crest landform (an elevated feature within the greater landscape) of gentle gradient with an aspect to the west. The area within the transmission line is open grassland with scattered low shrubs. Outside of the cleared transmission line area the vegetation becomes an open snow gum forest with an understorey of grasses and heath. Geology is a meta-sedimentary shale presenting as high levels of shatter, gravels and cobbles. Soil is a slightly gravelly fine brown sandy silty loam.	The main disturbance is the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A transmission line maintenance track c. 2 m wide with areas of grading runs the length of the survey unit. Other disturbance includes pastoral and SMA works.	Very low	*TTxSU14/L1* AHIMS #57-4-0360

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
TTxSU15	646794. 6027529	646824. 6027984	An undulating simple slope landform of gentle to moderate gradient with a northerly aspect. The simple slopes are intersected with minor drainage lines. The area is grassland with scattered low shrubs. The geology is meta-sedimentary and is present as cobbles, shatter and gravels. Traces of poor-quality quartz is present, none of which is likely to be artefactual. Soil is a gravelly brown silty loam c. 20 cm (max.) deep. Elevated areas are eroding.	The main disturbance the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A transmission line maintenance track c. 2 m wide runs the length of the survey unit. Parts of the vehicle track have areas of sheet erosion and have undergone maintenance including the construction of a culvert as well as soil and gravel importation. Other disturbance includes pastoral.	Negligible	Nil recorded
TTxSU16	646825. 6027985	646866. 6028480	A very narrow gently undulating crest no greater than c. 40 metres wide with a northerly aspect. The area is grassland with scattered low shrubs. The geology is meta-sedimentary and is present as cobbles, shatter and gravels with an occasional outcrop of low discrete boulder clusters. The SU area is very slightly rocky with less than 2% of bedrock exposed. Traces of poor and good quality quartz are present, however, most of the quartz is of poor quality. Soil is a gravelly brown silty loam.	The main disturbance is the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A transmission line maintenance track c. 2 m wide runs the length of the survey unit. Other disturbance includes pastoral.	Negligible	*TTxSU16/L1* AHIMS #57-4-0359

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
TTxSU17	646866. 6028479	646865. 6028590	A series of undulating simple slopes landform of moderate gradient with a northerly aspect. The simple slopes are intersected with minor drainage lines. The area is grassland with scattered shrubs up to 120 cm high. The geology is meta-sedimentary and is present as cobbles, shatter and gravels. Traces of poor-quality quartz is present, none of which is likely to be artefactual. Soil is a slightly gravelly brown silty loam and depth varies from shallow to greater than 20 cm. Elevated areas are eroding.	The main disturbance is the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A transmission line maintenance track c. 2 m wide runs the length of the survey unit. Other disturbance includes pastoral and animal burrows [wombats].	Negligible	*TTxSU17/L1* AHIMS #57-4-0364
TTxSU18	646864. 6028589	646872. 6028626	A very gently sloping drainage depression with a west north-westerly aspect and a fast-flowing watercourse with a gravelly base. The geology is shale. Soil is a gravelly loam. The area is an open tussock dominated grassland and a riparian/bog.	The main disturbance is the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A transmission line maintenance track c. 2 m wide runs the length of the survey unit. Parts of the vehicle track have undergone maintenance including the construction of a culvert as well as soil and gravel importation. Other disturbance includes pastoral.	Negligible	*TTxSU18/L1* AHIMS #57-4-0358

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
TTxSU19	646872. 6028626	646895. 6028975	An undulating simple slope landform of gentle gradient with a southerly aspect. The area is grassland with scattered low shrubs. The geology is meta-sedimentary and is present as shatter, cobble and gravels with an occasional outcrop of low discrete of boulder clusters. There are sporadic cobbles of angular sandstone with fine quartz veins scattered across the area. Soil is a gravelly brown silty loam and depth is greater than 20 cm.	The main disturbance is the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A transmission line maintenance track c. 2 m wide runs the length of the survey unit. Parts of the vehicle track have undergone maintenance including the construction of a culvert as well as soil and gravel importation. Other disturbance includes pastoral.	Negligible	Nil recorded
TTxSU20	646896. 6028975	646909. 6029073	A crest landform of very gentle gradient to the west with an open aspect. The area is an open grassland with scattered low shrubs. The geology is shale. Very low levels of naturally occurring black chert is present. Soil is a brown gravelly silty loam with a depth greater than 20 cm.	The main disturbance is the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A transmission line maintenance track c. 2 m wide runs the length of the survey unit.	Negligible to very low	Nil recorded
TTxSU21	646911. 6029069	646929. 6029340	A simple slope landform of moderate gradient with a northerly aspect. The geology is predominantly shale and is present as shatter, cobble and gravels. Soil is a red orangey	The main disturbance the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A transmission line maintenance	Negligible	*TTxSU21/L1* AHIMS #57-4-0356

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			brown gravelly very fine silty loam with a depth greater than 20 cm.	track c. 2 m wide runs the length of the survey unit.		
TTxSU22	646871. 6029260	646929. 6029340	A drainage depression within an undulating valley floor with a northerly aspect. The area is tussock grassland and very low shrubs surrounded by very boggy and pugged earth. Soil is a brown silty loam, waterlogged.	The main disturbance is the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A transmission line maintenance track c. 2 m wide runs the length of the survey unit. Other disturbance includes pastoral, horse pugging and SMA.	Negligible	Nil recorded
TTxSU23	646902. 6029674	647098. 6030200	The lower slopes of a simple slope landform overlooking major watercourse. The area is grassland with an occasional snow gum. The geology is metamorphic shale and is present as shatter, cobble and gravels with an occasional low discrete outcrop. Soil is a gravelly loam c. 20 cm (max.) deep. The landform is eroding.	An area associated with an SMA camp is in this survey unit and the area is relatively highly disturbed. Other disturbance is pastoral, horse activity and the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A transmission line maintenance track c. 2 m wide runs the length of the survey unit.	Negligible	Nil recorded
TTxSU24	647098. 6030200	647110. 6030545	A very gentle to almost level north sloping broad [c.250m wide] spur crest overlooking major watercourse. The aspect is open. The area is grassland with	The main disturbance is the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A transmission line maintenance	Very low	*TTxSU24/L1* AHIMS #57-4-0357

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			scattered low shrubs and an occasional snow gum. The geology is metamorphic and is present as shatter, cobble and gravels with an occasional low discrete outcrop. Soil is a gravelly loam c. 20 cm (max.) deep. The landform is eroding.	track c. 2 m wide runs the length of the survey unit. Other disturbance includes pastoral and SMA works.		
TTxSU25	646994. 6030415	647058. 6030592	An open depression, minor valley floor, with a very gentle gradient and a westerly aspect. The area is low lying, wet and boggy. Vegetation is mainly tussock and dense low shrubbery. The landform is aggrading.	The main disturbance is the construction of the existing transmission line, a corridor c. 40 m wide. Other disturbance includes pastoral and SMA works.	Negligible	Nil recorded
TTxSU26	647058. 6030592	647100. 6030782	A crest landform. The area is grassland with scattered Hakea shrubs and an occasional snow gum. The geology is metasedimentary and is present as low outcrops and cobbles. Exposed bedrock outcropping within the SU is between 2-10% of the area and is considered slightly rocky. Soil changes throughout the SU from a dark brown silty loam to a light brown gravelly silty loam. The higher points of the landform are eroding.	The main disturbance is the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A transmission line maintenance track c. 2 m wide runs the length of the survey unit. Other disturbance includes pastoral, horse activity and SMA works.	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
TTxSU27	647100. 6030782	647176. 6031133	An undulating simple slope landform of moderate gradient with a westerly aspect. A minor seeping drainage line traverses the SU. The area is grassland with Hakea shrubs. The geology is meta-sedimentary and is present as shatter, cobble and gravels. Soil is a dark brown silty loam with depths greater than 30 cm. Soil changes on the higher slopes becoming shallower and slightly gravelly.	The main disturbance the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A transmission line maintenance track c. 2 m wide runs the length of the survey unit. Parts of the vehicle track have undergone maintenance including the construction of a culvert as well as soil and gravel importation. Other disturbance includes pastoral, SMA and horse activity.	Negligible	Nil recorded
TTxSU28	647178. 6031132	647211. 6031294 647276. 6031195	A crest landform of very gentle to gentle gradient with a westerly aspect. The area is an open grassland with scattered Hakea shrubs. On the crest proper the vegetation changes to open snow gum forest with an understorey of low shrubs. The geology is a metasedimentary/shale present as shatter, cobbles and gravels. Soil is a brown silty loam with a depth greater than 20 cm. The landform is eroding.	The main disturbance the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A transmission line maintenance track c. 2 m wide runs the length of the survey unit. Other disturbance includes pastoral, SMA and animal tracks.	Negligible	Nil recorded
TTxSU29	647224. 6031332	647223. 6031360	A moderately sloping drainage depression with a westerly aspect	The main disturbance is the clearing and construction of the	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			and an incised watercourse. The geology is metamorphic. Soil is a gravelly loam. The area is an open grassland with scattered snow gums and a riparian/bog.	existing transmission line, a corridor c. 40 m wide. A transmission line maintenance track c. 2 m wide runs the length of the survey unit. Parts of the vehicle track have undergone maintenance including gravel importation. Other disturbance includes animal tracks and burrows.		
TTxSU30	647223. 6031360	647364. 6032020	A series of very gentle to gently sloping crests with an open aspect. The geology is metamorphic. Black chert is naturally occurring. The area is cleared open grassland with low shrubs and is very slightly rocky. Soil is a gravelly loam [approaching lithosol] with variable depth up to c. 15 cm. Elevated areas are eroding.	The main disturbance the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A transmission line maintenance track c. 2 m wide runs the length of the survey unit. Parts of the vehicle track have undergone maintenance including gravel importation. Other disturbance includes animal burrows.	Negligible	Nil recorded
TTxSU31	647364. 6032020	647386. 6032093	A very gently sloping drainage depression with a north westerly aspect. There is a watercourse with flowing water. The area is cleared open grassland with scattered low shrubs. The geology is Kellys Plain Volcanics. Traces	The main disturbance the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A transmission line maintenance track c. 2 m wide runs the length of the survey unit. Parts	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			of quartz is present, none of which is likely to be artefactual. The soil is a shallow gravelly loam approaching lithosol.	of the vehicle track have undergone maintenance including gravel importation. Other disturbance includes animal tracks and burrows.		
TTxSU32	647386. 6032093	647488. 6032616	A series of very gentle to gently sloping crests with westerly aspect. The area is cleared open grassland with scattered low shrubs. The geology is Kellys Plain Volcanics and is present as cobbles and gravels. Traces of poor-quality reef quartz is present, none of which is likely to be artefactual. Soil is a gravelly loam c. 20 cm (max.) deep. The landform is eroding.	The main disturbance is the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A transmission line maintenance track c. 2 m wide runs the length of the survey unit.	Negligible	Nil recorded
TTxSU33	647488. 6032616	647499. 6032660	A gently sloping drainage depression with a westerly aspect. There is a watercourse with flowing water. The area is cleared riparian thicket along creek. The geology is Kellys Plain Volcanics and is present as outcrops, cobble and gravels. Traces of quartz is present, none of which is likely to be artefactual. The soil is a shallow gravelly loam.	The main disturbance is the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A transmission line maintenance track c. 2 m wide runs the length of the survey unit. Other disturbance includes animal tracks and burrows.	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
TTxSU34	647498. 6032660	647606. 6033188	A series of very gently sloping crests with a westerly aspect. The area is cleared open grassland with scattered low shrubs. The geology is Kellys Plain Volcanics and is present as cobbles and gravels. Traces of low-quality quartz is present, none of which is likely to be artefactual. The soil is a shallow gravelly loam c. 10-15 cm (max.) deep.	The main disturbance is the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A transmission line maintenance track c. 2 m wide runs the length of the survey unit.	Negligible	Nil recorded
TTxSU35	647606. 6033188	647658. 6033448	A very gently sloping broad spring fed drainage depression with a north westerly aspect. The area is cleared with riparian thicket with grass and shrubs. The geology is Kellys Plain Volcanics. The soil is a shallow gravelly loam.	The main disturbance is the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A transmission line maintenance track c. 2 m wide runs the length of the survey unit.	Negligible	Nil recorded
TTxSU36	647658. 6033448	647874. 6033668	A very gently sloping crest with an open aspect. The area is cleared open grassland and shrubs. The geology is Kellys Plain Volcanics and is present as cobbles and gravels. Traces of poor-quality reef quartz is present, none of which is likely to be artefactual. Soil is a gravelly loam c. 30 cm (max.) deep.	The main disturbance is the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A transmission line maintenance track c. 2 m wide runs the length of the survey unit. Parts of the vehicle track have undergone maintenance including gravel importation.	Negligible-very low	*TTxSU36/L1* AHIMS #57-4-0355

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
				Other disturbance includes animal tracks and burrows.		
TTxSU37	647874. 6033669	647936. 6033683	A gently sloping broad spring fed drainage depression with a northerly aspect. The area is cleared with riparian thicket with grass. The geology is Kellys Plain Volcanics. Traces quartz is present, none of which is likely to be artefactual. The soil is a boggy gravelly loam.	The main disturbance is the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A transmission line maintenance track c. 2 m wide runs the length of the survey unit.	Negligible	Nil recorded
TTxSU38	647935. 6033683	648696. 6034315	A crest landform of very gentle to gentle gradient with an open to westerly aspect. The area is cleared with open grassland and shrubs. The geology is Kellys Plain Volcanics and is present as cobbles and gravels with boulder outcropping occurring on the higher points. Traces of quartz is present, none of which is likely to be artefactual. Soil is a shallow silty gravel/very gravelly loam, becoming deeper to the north.	The main disturbance is the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A transmission line maintenance track c. 2 m wide runs the length of the survey unit.	Negligible	Nil recorded
TTxSU39	648700. 6034310	648871. 6034860	An open depression, minor valley floor, with a very gentle gradient and a northerly aspect. Soil is a very fine sandy loam greater than	The main disturbance is the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A transmission line maintenance	Very low	*TTxSU39/L1* AHIMS #57-4-0354

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			50cm in depth. The landform is stable.	track c. 2 m wide runs the length of the survey unit.		
TTxSU40	648871. 6034860	648913. 6034940	A level to very gently sloping drainage depression with a north westerly aspect. There is an incised flowing watercourse (Kellys Plain Creek). The vegetation is riparian thicket with grasses and bog species.	The main disturbance is the construction of the existing transmission line.	Negligible	Nil recorded
TTxSU41	648910. 6034940	649240. 6035968	A series of very gently sloping crests with a westerly aspect. The area is cleared open grassland with scattered Black Sallee. The geology is meta-sedimentary/ dacite. The soil is a slightly gravelly loam c. 20-30 cm (max.) deep. The landform is stable.	The main disturbance is the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A transmission line maintenance track c. 2 m wide runs the length of the survey unit.	Negligible	Nil recorded

Table 46 Tantangara Road Transmission Line: A description of Aboriginal Object Locales.

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
TTxSU1	*TTxSU1/L1* AHIMS #57-4-0361	645896	6022886	A very gentle to gentle gradient simple slope area of c. 75 x 75 m, located near to spring-fed drainage line and confluence. The aspect is south easterly. Soil within the ASL is a gravelly loam with depth greater than 40cm. Ground exposures were low with	Archaeologically sensitive landform	Very low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				mainly discrete areas of animal burrows providing bare earth for inspection.		
TTxSU9	*TTxSU9/L1* AHIMS #57-4-0363 (Plate 27)	646464 646420	6025503 6025238	A scatter of 15 artefacts recorded over 311 m of powerline corridor on crest features straddling flowing creek line. A very low-density continuous scatter most likely influenced by proximity to creek adjacent and nearby major creek valley to east. Some patches of possibly low density within the site area. Discontinuous patches of exposures from scald erosion, animal burrows and a vehicle track. Ground exposure within the site area was assessed at 10% with archaeological visibility of 10%. Ground exposure away from site was negligible. The site potentially may extend outward from exposures. Soil within the area is a gravelly loam of variable depth greater than 30 to 40 cm. Good quality quartz was observed within the background stone profile, some of which is possibly artefactual. Disturbances include clearance and erosion from transmission line construction and maintenance.	Quartz core frag 30x29x16 mm 3 negative scars. Quartz flake 17x15x2 mm. Grey volcanic flake piece 37x32x10 mm. Quartz flake 21x14x9 mm. Grey tuff flake frag 12x11x1 mm. Grey silcrete flake frag 11x12x2 mm. Grey silcrete distal 17x14x3 mm feather. Grey chert proximal 14x11x2 mm. Grey silcrete proximal 10x10x3 mm. Grey silcrete distal 10x5x3 mm feather. Grey silcrete proximal 20x10x3 mm heat damaged recent damage. Grey silcrete proximal 15x8x3 mm bending. Grey silcrete proximal 8x12x3 mm. Grey chert flake 12x12x1 mm possible	Very low to low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
					micro use-wear. Grey chert proximal 14x10x4 mm possible use-wear along right margin.	
TTxSU11	*TTxSU11/L1* AHIMS #57-4-0362	646507 646515	6025732 6025759	Three artefacts located a vehicle track on a very gently sloping crest with a southerly aspect. The site area is c.2 m wide x 30 m long. Ground exposure within the site area was assessed at 10% with archaeological visibility of 20%. Ground exposures away from site area were low with mainly discrete areas of animal burrows providing bare earth for inspection. The site potentially may extend outward from exposure. Soil within the area is a gravelly loam up to a maximum depth of 40 cm. Good quality quartz was observed within the background stone profile, some of which is possibly artefactual. Disturbances include clearance and erosion from transmission line construction and maintenance.	Grey chert flake 16x16x3 mm focal hinge. Grey tuff flake 17x17x6 mm broad feather. Quartz distal 21x29x7 mm axial termination.	Very low
TTxSU14	*TTxSU14/L1* AHIMS #57-4-0360	646758	6027260	ASL located on a saddle, part of a very gently sloping crest with an open to north and south aspect. Broad saddle gap between Eucumbene River and Murrumbidgee River catchment/valleys.	Previously recorded by Knight (pers comm); no artefacts were relocated during current survey.	Very low to low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				Ground exposure within the site area was assessed at 60% with archaeological visibility of 40%. Ground exposure away from site was negligible. Soil within the area is a very gravelly loam with a depth greater than 30 cm. Most intact deposit is likely to be between Transmission Line corridor and Tantangara Road corridor in timbered low gradient terrain. Topography becomes slightly more constrained here and effect on archaeology more elevated. Traces of quartz was observed within the background stone profile, some of which is possibly artefactual. Disturbances include animal burrows, clearance and erosion from transmission line construction and maintenance.		
TTxSU16	*TTxSU16/L1* AHIMS #57-4-0359	646851	6028313	One artefact located on a very gently sloping crest with a northerly aspect. The site area is 3 x 1 m and is located on a vehicle track. Ground exposure within the site area was assessed at 25% with archaeological visibility of 40%. Ground exposure away from site was no more than 10% with archaeological visibility of 5%. Soil within the area is a semi-skeletal very gravelly loam up to a maximum depth of 10 cm. Traces of quartz was observed within the	Black chert flake 22x10x3 mm mid dorsal ridge feather flake laterally snapped recent damage.	Negligible

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				background stone profile, none of which is possibly artefactual. Disturbance includes animal burrows, clearance and erosion from transmission line construction and maintenance.		
TTxSU17	*TTxSU17/L1* AHIMS #57-4-0364 (Plate 28)	646870	6028502	One artefact located on a simple slope of gentle gradient with a northerly aspect. The site area is 3 x 1 m and is located on a vehicle track. Ground exposure within the site area was assessed at 30% with archaeological visibility of 50%. Ground exposure away from site was negligible. Soil within the area is a very gravelly semi-skeletal loam. Good quality quartz was observed within the background stone profile, some of which is possibly artefactual. Disturbance includes clearance and erosion from transmission line construction and maintenance.	Grey silcrete microlith - asymmetric backed blade 21x11x6 mm.	Negligible
TTxSU18	*TTxSU18/L1* AHIMS #57-4-0358	646782	6028658	The terminal end of a very gentle gradient spur crest c. 170 m [n-s] x 40 [e-w] m, located near to a drainage line and confluence. The aspect is north westerly. The confluence c. 100 m to the west. Soil within the ASL is a gravelly loam. Ground exposures were negligible due to dense vegetation of woodland and grasses.	Archaeologically sensitive landform	Very low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
TTxSU21	*TTxSU21/L1* AHIMS #57-4-0356	646912	6029151	A gentle gradient simple slope with a northerly aspect. The site area is 3 x 1 m and located on a vehicle track. Ground exposure within the site area was assessed at 40% with archaeological visibility of 60%. Ground exposures away from site area were negligible with mainly discrete areas of animal burrows providing bare earth for inspection. Soil within the area is a very gravelly loam with a maximum depth of 40 cm.	Black chert flake 27x16x6 mm 4 negative scars on dorsal focal platform axial termination.	Negligible
TTxSU24	*TTxSU24/L1* AHIMS #57-4-0357	647100	6030330	A very gentle to gentle gradient broad spur crest, a prominent local landform c. 250 m wide, directly overlooking Nungar Creek valley. The aspect is open. Disturbances include clearance and erosion from transmission line construction and maintenance.	Archaeologically sensitive landform	Very low
TTxSU36	*TTxSU36/L1* AHIMS #57-4-0355	647801	6033645	One artefact located on a minor saddle, part of a very gently sloping crest with a north westerly aspect. The site area is 2 x 1 m and is located on an erosional scald. Ground exposure within the site area was assessed at 60% with archaeological visibility of 40%. Ground exposure away from site was c. 10% with archaeological visibility of 10%. The saddle measured 50 x 50 m and it is likely the artefacts extend across this	Milky quartz flake 35x27x3 mm Hertzian feather.	Very low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				area. Soil within the area is a light brown gravelly silty loam up to a maximum depth of 30 cm. Good quality quartz was observed within the background stone, some of which is possibly artefactual. Disturbance includes clearance and erosion from transmission line construction and maintenance.		
TTxSU39	*TTxSU39/L1* AHIMS #57-4-0354	648742	6034503	Four artefacts located on a slightly elevated landform within a very gently sloping open depression/flat with an open to northerly aspect. The site area is next to periodic wetland and creek line zones with springs nearby. The visible site extent is a patch of bare earth of 3 sq. m. with 100% ground exposure and an archaeological visibility within that of 60%. The site potentially extends outward from exposure.	Black chert 17x27x5 mm flake broad step less than 5% cortex. Black chert 24x25x3 mm flake cortical feather. Black chert 11x9x4 mm flake axial termination. Black chert 13x16x2 mm proximal.	Very low



Plate 27 Tantangara Road transmission line: TTXSU9/L1 looking north.



Plate 28 Tantangara Road transmission line: TTXSU17/L1 looking north.

6.2.2.13 Schofields Fire Trail

The field survey at Schofields Fire Trail was conducted in November 2018. The Schofields Fire Trail survey area has been subject to a reasonably comprehensive field survey. This survey extends from the junction with Tantangara Road, east to Schofields Hut and beyond.

The total survey area at Schofields Fire Trail has measured 158 hectares, of which some 87 hectares has been physically inspected. In all Survey Units, vegetation frequently posed a constraint; visibility of ground surfaces was often absent except for the fire trail exposures. The area is a mix of open grassland and snow gum woodland. Ground exposures were generally negligible. Certain areas were found to be relatively undisturbed.

A summary of the field survey results for the Schofields Fire Trail area is presented on Table 47. The Schofields Fire Trail Survey Units are described in Tables 48 and 49. It is noted that one previously recorded Aboriginal site is known to be present in the Schofields survey area. Some 19 Aboriginal object locales were recorded during the field assessment (Table 50). The Schofields Fire Trail survey area is assessed to be generally of very low archaeologically sensitivity.

The Schofields Fire Trail survey area is now outside the project area footprint.

Table 47 Schofields Fire Trail: A summary of Aboriginal object distribution.

SU	Previous sites	New sites	Total sites	Impacts
SSU1	0	0	0	No
SSU2	0	0	0	No
SSU3	0	0	0	No
SSU4	0	0	0	No
SSU5	0	0	0	No
SSU6	0	0	0	No
SSU7	0	0	0	No
SSU8	0	0	0	No
SSU9	0	0	0	No
SSU10	0	4	4	No
SSU11	1	0	1	No
SSU12	0	0	0	No
SSU13	0	0	0	No
SSU14	0	3	3	No
SSU15	0	2	2	No
SSU16	0	2	2	No
SSU17	0	3	3	No
SSU18	0	0	0	No
SSU19	0	0	0	No
SSU20	0	1	1	No
SSU21	0	0	0	No

SU	Previous sites	New sites	Total sites	Impacts
SSU22	0	1	1	No
SSU23	0	2	2	No
SSU24	0	0	0	No
SSU25	0	0	0	No
SSU26	0	0	0	No
SSU27	0	0	0	No
SSU28	0	0	0	No
Total	1	18	19	

Table 48 Schofields Fire Trail: Effective Survey Coverage.

SU ID	SU area (sq. m.)	Area inspected (%)	Area inspected (sq. m.)	GE (%)	GE (sq. m.)	AV (%)	NEC (sq. m.)	ESC (%)	Exposures
SSU1	30060	60	18036	10	1804	20	361	1.2	Low: graded vehicle track, bare earth and animal burrows.
SSU2	30435	60	18261	10	1826	30	548	1.8	Low: graded vehicle track, bare earth and animal burrows.
SSU3	9977	60	5986	10	599	30	180	1.8	Low: graded vehicle track, bare earth and animal burrows.
SSU4	42765	60	25659	15	3849	30	1155	2.7	Low: graded vehicle track, bare earth and animal burrows.
SSU5	7455	75	5591	30	1677	30	503	6.75	Low: graded vehicle track, bare earth and sheet erosion.
SSU6	61767	60	37060	10	3706	30	1112	1.8	Low: graded vehicle track, bare earth and animal burrows.
SSU7	10115	75	7586	10	759	20	152	1.5	Low: graded vehicle track, bare earth and animal burrows.
SSU8	56865	75	42648	15	6397	40	2559	4.5	Low: graded vehicle track, bare earth and animal burrows/tracks.
SSU9	5227	60	3136	5	157	40	63	1.2	Very low: graded vehicle track, bare earth and animal tracks/ burrows.
SSU10	111991	60	67195	10	6719	50	3360	3	Low: graded vehicle track.
SSU11	62659	60	37595	20	7519	60	4511	7.2	Moderate: graded vehicle track and bare earth.
SSU12	80443	75	60332	20	12066	60	7240	9	Moderate: vehicle track.
SSU13	5200	60	3120	1	31	1	0	0.01	Negligible
SSU14	81625	60	48975	20	9795	50	4897	6	Low: vehicle track.
SSU15	144978	40	57991	30	17397	80	13918	9.6	Moderate: graded vehicle track.
SSU16	91052	30	27316	10	2732	90	2458	2.7	Low: graded vehicle track.

SU ID	SU area (sq. m.)	Area inspected (%)	Area inspected (sq. m.)	GE (%)	GE (sq. m.)	AV (%)	NEC (sq. m.)	ESC (%)	Exposures
SSU17	61495	60	36897	10	3690	90	3321	5.4	Low: graded vehicle track.
SSU18	14274	30	4282	10	428	80	343	2.4	Low: graded vehicle track.
SSU19	5917	40	2367	10	237	30	71	1.2	Low: vehicle track.
SSU20	44625	30	13387	20	2677	70	1874	4.2	Low: graded vehicle track, bare earth and animal burrows/tracks.
SSU21	20978	20	4196	10	420	40	168	0.8	Low: graded vehicle track.
SSU22	72836	50	36418	10	3642	70	2549	3.5	Low: graded vehicle track and wombat burrows.
SSU23	66258	60	39755	2	795	50	398	0.6	Very low: vehicle wheel track, bare earth and rabbit burrows.
SSU24	257909	60	154746	5	7737	10	774	0.3	Very low: vehicle wheel track, bare earth and rabbit burrows.
SSU25	35192	40	14077	10	1408	80	1126	3.2	Very low: vehicle wheel track, bare earth and wombat burrows.
SSU26	40805	60	24483	10	2448	50	1224	3	Low: vehicle wheel track, bare earth and animal tracks/burrows.
SSU27	63255	60	37953	20	7591	40	3036	4.8	Low: graded vehicle wheel track, bare earth and animal tracks/burrows.
SSU28	63774	60	38264	20	7653	40	3061	4.8	Low: vehicle wheel track, bare earth and animal tracks/burrows.
Total	1579932		873313		68649		60961	3.86	

Table 49 Schofields Fire Trail: A description of Survey Units.

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
SSU1	647231. 6029515	647401. 6029369	An amorphous crest landform of gentle to very gentle gradient with a northerly aspect. Vegetation is snow gum. Geology	The main disturbance is the SMA Tantangara Camp located at the very	Negligible	Nil

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			is metamorphic presenting as shatter, cobbles and gravels. Traces of quartz is present, none of which is likely to be artefactual. Soil is a sub-alpine loam and depth of up to 30 cm.	western end of SU. A vehicle track c. 2 m wide and runs the length of the survey unit. Other disturbance includes vehicle track maintenance/upgrades, horses, rabbits and pastoral.		
SSU2	647401. 6029369	647674. 6029523	The lower slopes of an amorphous simple slope landform of gentle to moderate gradient with a north north-westerly aspect. Vegetation is snow gum. Geology is metamorphic presenting as shatter, cobbles and gravels. Very occasional bedrock outcropping. Traces of quartz is present, none of which is likely to be artefactual. Soil is a gravelly sub-alpine loam.	The main disturbance is a vehicle track c. 2 m wide and runs the length of the survey unit. Other disturbance includes vehicle track maintenance/ upgrades, animal tracks and burrows.	Negligible	Nil
SSU3	647674. 6029523	647706. 6029452	A very gently sloping crest with a northerly aspect. Vegetation is snow gum with an understorey of grasses. Geology is metamorphic presenting as shatter, cobbles and gravels. Occasional bedrock outcropping. Traces of quartz is present, none of which is likely to be artefactual. Soil is a gravelly sub-alpine loam.	The main disturbance is a vehicle track c. 2 m wide and runs the length of the survey unit. Other disturbance includes possible settlement site [SU3/H1], erosion and animal burrows.	Negligible	Nil
SSU4	648102. 6029311	647706. 6029452	The upper and mid slopes of a simple slope landform of moderate gradient with	The main disturbance is a vehicle track c. 2 m wide	Negligible	Nil

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
		648102. 6029311	a northerly aspect. Vegetation is snow gum. Geology is metamorphic presenting as shatter, cobbles and gravels. Very occasional bedrock outcropping. Traces of quartz is present, none of which is likely to be artefactual. Soil is a sub-alpine loam up to a maximum depth of 30 cm. The landform is stable.	and runs the length of the survey unit. Other disturbance includes vehicle track maintenance/upgrades, erosion and animal burrows.		
SSU5	648102. 6029311	648156. 6029356	A gentle to moderately sloping drainage depression. The aspect is northerly. The area is a riparian thicket, bog, grasses and shrubs. Geology is metamorphic presenting as shatter, cobbles and gravels. Areas within SU is rocky with a moderate level of bedrock outcropping. Traces of quartz is present, none of which is likely to be artefactual. Soil is a gravelly lithosol.	The main disturbance is a vehicle track c. 2 m wide and runs the length of the survey unit. Other disturbances include vehicle track maintenance/upgrades, sheet erosion and a modified vehicle crossing/causeway.	Negligible	Nil
SSU6	648156. 6029356	648603. 6029724	A simple slope landform of moderate gradient with a north north-westerly aspect. A drainage depression traverses the SU on the mid to lower slope. Vegetation is grasses and shrubs. Geology is metamorphic presenting as shatter, cobbles and gravels. Very occasional bedrock outcropping. Soil is a gravelly sub-alpine loam up to a maximum depth of 40 cm. The landform is stable.	The main disturbance a vehicle track c. 2 m wide and runs the length of the survey unit. Other disturbance includes mining and animal burrows.	Negligible	Nil

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
SSU7	648603. 6029724	648691. 6029709	A drainage depression landform of gentle to moderate gradient with an easterly aspect and a fast-flowing watercourse [Nungar Creek]. Vegetation is grasses, shrubs and riparian scrub. Geology is metamorphic presenting as shatter, cobbles and gravels. Very occasional bedrock outcropping. Soil is a gravel bog deposit.	The main disturbance is a vehicle track c. 2 m wide and runs the length of the survey unit. Other disturbance includes vehicle track maintenance/upgrades, pastoral, erosion and animal burrows.	Negligible	Nil
SSU8	648691. 6029709	649252. 6029686	A broad amorphous crest landform of very gentle gradient with an open aspect. Vegetation is snow gum. Geology is metamorphic presenting as shatter, cobbles and gravels. Very occasional bedrock outcropping. Traces of quartz is present, none of which is likely to be artefactual. Soil is a gravelly sub-alpine loam and depth of up to 40 cm.	The main disturbance is a vehicle track c. 2 m wide and runs the length of the survey unit. Other disturbance includes vehicle track maintenance/ upgrades, pastoral, erosion and animal tracks and burrows.	Negligible	Nil
SSU9	649252. 6029686	649282. 6029671	A narrow drainage depression landform of gentle gradient with a southerly aspect. Vegetation is grasses, shrubs and riparian thicket. Geology is apparent. Soil is a sub-alpine/ bog deposit.	The main disturbance is a vehicle track c. 2 m wide and runs the length of the survey unit. Other disturbance includes vehicle track maintenance/ upgrades, pastoral, erosion and animal burrows.	Negligible	Nil
SSU10	649318. 6029688	650319. 6029919	An undulating crest of gentle to very gentle gradient with a southerly aspect. The area is a Eucalypt woodland with	The main disturbance is a vehicle track c. 2 m wide and runs the length of the	Very low to low	*SSU10/L1* AHIMS #57-4-0382

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			grasses and shrubs. The geology is shale and is present as shatter, cobbles and gravels. Traces of black chert was observed within the background stone profile. Soil is a sub-alpine loam and depth varies from 20 to 50 cm (max.) deep. A spring/soak is located within this SU.	survey unit. Other disturbances include vehicle track maintenance/upgrades and pastoral.		*SSU10/L2* AHIMS #57-4-0381 *SSU10/L3* AHIMS #57-4-0380 *SSU10/L4* AHIMS #57-4-379
SSU11	650115. 6030079	650319. 6030104	A simple slope landform of very gentle to gentle gradient with a south-easterly aspect. Vegetation is Eucalypt forest. Geology is a mix of metamorphic/ metasedimentary presenting as cobbles and gravels. Traces of good quality black chert was observed within the background stone profile. Soil is a gravelly sub-alpine loam and depth up to 40 cm (max.) deep. The landform is stable.	The main disturbance is the formed vehicle track c. 2 to 3 m wide and runs the length of the survey unit. Parts of the vehicle track have recently undergone maintenance and upgrades. Other disturbance includes pastoral.	Negligible	*Nungar Creek* AHIMS #57-4-0160
SSU12	650319. 6030104	650776. 6030501	A crest landform of very gentle gradient with a south-easterly aspect. SU includes low gradient broad crest points at edge of valley bottom. Vegetation changes throughout SU from Eucalypt forest to snow gum woodland to a grass/shrubland. Geology is a mix of metamorphic/ metasedimentary presenting as cobbles and gravels. Traces of black chert and	The main disturbance is the formed vehicle track c. 2 to 3 m wide and runs the length of the survey unit. Parts of the vehicle track have recently undergone maintenance and upgrades. Other	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			quartzite was observed within the background stone. Soil is a gravelly sub-alpine loam and depth up to 40 cm (max.) deep. The landform is stable.	disturbance includes pastoral.		
SSU13	650776. 6030501	650816. 6030535	A drainage depression landform of very gentle gradient with an open aspect. A bog with running water. Vegetation is bog thicket and grasses. Geology is metamorphic. Soil is a sub-alpine loam through to a boggy waterlogged sediment. The SU is an inundated/boggy zone.	The main disturbance is the formed vehicle track c. 2 to 3 m wide and runs the length of the survey unit. Parts of the vehicle track have recently undergone maintenance and upgrades. Other disturbance includes pastoral.	Negligible	Nil recorded
SSU14	650816. 6030535	651177. 6031198	A crest landform of a toe slope of very gentle gradient with an open aspect. a low crest edge of valley floor. Vegetation is Eucalypt wood land. Geology is metamorphic/ metasedimentary presenting as shatter, cobbles and gravels. Traces of quartz was observed within the background stone profile. Soil is a slightly gravelly sub-alpine loam and depth up to 40 - 50 cm (max.)	The main disturbance is a vehicle track c. 2 to 3 m wide and runs the length of the survey unit. Other disturbance includes vehicle track maintenance/ upgrades, horse activities and pastoral.	Very low to low	*SSU14/L1* AHIMS #57-4-0378 *SSU14/L2* AHIMS #57-4-0377 *SSU14/L3* AHIMS #57-4-0376
SSU15	651284. 6031122	651708. 6031397	A series of very gently undulating broad crests with a south-easterly aspect. Within the greater landscape this crest landform forms part of a major Nungar Ridge spur line situated above Nungar	The main disturbance is a vehicle track c. 2 to 3 m wide and runs the length of the survey unit and Schofields Hut site	Negligible to very low	*SSU15/L1* AHIMS #57-4-0375 SSU15/L2 AHIMS

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			Plain. The area is well sheltered by the higher slopes to the west of the SU. The head waters of Gulf Plain Creek are located nearby. For these reasons the SU has an elevated sensitivity. The SU is traversed by a minor drainage depression. Vegetation is open snow gum forest with an understorey of grasses. Geology is a meta-sedimentary sandstone and shale presenting as outcrops, shatter, cobbles and gravels. Outcropping is sparse and presenting as very low and discrete exposures. A change to volcanic occurs at 652018.6031480. A moderate level of quartz was observed within the background stone profile and some pieces may be artefactual. Traces of black chert was also observed within the background stone profile. Soil is a dark brown gravelly silty loam. Artefacts were located within this SU.	complex. Other disturbance includes vehicle track maintenance/upgrades, horse activities, wombat burrows and pastoral.		#57-4-0374
SSU16	651712. 6031397	651856. 6032369	A series of simple slopes of gentle to moderate gradient with a northerly aspect. The landform is considered amorphous. Areas of SU are c. 30 m from Gulf Plain Creek, a major watercourse. Vegetation is open Eucalypt snow gum forest with an understorey of grasses and heath. Changes on eastern crests to grassland and heath with pockets of snow	The main disturbance is a vehicle track c. 2 to 3 m wide and runs the length of the survey unit. Other disturbance includes vehicle track maintenance/ upgrades, horse activities and pastoral.	Negligible	*SSU16/L1* AHIMS #57-4-0373 *SSU16/L2* AHIMS #57-4-0372

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			gum. Geology is a meta-sedimentary presenting as shatter, cobbles and gravels. There are high levels of shatter. Level of background quartz is moderate and varying in quality, some of which may possibly be artefactual. Soil is a gravelly silty loam with a depth up to 50 cm (max.). A single unmodified river cobble was in road bank at 651716. 6031519.			
SSU17	651854. 6032369	651924. 6033002	A sequence of low relief broad toe slopes of very gentle gradient with an east north-easterly aspect. The SU is intersected by a series of minor drainage lines and directly above creek. The SU has an elevated sensitivity due to the landform features. Vegetation is open snow gum forest with an understorey of grasses. Geology is shale presenting as shatter, cobbles and gravels. Very low levels of poor to good quality quartz are present, some of which is possibly artefactual. Traces of black chert observed within the background stone. Soil is a slightly gravelly silty loam.	The main disturbance is a vehicle track c. 2 to 3 m wide and runs the length of the survey unit. Other disturbance includes vehicle track maintenance/ upgrades, horse activities and pastoral.	Negligible to very low	*SSU17/L1* AHIMS #57-4-0371 *SSU17/L2* AHIMS #57-4-0370 *SSU17/L3* AHIMS #57-4-0369
SSU18	651926. 6033000	652039. 6033091	A simple slope landform of gentle gradient with a north north-easterly aspect. vegetation is open Eucalypt forest with an understorey of grasses. Geology	The main disturbance is the formed vehicle track c. 2 to 3 m wide and runs the length of the survey unit.	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			is meta-sedimentary shale presenting as shatter, cobbles and gravels. Rock forms are a mix of tabular, rounded and angular gravels. A low level of quartz was visible in the background stone profile. Soil is very fine slightly gravelly silty loam greater than 30 cm deep.	Parts of the vehicle track have recently undergone maintenance and upgrades. Other disturbance includes pastoral.		
SSU19	652040. 6033090	652044. 6033157	A drainage depression landform of very gentle gradient with an easterly aspect and a flowing watercourse [tributary to Gulf Plain Creek]. Vegetation is Black Sallee and bog heath species. Geology is varied, shale and conglomerate presenting as shatter, cobbles and gravels. Soil is a gravelly silty loam bog deposit up to 30 cm [max.]. The landform is aggrading. The SU is wet and low lying.	The main disturbance is the formed vehicle track c. 2 to 3 m wide and runs the length of the survey unit including a modified creek crossing using two culverts c. 20 m apart. Other disturbance includes pastoral and importation of rock material for road modifications.	Negligible	Nil recorded
SSU20	652042. 6033155	652147. 6033555	A series of very gently undulating broad crests with an easterly aspect. This landform is considered amorphous. Minor drainage depressions traverse crests. Vegetation is variable across SU changing from a dense forest of mature and immature Eucalypt with a grass understorey to a more open Eucalypt forest at the northern end of SU. Geology is a mix of metasedimentary and volcanic presenting as outcrops, shatter, cobbles	The main disturbance is the formed vehicle track c. 2 to 3 m wide and runs the length of the survey unit. Parts of the vehicle track have recently undergone maintenance and upgrades. Other disturbance includes pastoral and animal	Negligible	*SSU20/L1* AHIMS #57-4-0368

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			and gravels. Occasional exposures of shale bedrock along vehicle track. Traces of poor and good quality quartz are present, however, most of the quartz is of poor quality. Occasional black chert was observed within the background stone profile. Soil is a slightly gravelly fine silt loam greater than 30 cm deep.	activity [tracks and scratching].		
SSU21	652145. 6033554	652154. 6033618	Very gently sloping open depression landform with low small elevated knoll. The aspect is open. Vegetation is scattered Black Wattle. Geology is metasedimentary presenting as shatter, cobbles and gravels.	The main disturbance is the formed vehicle track c. 2 to 3 m wide and runs the m of the survey unit. Vehicle crossing does not appear modified. Other disturbance include pastoral.	Negligible	Nil recorded
SSU22	652152. 6033623	652323. 6034610	Series of low relief broad undulating spur crests of gentle to very gentle gradient. The aspect is east north-easterly. SU dissected by minor drainage depressions. Vegetation is open Black Salle forest with occasional snow gum and an understorey of grasses. A spring head is located at 652322.6034333. Geology is shale presenting as cobbles and gravels. Traces of poor and good quality quartz are present, however, most of the quartz is of poor quality. Occasional black chert was observed within the background stone.	The main disturbance is the formed vehicle track c. 2 to 3 m wide and runs the length of the survey unit. Parts of the vehicle track have recently undergone maintenance and upgrades. Other disturbance includes pastoral and wombat activity [burrows].	Negligible	*SSU22/L1* AHIMS #57-4-0367

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			Soil is a slightly gravelly silty loam ranging in depth from 15 cm to a maximum of 30 cm.			
SSU23	652550. 6031541	652872. 6030903	A series of very gentle to gently undulating upper slopes and crests with a south-easterly aspect. Vegetation is open snow gum forest with a heath/ grassland understorey. Geology is a meta-sedimentary shale presenting as outcrops, shatter, cobbles and gravels. Outcropping is sparse and presenting as low and discrete exposures. A very low level of poor-quality quartz was visible in the background stone profile. Occasional pieces of naturally occurring black and banded chert were observed. Soil is gravelly silty loam up to a depth of 20 cm.	The main disturbance is a vehicle track and runs the length of the survey unit. Other disturbance includes pastoral and rabbit activity [burrows].	Negligible	*SSU23/L1* AHIMS #57-4-0366 *SSU23/L2* AHIMS #57-4-0365
SSU24	652872. 6030901	654874. 6029734	A level to gently undulating valley floor [Nungar Plain] with an open aspect. the SU valley floor is traversed by Nungar Creek. Vegetation is open grassland with occasional heath. Areas of frost heave. Geology is mostly indeterminate although some areas are a meta-sedimentary presenting as shatter, cobbles and gravels. Occasional bedrock outcropping visible on the higher elevations. Soil is a brown silty loam on the lower plain and	The main disturbance is a vehicle track, grassed over and a newly constructed culvert crossing Nungar Creek using imported rock materials. Imported rock material also between each ford crossing. Other disturbance includes pastoral and rabbit activity [burrows].	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			becomes slightly gravelly on the elevated areas within the valley floor.			
SSU25	654874. 6029737	655025. 6029467	A simple slope landform of gentle gradient with a west south-west aspect. vegetation is scattered snow gum forest with an understorey of grass. Geology is meta-sedimentary presenting as outcrops, shatter, cobbles and gravels. occasional background good quality quartz, some of which may possibly be artefactual. Soil is gravelly silty loam.	The main disturbance is a vehicle track. Other disturbance includes pastoral and rabbit activity [burrows].	Negligible	Nil recorded
SSU26	655032. 6029467	655444. 6029438	An amorphous crest landform of very gentle to gentle gradient with a westerly aspect. Vegetation is Eucalypt forest including some snow gum. Geology is meta-morphic/meta-sedimentary presenting as shatter, cobbles and gravels. Traces of quartz and good quality grey chert was observed within the background stone profile. Soil is a gravelly sub-alpine loam up to a depth of 40 cm (max.).	The main disturbance is the formed vehicle track c. 2 to 3 m wide and runs the length of the survey unit. Parts of the vehicle track have recently undergone maintenance and upgrades. Other disturbance includes pastoral and wombat activity [burrows].	Negligible	Nil recorded
SU27	655444. 6029438	656067. 6029286	A simple slope of moderate gradient with a westerly aspect. The landform is steep, dry and amorphous. Vegetation is Eucalypt forest. Geology is meta-sedimentary presenting as shatter, cobbles and gravels. Traces of quartz and good quality chert was observed within	The main disturbance is the formed vehicle track c. 2 to 3 m wide and runs the length of the survey unit. Parts of the vehicle track have recently undergone maintenance and	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			the background stone profile. Soil is a gravelly sub-alpine loam to lithosol/gravels up to a depth of 40 cm (max.). The landform is stable.	upgrades. Other disturbance includes pastoral and animal activity [track & burrows].		
SSU28	656054. 6029297	656396. 6029796	A north-south trending spur crest landform of very gentle to gentle gradient with an open aspect. Vegetation is a Eucalypt forest. Geology is a metasedimentary presenting as cobbles and gravels. Traces of quartz was observed within the background stone profile. Soil is a very gravelly/gravelly sub-alpine loam and depth up to 30 cm (max.) deep. The landform is stable.	The main disturbance is the formed vehicle track c. 2 to 3 m wide and runs the length of the survey unit. Parts of the vehicle track have recently undergone maintenance and upgrades. Other disturbance includes pastoral and animal activity [track & burrows].	Negligible	Nil recorded

Table 50 Schofields Fire Trail: A description of Aboriginal Object Locales.

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
SSU10	*SSU10/L1* AHIMS #57-4-0382	649558	6029811	Five artefacts located on a very gently sloping crest with a south-westerly aspect. The site area is 70 x 3 m and is located on a vehicle track. Ground exposure within the site area was assessed at 100% with archaeological visibility of 60%. There was no ground exposure away from site. The site potentially may extend outward from exposure. Quartz was observed within the background stone profile, none of which is likely to be	Grey quartzite flake proximal broken 3 negative scars rotational flake 21x20x7 mm. Grey quartzite flaked piece 65x44x15 mm. Grey tuff flake conjoins focal faceted plunging 43x22x10 mm. Black chert core 2 platforms	Negligible to very low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				artefactual. There is unlikely to be in situ sub surface deposit within site area, however, there is some potential for *in situ* deposit away from vehicle track. Disturbances include clearance, vehicle track formation, maintenance/upgrades and pastoral.	minimum 10 scars 35x27x22 mm. Grey tuff proximal broad 44x50x12 mm.	
SSU10	*SSU10/L2* AHIMS #57-4-0381 (Plate 29)	649781	6029800	Four artefacts located on a very gently sloping crest with an open aspect. The site area is 50 x 3 m and is located on a vehicle track. Ground exposure within the site area was assessed at 100% with archaeological visibility of 60%. There was no ground exposure away from site. The site potentially may extend outward from exposure. Traces of quartz was observed within the background stone, some of which is possibly artefactual. There is unlikely to be subsurface deposit within site area, however, there is some potential for *in situ* deposit away from vehicle track. Disturbances include clearance, vehicle track formation, maintenance/ upgrades and pastoral.	Black chert flake 15% cortex axial 21x31x4 mm. Grey tuff proximal thin faceted platform 1 negative scar 22x31x7 mm. Black chert flake conjoins broad plunging 20x25x6 mm. Orange silcrete flaked piece 20x16x8 mm.	Negligible to very low
SSU10	*SSU10/L3* AHIMS #57-4-0380	650085	6029808	Two artefacts located on a very gently sloping crest with an easterly aspect. The site area is 10 x 3 m and is located on a vehicle track. Ground exposure within the site area was assessed at 100% with archaeological visibility of 60%. There was no ground exposure away from site. The site potentially	Grey chert distal feather 24x20x6 mm. Grey quartzite flake feather 3 negative scars 32x30x9 mm.	Very low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				may extend outward from exposure. Traces of quartz was observed within the background stone profile, some of which is possibly artefactual. There is unlikely to be in situ sub surface deposit within site area, however, there is some potential for *in situ* deposit away from vehicle track. Disturbances include clearance, vehicle track formation, maintenance/upgrades and pastoral.		
SSU10	*SSU10/L4* AHIMS #57-4-0379	650218	6029898	Four artefacts located on a very gently sloping crest with an easterly aspect. Disturbances include clearance, vehicle track formation, maintenance/upgrades and pastoral.	Grey quartzite flake broad 57x36x10 mm Grey quartzite flake focal step 21x33x7 mm. Grey tuff scraper steep edge discoid 33x32x12 mm. Grey quartzite proximal broad 3 negatives 23x34x9 mm.	Very low to low
SSU11	*Nungar Creek* AHIMS #57-4-0160	650197	6030158	Scarred tree registered recording: AHIMS #57-4-0160. Tree located on a simple slope of gentle gradient with a south-easterly aspect. Scar on north side of tree [possibly old growth] Eucalypt tree c. 5 m south of Schofields trail. The tree is a mature Eucalypt c. 18 m high [min.]. Senescing with dead wood in crown and upper branches [including large limbs with hollows].	Circumference at 1.5 m above ground level is 4.2 m. Tree appears to be in good health. Scar: 2.8m long x 25 cm wide x c.30 cm deep. Most internal face is gone, tree /scar is mostly hollow. Remnant face is very old and degraded, inside of hollow has been burnt at	Negligible

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
					some stage. Scar base is 15 cm above ground. Elliptic, good symmetry.	
SSU14	*SSU14/L1* AHIMS #57-4-0378	650825	6030540	Eight artefacts located on a very gently sloping crest with an open aspect adjacent to a drainage depression. The site area is 140 x 3 m and is located along a vehicle track. Ground exposure within the site area was assessed at 100% with archaeological visibility of 60%. There is no ground exposure away from site. The site has potential to extend outward from exposure. There is no in situ sub surface deposit within site area, however, there is greater potential for *in situ* deposit away from vehicle track. Disturbances include clearance, vehicle track formation, maintenance/ upgrades, and pastoral.	Grey silcrete core fragment 3 negative scars 28x22x11 mm. Black chert flake broad feather 17x19x6 mm. Grey chert proximal broad 3 negative scars 17x29x8 mm. Black chert flake 17x11x4 mm. Black chert flake focal plunging 21x17x3 mm. Grey silcrete flake focal feather 23x26x5 mm. Grey silcrete flake broad axial 19x15x4 mm. Black chert flake focal plunging 15x16x4 mm.	Very low
SSU14	*SSU14/L2* AHIMS #57-4-0377	651075	6030889	Two artefacts located on a very gently sloping crest with an open aspect. The site area is 1.5 x 3 m and is located along a vehicle track. Ground exposure within the site area was assessed at 100% with archaeological visibility of 60%. There is no ground exposure away from site. The site has potential to extend outward from exposure. There is no in situ sub surface deposit within site area,	Grey silcrete flake broad step 13x12x4 mm. Grey chert broken flake 14x11x4 mm.	Very low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				however, there is greater potential for *in situ* deposit away from vehicle track. Disturbances include clearance, vehicle track formation, maintenance/upgrades, and pastoral.		
SSU14	*SSU14/L3* AHIMS #57-4-0376	651116	6031051	Two artefacts located on a very gently sloping crest with an open aspect. The site area is 50 x 3 m and is located along a vehicle track. Ground exposure within the site area was assessed at 100% with archaeological visibility of 60%. There is no ground exposure away from site. The site has potential to extend outward from exposure. There is no in situ sub surface deposit within site area, however, there is greater potential for *in situ* deposit away from vehicle track. Disturbances include clearance, vehicle track formation, maintenance/upgrades, and pastoral.	Black chert flake broad step 3 negative scars 14x14x7 mm. Black chert proximal focal 21x12x3 mm.	Very low
SSU15	*SSU15/L1* AHIMS #57-4-0375	South 651359 North 651453	South 6031151 North 6031236	Eight artefacts located on a broad crest of very gentle gradient with a south-easterly aspect. The site area is 30 x 2 m and is located on a freshly graded vehicle track. The site is a continuous scatter of artefacts. Site density is higher at south-western end to mid-point of SU and lessens at north-eastern end. Ground exposure within the site area was assessed at 90% with archaeological visibility of 90%. There was no ground exposure away from site. The site potentially may extend outward from exposure. Traces of quartz and	Grey mottled chert flake 30x25x10 mm. Grey quartzite flake broad Hertzian feather 50x25x12 mm. Black chert proximal focal Hertzian 13x11x5 mm Black chert flake focal Hertzian feather 16x14x2 mm. Black chert flake focal Hertzian feather 31x15x6 mm. Black chert	Low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				black chert was observed within the background stone profile, some of which is possibly artefactual. A sample of artefacts were recorded and a further five artefacts were observed. There is likely to be limited *in situ* sub surface deposit within site area, however, there is greater potential for in situ deposit away from vehicle track. Soil depth greater than 30 cm. Disturbances include clearance, vehicle track formation, maintenance/ upgrades and pastoral.	distal hinge 12x12x3 mm. White quartz flake broad Hertzian feather 15x9x7 mm. Grey quartzite proximal platform preparation broad Hertzian 55x40x5 mm.	
SSU15	*SSU15/L2* AHIMS #57-4-0374	652334	6031558	One artefact located on a very gently undulating broad crest with an easterly aspect. The site area is 1 x 1 m and is located on an ungraded vehicle track. Ground exposure within the site area was assessed at 50% with archaeological visibility of 80%. Ground exposure away from site was no more than 10% with archaeological visibility of 80%. The site has limited potential to extend outward from exposure. Disturbances include clearance, vehicle track formation, maintenance/upgrades and pastoral.	Black chert proximal broad Hertzian 10x8x2 mm.	Negligible
SSU16	*SSU16/L1* AHIMS #57-4-0373	651721	6031424	Two artefacts located on the higher elevation of a simple slope of gentle gradient. The aspect is northerly. The site area is 15 x 2 m and is located on a freshly graded vehicle track. Ground exposure within the site area was assessed at 90% with archaeological	Black chert flake 10% terrestrial cortex focal Hertzian feather edge damage along left margin 15x11x3 mm. Translucent quartz LCS	Negligible

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				visibility of 90%. Ground exposure away from site was c. 1% with archaeological visibility of 1%. The site has potential to extend outward from exposure. There is no *in situ* sub surface deposit within site area, however, there is greater potential for in situ deposit away from vehicle track. Soil depth varies and has a depth of c. 20 cm or less. Disturbances include clearance, vehicle track formation, maintenance/upgrades, and pastoral.	left crushing on one end – may be recent damage 31x22x7 mm.	
SSU16	*SSU16/L2* AHIMS #57-4-0372	651827	6031762	Five artefacts located on a small bench on east facing very gently sloping spur crest. The aspect is easterly. The area is near a drainage depression. The site area is 5 x 3 m and is located on a freshly graded vehicle track. Ground exposure within the site area was assessed at 100% with archaeological visibility of 90%. Ground exposure away from site was assessed as negligible. The site has potential to extend outward from exposure. There is limited *in situ* subsurface deposit within site area, however, there is greater potential for *in situ* deposit away from vehicle track. An area c. 30 m to the north of site and may possibly have a greater potential. Soil is a slightly gravelly loam of a depth greater than 40 cm. Moderate levels of quartz were observed within the background stone profile, some of which is possibly artefactual.	Grey quartzite flake broad Hertzian feather 25x41x10 mm. Black chert flake broad Hertzian feather 17x11x6 mm. Black chert flake broad Hertzian feather 6x10x3 mm. Black chert flake broad Hertzian step recent damage 22x13x5 mm.	Negligible to very low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				Disturbances include a vehicle track and pastoral.		
SSU17	*SSU17/L1* AHIMS #57-4-0371	651827	6032532	One artefact located on a small level bench of a spur crest directly above a watercourse. The aspect is easterly. The area is near a drainage depression. The site area is 2 x 1 m, located on a freshly graded vehicle track. Ground exposure within the site area was assessed at 70% with archaeological visibility of 80%. Ground exposure away from site was assessed as negligible. The site has potential to extend outward from exposure. There is no *in situ* sub surface deposit within site area, however, there is greater potential for *in situ* deposit away from vehicle track. Soil is a slightly gravelly loam and depth varies from shallow up to 50 cm. Very low levels of poor-quality quartz were observed within the background stone profile. Disturbances include clearance, vehicle track formation, maintenance/ upgrades, and pastoral.	Black chert flaked piece 31x25x7 mm.	Negligible
SSU17	*SSU17/L2* AHIMS #57-4-0370 (Plate 30)	651819 north	6032723 north	Four artefacts located on the crest of a low relief spur of very gentle gradient. The aspect is easterly. A major spring is located at 651859.6032776 c. 50 m to the north of site. The site area is 20 x 3 m and located on a freshly graded vehicle track. Ground exposure within the site area was assessed at 80% with archaeological visibility of 80%. Ground	Black chert flake focal feather 11x10x3 mm. Black chert medial 8x7x5 mm. Black chert core multi directional 22x22x14 mm. Grey chert distal hinge 10x5x3 mm.	Negligible to very low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				exposure away from site was assessed as negligible. The site has potential to extend outward from exposure. There is no *in situ* subsurface deposit within site area, however, there is greater potential for *in situ* deposit away from vehicle track. Traces of quartz was observed within the background stone profile, some of which is possibly artefactual. Soil is a slightly gravelly loam with depths greater than 40 cm. Disturbances include clearance, vehicle track formation, maintenance/ upgrades, and pastoral.		
SSU17	*SSU17/L3* AHIMS #57-4-0369	South 651907 North 651915	South 6032820 North 6032886	Seven artefacts located on a low relief level bench with an easterly aspect. The site is located directly above Gulf Plain Creek. The site area is 10 x 4 m and located on a freshly graded vehicle track. Ground exposure within the site area was assessed at 90% with archaeological visibility of 90%. Ground exposure away from site was assessed as negligible. The site has potential to extend outward from exposure. There is no subsurface deposit within site area, however, there is greater potential for *in situ* deposit away from vehicle track. Traces of quartz was observed within the background stone profile, some of which is possibly artefactual. Soil depth varies and has a depth of c. 40 cm or less.	Grey quartzite flake broad Hertzian feather 46x27x22 mm. Black chert flake focal wedging step 34x21x5 mm. Black chert flake broad Hertzian feather 21x12x5 mm. Black chert proximal broad Hertzian 18x19x4 mm. Milky quartz left LCS bipolar use-wear along left margin 21x7x4 mm. Grey quartzite core 4 scars 52x34x21 mm. Black chert proximal broad Hertzian 13x21x9 mm.	Very low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
SSU20	*SSU20/L1* AHIMS #57-4-0368	652023	6033317	One artefact located on a very gently undulating broad crest landform with an easterly aspect. The area is 4 x 1 m along a vehicle track. Ground exposure within the site area was assessed at 90% with archaeological visibility of 70%. Ground exposure away from site was no more than 1% with archaeological visibility of 1%. Disturbances include clearance, vehicle track formation/ maintenance/upgrades, and pastoral.	Black chert flake broad Hertzian feather damage on distal end 45x32x12 mm.	Negligible
SSU22	*SSU22/L1* AHIMS #57-4-0367	652261	6034184	One artefact located on a very gently undulating broad crest landform with an easterly aspect. The area is 3 x 1 m along a vehicle track. Ground exposure within the site area was assessed at 80% with archaeological visibility of 70%. Ground exposure away from site was no more than 2% with archaeological visibility of 10%. Traces of quartz was observed within the background stone profile, some of which is possibly artefactual. Disturbances include clearance, vehicle track formation/ maintenance/upgrades, and pastoral.	Crystal quartz proximal focal Hertzian 10x8x1 mm.	Negligible
SSU23	*SSU23/L1* AHIMS #57-4-0366	652725	6031136	Four artefacts located on a very gently undulating broad crest with a southerly aspect. The site area is 2 x 7 m and is located on an ungraded vehicle track. Ground exposure within the site area was assessed at 100% with archaeological visibility of 70%.	Light grey quartzite flake broad Hertzian step 28x23x10 mm. Light grey quartzite proximal broad Hertzian 22x12x3 mm. Light grey quartzite	Negligible to very low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				Ground exposure away from site was no more than 1% with archaeological visibility of 20%. The site has potential to extend outward from exposure. There is no subsurface deposit within the site area, however, there is potential for *in situ* deposit away from vehicle track. Traces of quartz including some pieces of crystal quartz was observed within the background stone profile, some of which is possibly artefactual. Disturbances include a vehicle track and pastoral.	flaked piece 14x6x2 mm. Crystal quartz flake crushed distal possible crushed platform (bipolar) 7x6x2 mm.	
SSU23	*SSU23/L2* AHIMS #57-4-0365	652843	6031041	One artefact located mid slope on a simple slope landform of gentle gradient with a south-easterly aspect. The site area is 1 x 1 m, located on a vehicle track. Ground exposure within the site area was assessed at 90% with archaeological visibility of 70%. Ground exposure away from site was assessed as negligible. The site has no potential to extend outward from exposure. Moderate levels of poor-quality quartz were observed within the background stone profile. Disturbances include a vehicle track and pastoral.	Dark grey very fine-grained material proximal broad Hertzian 27x19x2 mm.	Negligible



Plate 29 Schofields Fire Trail: SSU10/L2; looking north.



Plate 30 Schofields Fire Trail: SSU17/L2; looking north.

6.2.2.14 Circuits Hut Fire Trail

The field survey at Circuits Hut Fire Trail was conducted in October 2018. The Circuits Hut Fire Trail survey area has been subject to a reasonably comprehensive field survey. This survey extends from the junction with Tantangara Road below the dam wall, south to Circuits Hut and hence eastward along Gulf Creek Fire Trail.

The total survey area at Circuits Hut Fire Trail has measured 74.2 hectares, of which some 48.8 hectares has been physically inspected. In all Survey Units, vegetation frequently posed a constraint; visibility of ground surfaces was often absent except for the fire trail exposures. The area is a mix of open grassland and snow gum woodland. Ground exposures were generally negligible. Certain areas were found to be relatively undisturbed.

A summary of the field survey results for the Circuits Hut Fire Trail area is presented in Table 51. The Circuits Hut Fire Trail Survey Units are described in Tables 52 and 53. It is noted that one previously recorded Aboriginal site is known to be present in the Circuits Hut Fire Trail survey area. Thirteen Aboriginal object sites were recorded during the field assessment (Table 54). The Circuits Hut Fire Trail survey area is assessed to be generally of very low archaeologically sensitivity with the exception of occasional micro topographies.

The Circuits Hut Fire Trail survey area is now outside the project area footprint.

Table 51 Circuits Hut Fire Trail: A summary of Aboriginal object site distribution.

SU	Previous sites	New sites	Total sites	Impacts
CHSU1	0	0	0	No
CHSU2	1	1	2	No
CHSU3	0	2	2	No
CHSU4	0	0	0	No
CHSU5	0	0	0	No
CHSU6	0	1	1	No
CHSU7	0	1	1	No
CHSU8	0	0	0	No
CHSU9	0	0	0	No
CHSU10	0	1	1	No
CHSU11	0	1	1	No
CHSU12	0	1	1	No
CHSU13	0	0	0	No
CHSU14	0	2	2	No
CHSU15	0	0	0	No
CHSU16	0	0	0	No
CHSU17	0	0	0	No
CHSU18	0	0	0	No
CHSU19	0	0	0	No
CHSU20	0	0	0	No

SU	Previous sites	New sites	Total sites	Impacts
CHSU21	0	0	0	No
CHSU22	0	1	1	No
CHSU23	0	0	0	No
CHSU24	0	0	0	No
CHSU25	0	0	0	No
CHSU26	0	1	1	No
CHSU27	0	0	0	No
CHSU28	0	0	0	No
CHSU29	0	1	1	No
CHSU30	0	0	0	No
Total	1	13	14	

Table 52 Circuits Hut Fire Trail: Effective Survey Coverage.

SU ID	SU area (sq. m.)	Area inspected (%)	Area inspected (sq. m.)	GE (%)	GE (sq. m.)	AV (%)	NEC (sq. m.)	ESC (%)	Exposures
CHSU1	19538	90	17584	40	7034	90	6330	32.40	Moderate: graded vehicle track, bare earth and spear drains.
CHSU2	24466	90	22020	1	220	0	0	0.00	Negligible
CHSU3	204990	90	184491	5	9225	85	7841	3.83	Low: thick grass cover: bare earth, animal track/burrows and graded vehicle track.
CHSU4	7717	90	6945	0	0	0	0	0.00	Nil
CHSU5	23041	90	20737	1	207	0	0	0.00	Negligible
CHSU6	32737	90	29463	1	295	0	0	0.00	Negligible
CHSU7	11861	80	9489	1	95	0	0	0.00	Negligible
CHSU8	2613	80	2091	1	21	0	0	0.00	Negligible
CHSU9	6838	90	6154	1	62	0	0	0.00	Negligible
CHSU10	23701	90	21331	1	213	0	0	0.00	Negligible
CHSU11	5385	80	4308	10	431	60	258	4.80	Low: bare earth and graded vehicle track.
CHSU12	21134	90	19020	1	190	0	0	0.00	Negligible
CHSU13	6432	90	5789	1	58	70	41	0.63	Negligible
CHSU14	48960	50	24480	2	490	10	49	0.10	Very low: bare earth, and graded vehicle track.
CHSU15	3622	80	2898	1	29	0	0	0.00	Negligible
CHSU16	29475	50	14737	2	295	5	15	0.05	Very low: thick cover leaf litter: graded vehicle track.
CHSU17	38318	20	7664	2	153	80	123	0.32	Very low: bare earth, animal scratching and graded vehicle track.
CHSU18	29198	20	5840	2	117	20	23	0.08	Very low: thick cover leaf litter: graded vehicle track.

SU ID	SU area (sq. m.)	Area inspected (%)	Area inspected (sq. m.)	GE (%)	GE (sq. m.)	AV (%)	NEC (sq. m.)	ESC (%)	Exposures
CHSU19	2205	20	441	0	0	0	0	0.00	Nil
CHSU20	21490	20	4298	2	86	50	43	0.20	Very low: thick cover leaf litter: graded vehicle track.
CHSU21	1503	20	301	5	15	1	0	0.01	Very low: thick grass cover: bare earth and graded vehicle track.
CHSU22	69227	30	20768	2	415	5	21	0.03	Very low: grasses and shrubs: bare earth, pig and wombat diggings and vehicle wheel track.
CHSU23	3401	20	680		0		0	0.00	Nil
CHSU24	19632	100	19632	2	393	5	20	0.10	Very low: vehicle wheel tracks and pig diggings.
CHSU25	10447	30	3134	5	157	80	125	1.20	Very low: vehicle wheel tracks, bare earth and animal diggings.
CHSU26	14821	20	2964	1	30	0	0	0.00	Negligible
CHSU27	11127	20	2225	5	111	60	67	0.60	Very low: thick undergrowth: vehicle wheel tracks.
CHSU28	2176	50	1088	0	0	0	0	0.00	Nil
CHSU29	2615	50	1308	1	13	0	0	0.00	Negligible
CHSU30	43397	60	26038	5	1302	60	781	1.80	Very low: thick undergrowth: vehicle wheel tracks.
Total	742069		487919		1315		15737	2.12	

Table 53 Circuits Hut Fire Trail: A description of Survey Units.

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Object
CHSU1	651463. 6036894	651682. 6036803	A simple slope landform of moderate gradient with a north westerly aspect. The slope gradient increases with elevation from 13° to 16°. The	The main disturbance is the formed vehicle track c. 2 to 3 m wide with spear drains and runs the length of the	Negligible	Nil

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Object
			upper slope is very rocky with over half of the area exposed bedrock. The base of the slope has c. 10 - 20% of exposed bedrock. The lower slope area is predominantly juvenile snow gums with an understory of grasses and the upper slope has an occasional shrub. The geology is sedimentary and is present as outcrops, shatter, cobble and gravels. Soils are skeletal, a light brown gravelly loam. The landform is eroding.	survey unit. Parts of the vehicle track has recently undergone maintenance and upgrades. Other disturbance includes pastoral.		
CHSU2	651683. 6036804	651933. 6036554	A broad level terminal spur crest landform overlooking Murrumbidgee River. A spring is located at the base of the crest to the southeast. The aspect is open to northerly. The area is grassland with scattered juvenile snow gums and heath. Geology is shale and is present as shatter, cobbles and gravels. Soil is a gravelly loam greater than 20 cm deep. The landform is stable.	The main disturbance is the formed vehicle track c. 2 to 3 m wide with spear drains and runs the length of the survey unit. Parts of the vehicle track has recently undergone maintenance and upgrades. Other disturbance includes pastoral. Braided vehicle tracks on southside of existing vehicle track.	Very low to low	*KNP91-12* AHIMS #57-4-0060 *CHSU2/L1* AHIMS #57-4-0342
CHSU3	651930. 6036556	652693. 6034323	A series of low relief simple slopes of very gentle gradient with a north easterly aspect and located above Gulf Plain. North eastern SU is	The main disturbance is the formed vehicle track c. 2 to 3 m wide with spear drains and runs the length of the	Negligible to very low	*CHSU3/L1* AHIMS #57-4-0341

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Object
			grassland with scattered Hakea shrubs and occasional snow gum. Vegetation in south eastern SU becomes predominantly mature and immature Black Sallee Eucalypt with an understorey of grasses and Hakea. Geology is sedimentary shale presenting as high levels of shatter, gravels and cobbles. Soil is a slightly gravelly silty loam greater than 30 cm deep.	survey unit. Parts of the vehicle track has recently undergone maintenance and upgrades including importation of road base. Braided vehicle tracks south west of existing track. Some recent entire tree removal adjacent to vehicle track. Other disturbance includes pastoral, horse, wombat and rabbit impacts.		*CHSU3/L2* AHIMS #57-4-0340
CHSU4	652693. 6034322	652772. 6034225	A very gently sloping drainage depression with a north-north easterly aspect. A 4th order stream traverses the SU. The area is grassland with an occasional shrub. Geology is shale. Soil is a silty loam, waterlogged.	The main disturbance is the formed vehicle track c. 2 to 3 m wide with spear drains and runs the length of the survey unit. Parts of the vehicle track has recently undergone maintenance and upgrades including importation of road base. Other disturbance includes pastoral activity.	Negligible	Nil recorded
CHSU5	652772. 6034225	652997. 6034095	A simple slope landform of moderate gradient with a westerly aspect. The area is grassland with scattered shrubs. Geology is sedimentary shale presenting as shatter, cobbles and gravels. Occasional traces of	The main disturbance is the formed vehicle track c. 2 to 3 m wide with spear drains and runs the length of the survey unit. Parts of the vehicle track has recently	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Object
			black chert and quartz is present, none of which is likely to be artefactual. Soil is a brown gravelly silty loam and depth varies from shallow to greater than 30 cm. The landform is eroding.	undergone maintenance and upgrades. Other disturbance includes pastoral.		
CHSU6	652997. 6034095	653311. 6034288	A very gently sloping broad crest landform with a minor saddle. The aspect is north-north westerly. The area is open snow gum forest. Geology is sedimentary and comprises of sandstone, siltstone and shale presenting as outcrops, shatter, cobbles and gravels. Sparse low outcrops (> c. 1.2 m high). Soil is a gravelly silty loam less than 20 cm deep.	The main disturbance is the formed vehicle track c. 2 to 3 m wide with spear drains and runs the length of the survey unit. Parts of the vehicle track has recently undergone maintenance and upgrades. Other disturbance includes pastoral.	Very low to low	*CHSU6/L1* AHIMS #57-4-0339
CHSU7	653309. 6034290	653400. 6034410	An amorphous simple slope landform of gentle gradient with a northerly aspect. The area is open snow gum forest with a grass understorey. Geology is sedimentary shale presenting as shatter and gravels. Sparse areas of low discrete bedrock outcropping. Occasional traces of poor and good quality quartz are present, some of which is possibly artefactual. Soil is a brown gravelly silty loam and depth varies	The main disturbance is the formed vehicle track c. 2 to 3 m wide with spear drains and runs the length of the survey unit. Parts of the vehicle track has recently undergone maintenance and upgrades. Other disturbance includes pastoral.	Negligible	*CHSU7/L1* AHIMS #57-4-0393

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Object
			from shallow to greater than 30 cm. The landform is eroding.			
CHSU8	653401. 6034403	653427. 6034423	A very gently sloping narrow drainage depression with a north-westerly aspect. The area is predominantly tussock and shrubs. Geology is shale and outcrops as shatter and gravels. The soil is a light brown silty loam. The landform is aggraded. The SU is low lying and wet.	The main disturbance is the formed vehicle track c. 2 to 3 m wide with spear drains and runs the length of the survey unit. Parts of the vehicle track has recently undergone maintenance and upgrades. Other disturbance includes pastoral and wombat activity.	Negligible	Nil recorded
CHSU9	653426. 6034422	653506. 6034423	An amorphous simple slope landform of gentle gradient with a west south-westerly aspect. The area is open snow gum forest with an understorey of grasses and low shrubs. Geology is sedimentary shale presenting as shatter and gravels. Soil is a brown gravelly silty loam less than 20 cm deep.	The main disturbance is the formed vehicle track c. 2 to 3 m wide with drains and runs the length of the survey unit. Parts of the vehicle track has recently undergone maintenance and upgrades. Other disturbance includes pastoral and wombat activity.	Negligible	Nil recorded
CHSU10	653511. 6034423	653808. 6034378	A broad level to very gently undulating crest situated above the valley floor with a north north-westerly aspect. The area is open snow gum forest with an	The main disturbance is the formed vehicle track c. 2 to 3 m wide with spear drains and runs the length of the survey unit. Parts of the	Negligible to very low	*CHSU10/L1* AHIMS #57-4-0392

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Object
			understorey of grasses and a very occasional shrub. Geology is sedimentary shale and is present as outcrops, shatter, cobble and gravels. Low levels of discrete bedrock outcropping. Soil is a light brown gravelly silty loam that is highly eroded and less than 15 cm deep.	vehicle track has recently undergone maintenance and upgrades. Other disturbance includes pastoral.		
CHSU11	653808. 6034381	653862. 6034355	A short simple slope of very gentle gradient. The area is open snow gum forest. Geology is sedimentary shale and is present as gravels. Soil is a light brown silty loam and depth varies from shallow to greater than 20 cm.	The main disturbance is the formed vehicle track c. 2 to 3 m wide with spear drains and runs the length of the survey unit. Parts of the vehicle track has recently undergone maintenance and upgrades. Other disturbance includes pastoral.	Negligible	*CHSU11/L1* AHIMS #57-4-0391
CHSU12	653862. 6034355	654127. 6034405	An extensive very gently undulating lower simple slope above a 3rd order stream [Little Gulf Creek] with a north-easterly aspect. The area is open grassland with sparse snow gum. Geology is sedimentary shale and is present as outcrops, shatter, cobble and gravels. Low levels of discrete bedrock outcropping. Soil is	The main disturbance is the formed vehicle track c. 2 to 3 m wide with spear drains and runs the length of the survey unit. Parts of the vehicle track has recently undergone maintenance and upgrades. Imported road base placed on vehicle track for at least 30 m directly	Very low to low	*CHSU12/L1* AHIMS #57-4-0389

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Object
			a light brown gravelly silty loam. The landform is aggrading.	above the watercourse at northeast end of vehicle track. Other disturbance includes pastoral.		
CHSU13	654123. 6034401	654191. 6034429	An almost level drainage depression with a north north-westerly aspect. There is an incised watercourse with fast flowing water surrounded by boggy earth. The area is tussock grassland with an occasional heath. Geology is sedimentary. Soil is a silty loam, waterlogged. The landform is aggraded. The SU is low lying and wet.	The main disturbance is the formed vehicle track c. 2 to 3 m wide with spear drains and runs the length of the survey unit. Parts of the vehicle track has recently undergone maintenance and upgrades. A modified water crossing has recently undergone works using imported gravels. Other disturbance includes pastoral and horse activities.	Negligible	Nil recorded
CHSU14	654191. 6034428	654770. 6034655	A series of very gently undulating lower slopes of a simple slope landform located directly above a valley. The aspect is north westerly. The area is an open forest of mixed Black Sallee and snow gums littered with a large amount of fallen dead timber. Geology is sedimentary shale and is present as shatter, cobble and gravels. Low levels of discrete bedrock outcropping	The main disturbance is the formed vehicle track c. 2 to 3 m wide with spear drains and runs the length of the survey unit. Parts of the vehicle track has recently undergone maintenance and upgrades. Other disturbance includes pastoral and animal burrowing and digging.	Very low	*CHSU14/L1* AHIMS #57-4-0388 *CHSU14/L2* AHIMS #57-4-0387

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Object
			directly above creek. Occasional traces of poor and good quality quartz are present, some of which is possibly artefactual. Soil is a very gravelly silty loam greater than 20 cm deep.	Some areas within the SU are littered with large amounts of fallen dead timber.		
CHSU15	654770. 6034657	654820. 6034664	A very gently sloping drainage depression with a flowing water course. The aspect is north north-westerly. The higher elevations within the SU are open snow gum forest with grass understorey and predominantly reeds on the low-lying areas. Geology is sedimentary shale presenting as shatter, cobbles and gravels. Soil is a gravelly silty loam. The landform is aggraded.	The main disturbance is the formed vehicle track c. 2 to 3 m wide with spear drains and runs the length of the survey unit. Parts of the vehicle track has recently undergone maintenance and upgrades. The water crossing has undergone recent modification. Other disturbance includes pastoral activity.	Negligible	Nil recorded
CHSU16	654820. 6034667	655079. 6034744	A simple slope landform of gentle to moderate gradient ranging from 10-12° with a west south-westerly aspect. The area is open snow gum forest with grass understorey. Geology is sedimentary shale presenting as shatter, cobbles and gravels along with occasional cobbles of angular quartz. Infrequent small areas of low discrete bedrock outcropping. Sparse	The main disturbance is the formed vehicle track c. 2 to 3 m wide with spear drains and runs the length of the survey unit. Parts of the vehicle track have recently undergone maintenance and upgrades. Other disturbance includes pastoral activity.	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Object
			amount of poor and good quality quartz is present, some of which is possibly artefactual. Soil is a gravelly silty loam and depth varies from shallow to 30 cm [max.]. The landform is eroding.			
CHSU17	655079. 6034744	655429. 6034451	A very gently undulating crest, part of a main ridge line, with a northerly aspect. An amorphous landform. The area is predominantly an open snow gum and Mountain gum regrowth forest. Geology is sedimentary shale and is present as shatter, cobble and gravels. Occasional traces of grey chert and quartz is present, none of which is likely to be artefactual. Soil is a gravelly silty loam and depth varies from shallow to 15 cm [max.]. The landform is eroding.	The main disturbance is the formed vehicle track c. 2 to 3 m wide and runs the length of the survey unit. Parts of the vehicle track have recently undergone maintenance and upgrades. Other disturbances include pastoral and animal activity.	Negligible	Nil recorded
CHSU18	655432. 6034457	655914. 6034738	A gently undulating spur crest with a north-easterly aspect. The area is an open mountain gum forest with abundant Eucalypt regrowth and an understorey of grasses. Geology is sedimentary shale and is present as shatter, cobble and gravels. Occasional traces of low-quality quartz are present, none of which is	The main disturbance is the formed vehicle track c. 2 to 3 m wide and runs the length of the survey unit. Parts of the vehicle track have recently undergone maintenance and upgrades. Other disturbance includes pastoral activity.	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Object
			likely to be artefactual. Quartz cobbles increasing with lower elevation. Soil is a gravelly silty loam. The landform is eroding.			
CHSU19	655914. 6034738	655961. 6034749	A very gently sloping drainage depression/dry gully with a northerly aspect. The area is a regrowth forest of mountain gums and wattles with an understorey of grasses. Geology is sedimentary shale and is present as shatter, cobble and gravels. Occasional traces quartz is present, none of which is likely to be artefactual. Soil is a gravelly silty loam up to 2 m deep [max.]. The landform is aggrading. The SU is damp.	The main disturbance is the formed vehicle track c. 2 to 3 m wide and runs the length of the survey unit. Parts of the vehicle track have recently undergone maintenance and upgrades. The vehicle crossing within the gully has undergone modification and a small borrow pit is located directly adjacent to vehicle crossing. Other disturbance includes pastoral activity.	Negligible	Nil recorded
CHSU20	655961. 6034749	656414. 6034873	Series of lower simple slopes of very gentle gradient with a north westerly aspect. The area is an open forest of mountain gums with a thick understorey of small wattles. Geology is sedimentary shale and is present as shatter, cobble and gravels. Occasional traces of low-quality quartz are present, none of which is likely to be artefactual. Soil is a gravelly silty loam and depth	The main disturbance is the formed vehicle track c. 2 to 3 m wide and runs the length of the survey unit. Parts of the vehicle track have recently undergone maintenance and upgrades. Other disturbances include pastoral and animal activities [burrows and scratching].	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Object
			varies from shallow to greater than 20 cm.			
CHSU21	656418. 6034877	656436. 6034865	A very gently sloping damp drainage depression with a northerly aspect. The area is a dense thicket of wattles and grasses. The Geology is sedimentary shale presenting as shatter and gravels. Soil is a gravelly silty loam greater than 30 cm deep. The landform is aggrading. The SU is damp.	The main disturbance is the formed vehicle track c. 2 to 3 m wide and runs the length of the survey unit. Other disturbance includes pastoral.	Negligible	Nil recorded
CHSU22	656408. 6034852	657434. 6035065	An amorphous simple slope landform of gentle to very gentle gradient with a northerly aspect. The area is mountain gum and wattle forest, likely regrowth, with a thick understorey of scrub. A damp spring head is located nearby and likely to be an ephemeral water source. Geology is a sedimentary shale presenting as shatter, cobbles and gravels. Occasional discrete shale bedrock outcropping. A small intrusion of what appears to be volcanic presenting as a solitary low 50 x 20 cm outcrop surrounded by shale. Occasional traces of low-quality quartz are present, none of which is likely to be artefactual. Soil	The main disturbance is the vehicle track c. 2 to 3 m wide with spear drains and runs the length of the survey unit. Parts of the vehicle track has recently undergone maintenance and upgrades. Other disturbances include pastoral and wombat/pig activity.	Negligible	*CHSU22/L1* AHIMS #57-4-0385

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Object
			is a gravelly silty loam and depth varies from shallow to 30 cm [max.].			
CHSU23	657441. 6035066	657492. 6035048	A very gently sloping wide drainage depression with a northerly aspect. The area is a very open forest of mountain gums with an undergrowth of soft low grasses [parkland like]. The Geology is sedimentary shale presenting as shatter and gravels. Soil is a gravelly silty loam greater than 1 m deep. The landform is aggrading. The SU is damp.	The main disturbance is the grassed vehicle tracks and runs the length of the survey unit. Other disturbance includes pastoral and pig/wombat activity.	Negligible	Nil recorded
CHSU24	657492. 6035048	657809. 6035137	A simple slope landform of gentle to very gentle gradient with a north north-easterly aspect. The area is an open forest of regrowth mountain gum with an understorey of grasses. Geology is a sedimentary shale presenting as shatter, cobbles and gravels. Occasional discrete shale bedrock outcropping. Occasional traces of low-quality quartz are present, none of which is likely to be artefactual. Soil is a skeletal gravelly loam and depth varies from shallow to 15 cm [max.].	The main disturbance is vehicle wheel tracks and runs the length of the survey unit. Other disturbances include pastoral and animal activities [scratching].	Negligible	Nil recorded
CHSU25	657817. 6035143	657923. 6035055	An amorphous crest landform of very gentle gradient with a north	The main disturbance is vehicle wheel tracks and	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Object
			north-easterly aspect. The area is an open mountain gum forest with scrubby regrowth like understorey. Geology is a sedimentary shale presenting as shatter, cobbles and gravels. Occasional low and discrete shale bedrock outcropping. Small traces of low-quality quartz are present, none of which is likely to be artefactual. Black chert also occurs naturally. Soil is a skeletal gravelly loam.	runs the length of the survey unit. Other disturbance includes pastoral and animal activities [scratching].		
CHSU26	657929. 6035049	658135. 6034905	The upper and mid slopes of a simple slope landform of gentle gradient with a north-easterly aspect. The area is an open forest of regrowth mountain gum with an understorey of regrowth. Geology is a sedimentary shale presenting as shatter, cobbles and gravels. Occasional traces of low-quality quartz are present, none of which is likely to be artefactual. Soil is a gravelly silty loam greater than 30 cm deep.	The main disturbance is vehicle wheel tracks and runs the length of the survey unit. Other disturbance includes pastoral and wombat activity [burrows].	Negligible	*CHSU26/L1* AHIMS #57-4-0386
CHSU27	658137. 6034902	658260. 6034961	A simple slope landform of gentle to moderate gradient located above a watercourse and a small flat. The aspect is north-easterly. The area is	The main disturbance is vehicle wheel tracks and runs the length of the survey unit. Other	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Object
			an open mountain gum forest with a thick understorey of juvenile gums and heath regrowth. Geology is the Yalmy group, a meta-sedimentary type of quartz sandstone and shales presenting as shatter, cobbles and gravels. Occasional traces of low-quality quartz are present, none of which is likely to be artefactual. Soil is an orange gravelly very fine clayey silty loam. The landform is eroding on the higher slopes.	disturbance includes pastoral.		
CHSU28	658257. 6034961	658281. 6034932	A very gently sloping drainage depression with an incised flowing water course. The area is a forest of Black Sallee and snow gums with an undergrowth of grasses and heath. The Geology is meta-sedimentary and sedimentary shale presenting as shatter and gravels. Soil is a gravelly clayey silty loam.	The main disturbance is the grassed vehicle tracks and runs the length of the survey unit. Parts of the vehicle track has recently undergone maintenance and upgrades. The water crossing has undergone recent modification. Other disturbance includes pastoral and wombat activity.	Negligible	Nil recorded
CHSU29	658285. 6034930	658598. 6033833	A simple slope landform of gentle gradient with a northerly aspect. The area is a mix of Eucalypts with an understorey of grasses. Geology is a sedimentary shale presenting as	The main disturbance is the grassed vehicle tracks and runs the length of the survey unit. Parts of the vehicle track has recently	Negligible	*CHSU29/L1* AHIMS #57-4-0384

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Object
			shatter, cobbles and gravels. Becoming very slightly rocky on the higher elevations with increased low and discrete shale bedrock outcropping. Two small and low quartz boulder outcrops [each c. 20 x 40 cm] also appear on upper slope. Occasional traces of various quality quartz are present, some of which is possibly artefactual. Soil is a gravelly silty loam.	undergone maintenance and upgrades. The water crossing has undergone recent modification. Other disturbance includes pastoral and animal activities [tracks].		
CHSU30			A simple slope landform of gentle gradient with a northerly aspect. The area is a mix of Eucalypts with an understorey of grasses. Geology is a sedimentary shale presenting as shatter, cobbles and gravels. Becoming very slightly rocky on the higher elevations with increased low and discrete shale bedrock outcropping.	The main disturbance is the grassed vehicle tracks and runs the length of the survey unit. Parts of the vehicle track has recently undergone maintenance and upgrades.	Negligible	Nil recorded

Table 54 Circuits Hut Fire Trail: A description of Aboriginal Object Locales.

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
CHSU2	*KNP91-12* AHIMS #57-4-0060 *CHSU2/L1*	651832	6036657	Two artefacts located on a broad level terminal spur crest directly overlooking major watercourse [Murrumbidgee River]. The aspect is northerly. The site	White quartz LCS 20x26x12 mm edge damage [recent]. Quartzite core 76x62x30	Very low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
	AHIMS #57-4-0342 (Plate 31)			has been pre-recorded as an open campsite (AHIMS # 57-4-006). The site area is 2 x 30 m and is located on a vehicle track. The site has potential to extend outward from exposure with highest potential to the north of the vehicle track, encompassing the terminal end of the spur crest, an approximate size of 100 x 100 m. Ground exposure within the site area was assessed at 80% with archaeological visibility of 90%. Ground exposure away from site was no more than 1% with archaeological visibility of 0%. Disturbances include vehicle track formation and maintenance activities, old braided vehicle tracks on the south side of existing vehicle track and pastoral.	mm multi-directional core with up to 16 scars 15% terrestrial cortex.	
CHSU3	*CHSU3/L1* AHIMS #57-4-0341	652217	6035801	Two areas of ASL straddling a 3rd order stream. ASL #1 is located north of stream and east of vehicle track at 652217. 6035801. ASL #2 located south of stream and west of vehicle track at 652219. 6035662. ASL #1 is a c. 50 x 50 m area on a sheltered level bench on spur crest located near to a drainage line and valley floor. The aspect is north easterly. Ground exposures were moderate with mainly areas of grading and tree felling close to track providing	Archaeologically sensitive landforms	Low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				bare earth for inspection. There was no visibility away from exposures. There is a high level of disturbance at ASL #1. ASL #2 is a level area c. 20 x 20 m, with a south easterly aspect located directly adjacent to a watercourse. Ground exposures were low with mainly discrete areas of animal burrows providing bare earth for inspection.		
CHSU3	*CHSU3/L2* AHIMS #57-4-0340	652392	6035141	Two artefacts located on a low relief spur crest of very gentle gradient with a north easterly aspect. The landform is amorphous in nature. The site area is 25 x 2 m and were located on a vehicle track. Ground exposure within the site area was assessed at 90% with archaeological visibility of 90%. Ground exposures were low with mainly discrete areas of animal burrows providing bare earth for inspection. Ground exposure away from site was less than 1% with archaeological visibility of 5%. The site potentially may extend outward from exposure. Soil within the area is a brown gravelly silty loam up to a maximum depth of 30 cm. Poor and good quality quartz was observed within the background stone profile, some of which is likely to be artefactual. Disturbances include vehicle track formation and	White quartz flake 13x12x7 mm broad Hertzian. Translucent quartz flake piece 33x23x12 mm possible vehicle damage.	Negligible to very low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				maintenance upgrades, pastoral and animal tracks and burrows.		
CHSU6	*CHSU6/L1* AHIMS #57-4-0339	653190	6034167	Artefacts including a black chert knapping event, were located along a vehicle track within a minor saddle on a very gently sloping broad crest. The aspect is north north-westerly. The site area is c. 50 x 2 m. A sample of 12 artefacts were recorded from this site. Ground exposure within the site area was assessed at 90% with archaeological visibility of 80%. Ground exposures were low with mainly discrete areas of animal burrows providing bare earth for inspection. Ground exposure away from site was negligible. The site has potential to extend outward from exposure within the saddle on crest, an area c. 100 [NW/SE] x 50 [NE/SW]. Soil within the area is a gravelly silty loam up to a maximum depth of 20 cm. Traces of quartz was observed within the background stone profile. Naturally occurring low quality black chert was visible along vehicle track. Disturbances include vehicle track formation and maintenance upgrades.	Black chert core 2 faces 55x33x25 mm. Black chert flake step 10% terrestrial cortex 32 x 30 x 3 mm. Black chert flake feather 10% orange terrestrial cortex 30x24x8 mm. Black chert right LCS 11x12x2 mm. Black chert flake piece 20% terrestrial cortex 17x23x10 mm. Silcrete core frag 46x25x18 mm. Black chert flake broad Hertzian step 40% cortex 11x26x10 mm. Black chert core bi-facial 25x24x10 mm. Black chert flake focal Hertzian feather 10% terrestrial cortex 19x19x5 mm. Black chert flake Hertzian feather 10x12x4 mm. Brown chert core frag bi-facially flaked 31x20x12 mm. Black chert proximal focal Hertzian.	Low to moderate

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
CHSU7	*CHSU7/L1* AHIMS #57-4-0393	653334	6034321	One artefact located along a vehicle track on a simple slope of gentle gradient with a northerly aspect. The site area is 2 x 1 m. Ground exposure within the site area was assessed at 70% with archaeological visibility of 80%. There was no ground exposure away from site. Disturbances include vehicle track formation and maintenance upgrades.	Black chert flake broad Hertzian low quality material 20x16x7 mm.	Negligible
CHSU10	*CHSU10/L1* AHIMS #57-4-0392	653643	6034411	Three artefacts located along a vehicle track on a broad level crest with a north north-westerly aspect. The site area is c. 75 x 2 m. Ground exposure within the site area was assessed at 80% with archaeological visibility of 80%. There was no ground exposure away from site. The site potentially may extend outward from exposure. Disturbances include vehicle track formation and maintenance upgrades.	White quartz flake focal Hertzian 17x15x6 mm. Black chert flake piece 20x12x5 mm. Green chert core bi-facially flaked 35x30x20 mm.	Negligible to very low
CHSU11	*CHSU11/L1* AHIMS #57-4-0391	653822	6034377	Two artefacts located along a vehicle track on a simple slope of gentle gradient with an east south-easterly aspect. The landform lies above a valley floor. The site area is 1 x 2 m. Ground exposure within the site area was assessed at 40% with archaeological visibility of 40%. There was no ground	White quartz flake focal Hertzian feather 29x25x13 mm. White quartz distal feather 24x19x5 mm.	Negligible

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				exposure away from site. The site potentially may extend outward from exposure. Disturbances include vehicle track formation and maintenance upgrades.		
CHSU12	*CHSU12/L1* AHIMS #57-4-0389 (Plate 32)	654007	6034349	At least 15 artefacts located on a very gently undulating mid to lower simple slope above a 3rd order stream [Little Gulf Creek] with a north-easterly aspect. All artefacts were recorded along a vehicle track c. 150 m from the creek. The site area is c. 2 x 2 m. Ground exposure within the site area was assessed at 80% with archaeological visibility of 70%. There was no ground exposure away from site. The site potentially may extend outward from exposure. Disturbances include vehicle track formation and maintenance upgrades including the importation of road base at the northeast end of vehicle track.	Black chert proximal focal Hertzian parallel arises 35x20x6 mm. Black chert proximal broad Hertzian 17x18x4 mm. Black chert flake frag 27x15x6 mm. Black chert flake frag 23x17x10 mm. Black chert flake frag 15x9x2 mm. Black chert flake frag 12x8x2 mm. Black chert flake frag 15x12x5 mm. Black chert flake frag 8x7x2 mm. Black chert flake frag 15x10x4 mm. Black chert flake frag terrestrial cortex 21x10x4 mm. Black chert flake frag 7x5x1 mm. Grey chert flaked piece 44x37x15 mm. Black chert flake Hertzian outré passé terrestrial cortex 29x30x10 mm. Black chert flaked piece 41x30x9 mm.	Very low to low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
					Black chert flaked piece 25x18x10 mm.	
CHSU14	*CHSU14/L1* AHIMS #57-4-0388	654207	6034442	Three artefacts located along a vehicle track on a simple slope of very gentle gradient with a north-westerly aspect. The landform lies directly above a watercourse. The site area is 1 x 1 m. Ground exposure within the site area was assessed at 90% with archaeological visibility of 80%. There was no ground exposure away from site. The site potentially may extend outward from exposure. Traces of low-quality quartz was observed within the background stone profile. Naturally occurring black chert cobbles are present nearby. Disturbances include vehicle track formation and maintenance upgrades.	White quartz flake gullwing laterally broken in two parts 25x34x8 mm. Black chert flake broad recent damage 12x23x6 mm. Black chert medial recent damage 12x14x4 mm.	Negligible to very low
CHSU14	*CHSU14/L2* AHIMS #57-4-0387	654567 654692	6034577 6034631	A continuous scatter of artefacts along a vehicle track located on a very gently undulating low relief spur crest. The aspect is west north-westerly aspect. The site area is 30 x 2 m. Ground exposure within the site area was assessed at 90% with archaeological visibility of 80%. Ground exposure away from site was less than 1% with archaeological visibility of 5%. The site potentially may extend outward from exposure. Traces of	Sample recorded: Black chert core frag heat fractured 19x30x10 mm. Black chert proximal broad Hertzian 14x21x6 mm. Black chert flake broad Hertzian feather 20x19x5 mm. Black chert distal step 17x22x7 mm. Black chert flaked piece 15x18x5 mm. Black chert	Negligible to very low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				low-quality quartz was Naturally occurring black chert angular cobbles observed within the background stone profile. Disturbances include vehicle track formation and maintenance upgrades.	distal feather 10x18x3 mm. Black chert proximal broad Hertzian 18x14x5 mm. Grey chert flake focal right margin missing many fractures across ventral face 19x27x7 mm. Black chert x 7; flakes and flaked pieces. Cream silcrete proximal. White quartz very good quality material flake. Quartz x 2 flakes.	
CHSU22	*CHSU22/L1* AHIMS #57-4-0385	657249	6035103	One artefact on a vehicle track located on a very gently sloping crest with a northerly aspect. The site area is 1 x 1 m. Ground exposure within the site area was assessed as negligible with archaeological visibility of <1%. There was no ground exposure away from site. Traces of low-quality quartz were observed within the background stone. The site area is highly eroded, and the soil profile is skeletal. Disturbance includes a vehicle track.	Black chert flake focal Hertzian feather part of left margin missing possible use-wear along distal end recent damage 29x33x5 mm.	Negligible
CHSU26	*CHSU26/L1* AHIMS #57-4-0386	658103	6034916	One artefact on a vehicle track located on a simple slope landform of gentle gradient with an easterly aspect. The site area is 1.5 x 1 m. Ground exposure	Grey quartzite flake focal Hertzian step 43x54x28 mm.	Negligible

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				within the site area was assessed at 80% with archaeological visibility of 50%. Ground exposures were low with mainly discrete areas of animal scratching providing bare earth for inspection. Ground exposure away from site was less than 1% with archaeological visibility of 5%. Some pieces of angular quartzite cobbles were observed within the background stone profile downslope of artefact location. Disturbance includes a vehicle track.		
CHSU29	*CHSU29/L1* AHIMS #57-4-0384	658325	6034922	A very gentle gradient bench on a small spur, a sheltered area of c. 50 x 50 m, located near to a water course. The aspect is north-westerly. Soil within the ASL is a gravelly loam with depth. Ground exposures were negligible. Several fallen trees are scattered across the area. Disturbance includes a vehicle track.	Archaeologically sensitive landform	Low



Plate 31 Circuits Hut Fire Trail: CHSU2/L1; looking 110°.



Plate 32 Circuits Hut Fire Trail: CHSU12/L1; looking 40°.

6.2.2.15 Pockets Saddle Road

The field survey at Pockets Saddle Road was conducted in October 2018. The Pockets Saddle Road survey area has been subject to a reasonably comprehensive field survey. This survey extends from the junction with Tantangara Road below the dam wall, north to Coolamine.

The total survey area at Pockets Saddle Road has measured 151.6 hectares, of which some 107.5 hectares has been physically inspected. In all Survey Units, vegetation frequently posed a constraint; visibility of ground surfaces was often absent except for the fire trail exposures. The area is a mix of open grassland and snow gum woodland. Ground exposures were generally negligible. Certain areas were found to be relatively undisturbed.

A summary of the field survey results for the Pockets Saddle Road area is presented in Table 55. The Pockets Saddle Road Survey Units are described in Tables 56 and 57. It is noted that one previously recorded Aboriginal site is known to be present in the Pockets Saddle Road survey area. No Aboriginal object sites were recorded during the field assessment. The Pockets Saddle Road survey area is assessed to be generally of very low archaeologically sensitivity.

The Pockets Saddle Road survey area is now outside the project area footprint.

Table 55 Pockets Saddle Road: A summary of Aboriginal object site distribution.

SU	Previous sites	New sites	Total sites	Impacts
PSSU1	0	0	0	No
PSSU2	0	0	0	No
PSSU3	0	0	0	No
PSSU4	1	0	1	No
PSSU5	0	0	0	No
PSSU6	0	0	0	No
PSSU7	0	0	0	No
PSSU8	0	0	0	No
Total	1	0	1	

Table 56 Pocket Saddle Road: Effective Survey Coverage.

SU ID	SU area (sq. m.)	Area inspected (%)	Area inspected (sq. m.)	GE (%)	GE (sq. m.)	AV (%)	NEC (sq. m.)	ESC (%)	Exposures
PSSU1	17559	80	14047	10	1405	50	702	4	Low: bare earth wombat burrows, vehicle track.
PSSU2	38953	80	31163	15	4674	75	3506	9	Low: bare earth wombat burrows, vehicle track.
PSSU3	390014	70	273010	10	27301	50	13650	3.5	Low: graded vehicle track.
PSSU4	378776	70	265143	10	26514	50	13257	3.5	Low: graded vehicle track.
PSSU5	148820	70	104174	10	10417	50	5209	3.5	Low: graded vehicle track.
PSSU6	132274	70	92592	10	9259	50	4630	3.5	Low: bare earth, sheet/gully erosion and graded vehicle track.
PSSU7	252113	70	176479	1	1765	5	88	0.035	Negligible to very low: vehicle track, braided vehicle tracks.
PSSU8	157327	75	117996	1	1180	5	59	0.038	Negligible
Total	1515836		1074603		82516		41101	2.71	

Table 57 Pocket Saddle Road: A description of Survey Units.

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
PSSU1	651406. 6036985	651493. 6037033	A level river flat [bank] with a south easterly aspect. Vegetation is snow gum woodland. Soil is a very fine sandy alluvium greater than 50 cm deep.	Minor to moderate levels of disturbance throughout SU. Vehicle track road cutting, associated road earthworks and wombat burrows. Minor previous impacts: earlier pastoral activity.	Low to moderate	Nil recorded
PSSU2	651523. 6037038	651283. 6037100	A crest landform of very gentle to gentle gradient with a southerly aspect.	Main disturbance is a formed and graded vehicle	Low	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			Vegetation is snow grass and snow gum woodland. Geology is metamorphic presenting as outcrops, shatter, cobbles and gravels. The SU is rocky comprising of up to 20% bedrock outcropping. Soils are a gravelly loam up to a maximum of 20 cm deep. Gently sloping spur top/crest feature directly connecting major ridge topography with valley bottom and major local waterway. Also transition [short cut] point between river meaner points. Deposit largely intact on lowest gradient points [particularly east of expanse at c. 651587.6037120]. Above cold air pooling in valley immediately below.	track. Other disturbances include bare earth, animal burrows and earlier pastoral activity.		
PSSU3	650960. 6037510	651430. 6039700	A simple slope of steep gradient with a westerly aspect. Vegetation is woodland. Geology is metamorphic [Tantangara Formation]. Traces of quartz were observed in the background stone profile, none of which is likely to be artefactual. Soil is a skeletal silty loam.	Main disturbance is a formed and graded vehicle track. Vehicle track is cut into side of hill slope. Other disturbances include bare earth and earlier pastoral activity.	Negligible	Nil recorded
PSSU4	651433. 6039695	653629. 6042578	A very gently undulating ridge crest with an open aspect. Vegetation is regrowth of juvenile snow gum woodland. Geology is metamorphic shales [Tantangara Formation] presenting as small boulder outcrops.	Main disturbance in SU is a formed and graded vehicle track. Minor previous impacts: earlier pastoral activity.	Negligible to very low	*Port Phillip FT Mt* AHIMS #57-4-0217 *KNP91-41*

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			Traces of quartz were observed in the background stone profile, none of which is likely to be artefactual. Soil is a light brown silty loam to a depth of 20 cm [max.].			AHIMS #57-4-0076
PSSU5	651673. 6040714	653437. 6044489	An undulating crest landform of very gentle to moderate gradient with a north westerly aspect. Vegetation is a regrowth woodland. Geology is mixed [Tantangara and Kellys Plains Formations] presenting in some areas as quartz sandstone outcropping. Soil is light brown silty loam to a depth of 20 cm [max.].	Main disturbance is a formed and graded vehicle track. Minor previous impacts: earlier pastoral activity.	Negligible to very low	Nil recorded
PSSU6	653627. 6042559	652633. 6045235	A very gently undulating low relief crest landform extending to the valley floor. The aspect is north westerly. Vegetation is open woodland. Geology is metamorphic [Tantangara Formation]. Traces of quartz were observed in the background stone profile, none of which is likely to be artefactual. Soil is a brown silty loam to a depth of 20 cm [max.] on the higher elevations and an alluvium at the base.	Main disturbance is a formed and graded vehicle track, animal and sheet erosion. Minor previous impacts: earlier pastoral activity.	Very low	Nil recorded
PSSU7	652604. 6045251	651079. 6045341	A very gently rolling valley bottom landform with an open aspect. Vegetation is shrubland/grassland.	Main disturbance is a formed and graded vehicle track with imported materials used. Other	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			Geology is ignimbrite. Soils are loamy and greater than 50 cm deep.	disturbances include vegetation clearance, mechanical rabbit control, animal tracks/burrows and earlier pastoral activity.		
PSSU8	651079. 6045341	650702. 6045354	A low elevation crest of very gentle gradient with an open aspect. Vegetation is grassland/shrubland. Geology is ignimbrite and shale in the northern end of SU. Soils is a fine sandy loam, and maximum depth of 30 cm. The landform is stable.	Main disturbance is vegetation clearance. Other disturbances include mechanical rabbit controls, animal tracks/burrows and earlier pastoral activity.	Negligible to very low	Nil recorded

Table 58 Pocket Saddle Road: A description of Aboriginal Object Locales.

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
PSSU4	*KNP91-41* AHIMS #57-4-0076	653500	6042300	No Aboriginal objects were found in this location.	Nil	Very low

6.2.2.16 Port Phillip Fire Trail

The field survey at Port Phillip Trail was conducted in December 2017 and October 2018. The Port Phillip Trail survey area has been subject to a reasonably comprehensive field survey. This survey extends from the junction with Long Plain Road, eastward to Tantangara Dam.

The total survey area at Port Phillip Trail has measured 117.1 hectares, of which some 84.5 hectares has been physically inspected. In all Survey Units, vegetation frequently posed a constraint; visibility of ground surfaces was often absent except for the fire trail exposures. The area is a mix of open grassland and snow gum woodland. Ground exposures were generally negligible. Certain areas were found to be relatively undisturbed.

A summary of the field survey results for the Port Phillip Trail area is presented in Table 59. The Port Phillip Trail Survey Units are described in Tables 60 and 61. It is noted that no previously recorded Aboriginal sites are known to be present in the Port Phillip Trail survey area. Some 21 Aboriginal object sites were recorded during the field assessment (Table 62). The Port Phillip Trail survey area is assessed to be generally of very low archaeologically sensitivity with the exception of occasional micro topographic elements.

The Port Phillip Trail survey area is now outside the development footprint.

Table 59 A summary of Aboriginal object site distribution in the Port Phillip Trail survey area.

SU	Previous sites	New sites	Total sites	Impacts
PPSU1	0	0	0	No
PPSU2	0	0	0	No
PPSU3	0	0	0	No
PPSU4	0	3	3	No
PPSU5	0	2	2	No
PPSU6	0	2	2	No
PPSU7	0	2	2	No
PPSU8	0	2	2	No
PPSU9	0	2	2	No
PPSU10	0	1	1	No
PPSU11	0	0	0	No
PPSU12	0	0	0	No
PPSU13	0	1	1	No
PPSU13b	0	0	0	No
PPSU14	0	0	0	No
PPSU15	0	1	1	No
PPSU16	0	3	3	No
PPSU17	0	0	0	No
PPSU18	0	0	0	No

SU	Previous sites	New sites	Total sites	Impacts
PPSU19	0	1	1	No
PPSU20	0	0	0	No
PPSU21	0	1	1	No
PPSU22	0	0	0	No
PPSU23	0	0	0	No
PPSU24	0	0	0	No
Total	0	21	21	

Table 60 Port Phillip Trail: Effective Survey Coverage.

SU ID	SU area (sq. m.)	Area inspected (%)	Area inspected (sq. m.)	GE (%)	GE (sq. m.)	AV (%)	NEC (sq. m.)	ESC (%)	Exposures
PPSU1	4962	80	3970	2	79	40	32	0.64	Very low: thick grass cover: bare earth, vehicle track.
PPSU2	6828	70	4780	1	48	30	14	0.21	Very low: thick grass cover: bare earth, vehicle track.
PPSU3	13386	80	10709	2	214	50	107	0.80	Very low: thick grass cover: bare earth, vehicle track.
PPSU4	49748	90	44773	1	448	40	179	0.36	Very low: thick grass cover: bare earth, vehicle track.
PPSU5	65810	80	52648	1	526	50	263	0.40	Very low: thick grass cover: bare earth, vehicle track.
PPSU6	29855	80	23884	3	717	30	215	0.72	Very low: thick grass cover: bare earth, vehicle track.
PPSU7	19841	90	17857	2	357	50	179	0.90	Very low: thick grass cover: bare earth, vehicle track.
PPSU8	36845	90	33161	2	663	40	265	0.72	Very low: thick grass cover: bare earth, vehicle track.
PPSU9	22863	90	20576	1	206	30	62	0.27	Very low: thick grass cover: bare earth, vehicle track.
PPSU10	44847	90	40363	1	404	30	121	0.27	Very low: thick grass cover: bare earth, vehicle track.
PPSU11	19693	80	15755	1	158	50	79	0.40	Very low: thick grass cover: bare earth, vehicle track.
PPSU12	25867	80	20694	2	414	60	248	0.96	Very low: thick grass cover: bare earth, vehicle track.
PPSU13	102187	90	91968	0	0	0	0	0.00	Negligible: thick vegetation cover: graded vehicle track; bare earth, horse tracks.

SU ID	SU area (sq. m.)	Area inspected (%)	Area inspected (sq. m.)	GE (%)	GE (sq. m.)	AV (%)	NEC (sq. m.)	ESC (%)	Exposures
PPSU14	13841	90	12457	5	623	70	436	3.15	Very low: thick grass cover: bare earth, vehicle track; pig diggings.
PPSU15	70916	40	28366	1	284	5	14	0.02	Very low: thick grass cover: vehicle track, horse tracks.
PPSU16	157938	90	142144	1	1421	30	426	0.27	Very low: thick grass cover: animal tracks and burrows.
PPSU17	90194	50	45097	1	451	10	45	0.05	Very low: thick grass cover: animal tracks and burrows.
PPSU18	47260	50	23630	5	1182	5	59	0.13	Very low: thick grass cover: animal tracks and burrows.
PPSU19	155913	60	93548	1	935	5	47	0.03	Very low: thick grass cover: animal tracks and burrows.
PPSU20	36608	100	36608	1	366	5	18	0.05	Very low: thick grass cover: bare earth, pig diggings.
PPSU21	77941	50	38970	5	1949	10	195	0.25	Very low: thick grass cover: bare earth, rabbit burrows and diggings.
PPSU22	29671	50	14836	5	742	20	148	0.50	Very low: thick grass cover: bare earth, rabbit burrows and diggings.
PPSU23	21577	60	12946	5	647	40	259	1.20	Very low: thick grass cover: bare earth, horse and pig activities/ diggings.
PPSU24	25995	60	15597	1	156	50	78	0.30	Very low: thick grass cover: bare earth, rabbit burrows and diggings.
Total	1170588		845337		12989		3490	0.30	

Table 61 Port Phillip Trail: A description of Survey Units.

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
PPSU1	639945. 6048167	640117. 6048154	A broad ridge crest landform of very gentle gradient with an open aspect. Vegetation in grassland with occasional heath. Geology is shale presenting as outcropping, shatter and gravels. SU is very slightly rocky with occasional low rocky outcropping. Soil is a gravelly silty loam with high levels of shale shatter. A very amorphous landscape.	Part of a transmission line easement; formed gravelled road with spear drains; highly disturbed over a 20 m wide area along the road	Very low	Nil recorded
PPSU2	640117. 6048154	640227. 6048285	A simple slope landform of gentle gradient and a north easterly aspect. There is a minor area of river flat at the east end of the survey unit. Vegetation is grassland with occasional heath. Geology is shale presenting as shatter. Soil is very gravelly silty loam. A very amorphous landscape.	Formed gravelled road with spear drains; braided tracks on both sides of existing road; disturbance very high on the north side due to road construction works; highly disturbed over a 20 m wide area along the road	Very low	Nil recorded
PPSU3	640227. 6048285	640580. 6048423	A simple slope of gentle gradient with a westerly aspect. A minor area of river flat at the west end of the survey unit. Vegetation is grassland with occasional heath. Geology is shale presenting as cobbles and high levels of shatter. Traces of quartz were observed in the background stone profile. Rocky outcropping on higher elevations. Soil	Formed gravelled road with spear drains; road deeply excavated at the west end; erosional scalds and earlier pastoral activities.	Very low	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			is a shallow gravelly silty loam. A very amorphous landscape.			
PPSU4	640580. 6048423	642197. 6048394	A series of low relief spur crests of gentle gradient separated by minor 1st or 2nd order drainage lines. Some areas very boggy. The aspect is northerly. Vegetation is grassland. Geology is shale. Occasional boulders and high levels of shale shatter and cobbles in soil. Naturally occurring grey/ black/ blue mottled chert seam in bedrock on road mainly in one area. Generally, a very amorphous landscape.	Formed gravelled road with spear drains; braided tracks on both sides of existing road; disturbance very high adjacent to existing track due to road works; some areas graded to bedrock base and deeply excavated; erosional scalds; disturbance over a 15 m wide area inclusive of the road.	Very low	*PPSU4/L1* AHIMS #57-4-0247 *PPSU4/L2* AHIMS #57-4-0246 *PPSU4/L3* AHIMS #57-4-0245
PPSU5	642197. 6048394	644163. 6048985	A series of low relief spur crests of gentle gradient separated by minor 1st or 2nd order drainage lines. Some areas very boggy. The aspect is northerly. Vegetation is woodland. Geology is shale. Occasional boulders and high levels of shale shatter and cobbles in soil. A very amorphous landscape.	Formed gravelled road with spear drains and cambered cuttings; braided tracks; disturbance very high adjacent to existing track due to road works; some areas graded to bedrock base and deeply excavated; erosional scalds; disturbance over a 15 m	Very low	*PPSU5/L1* AHIMS #57-4-0243 *PPSU5/L2* AHIMS #57-4-0244

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
				wide area inclusive of the road.		
PPSU6	644163. 6048985	645025. 6048593	A series of simple slopes of moderate gradient with a north easterly aspect. Vegetation is woodland on the southern side; on the north side is a small area of boggy flat land adjacent to the creek. Road is parallel and close to Boundary Creek. Geology is shale. Occasional boulders and high levels of shale shatter in soil. A very amorphous landscape.	Formed gravelled road; cambered cuttings; disturbance very high immediately adjacent to existing track due to road works	Very low	*PPSU6/L1* AHIMS #57-4-0238 *PPSU6/L2* AHIMS #57-4-0239
PPSU7	645025. 6048593	645505. 6048260	A flat saddle on a broad ridge crest landform. The aspect is open. Vegetation is open woodland with a thick groundcover of grasses. On north side is a spring head, 1st order for Boundary Creek. Geology is shale. Occasional boulders and high levels of shale shatter in soil.	Formed gravelled road; cambered cuttings; disturbance very high immediately adjacent to existing track due to road works. North side of road opposite PPSU7/H1 is highly modified from spear drains; furrows running parallel directly adjacent to existing road and rabbit burrows.	Low	*PPSU7/L1* AHIMS #57-4-0240 *PPSU7/L2* AHIMS #57-4-0403
PPSU8	645505. 6048260	646435. 6047641	Amorphous simple slopes with a north easterly aspect and a gentle gradient. Vegetation is woodland with shrubby	Formed gravelled road; cambered cuttings; disturbance very high	Negligible	*PPSU8/L1* AHIMS #57-4-0402

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			understorey. Geology is shale presenting as shatter, cobbles and gravels. High levels of shale shatter and cobbles in soil.	immediately adjacent to existing track due to road works.		*PPSU8/L2* AHIMS #57-4-0401
PPSU9	646435. 6047641	646861. 6047094	A drainage depression landform, a 1st order for Mufflers Creek. The area is a low lying and boggy wetland with some minor elevated rises. Vegetation is regrowth snow gums with a thick cover of grasses and tussock. Soil is a boggy loam of a depth up to 30cm [max.].	Formed gravelled road; cutting; disturbance very high immediately adjacent to existing track due to road works.	Very low	*PPSU9/L1* AHIMS #57-4-0400 *PPSU9/L2* AHIMS #57-4-0399
PPSU10	646861. 6047094	647867. 6046182	A series of very low relief spur crests of very gentle gradient separated by minor 1st order drainage lines. The aspect is north easterly. Some areas are very boggy. Vegetation is mainly open woodland. Geology is meta-sedimentary shale presenting as occasional low rocky outcrops. An area of good quality black chert seam within shale bedrock on graded road.	Disturbance very high immediately adjacent to existing track due to formed gravelled road and associated road works. Rabbit and wombat diggings.	Very low	*PPSU10/L1* AHIMS #57-4-0398
PPSU11	647867. 6046182	648486. 6046269	A broad level ridge crest landform. The aspect is open. Vegetation is open woodland with a thick cover of grasses. Geology is shale presenting as cobbles and shatter. High levels of shale shatter and cobbles in soil.	Disturbance very high immediately adjacent to existing track due to formed gravelled road and associated road works.	Very low	Nil recorded
PPSU12	648486. 6046269	648984. 6045638	Amorphous simple slopes of gentle gradient with a north easterly aspect.	Disturbance very high immediately adjacent to	Very low	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			Vegetation is woodland. Geology is shale presenting as cobbles and shatter. High levels of shale shatter and cobbles in soil.	existing track due to formed gravelled road and associated road works.		
PPSU13b	648984. 6045638	649387. 6045555	Broad amorphous gently undulating simple slopes landform. The aspect is south easterly. The SU is separated by a series of drainage lines. Vegetation is open grassland with an occasional Eucalypt. Geology is shale presenting as outcropping, cobbles, shatter and gravels. Soils are shallow and eroded.	High disturbance from formed gravel road and associated road works; areas of braided tracks on both sides of existing road. Earlier pastoral activities.	Very low	Nil recorded
PPSU13	648999. 6045628	648637. 6043728	A series of very gently undulating low relief crests with a north-northeast aspect; including one relatively flat bench adjacent to 3rd order stream. The area is grassland with scattered trees and sparse shrubs on the higher slopes. The geology is shale. Black chert is naturally occurring. Soil is a silty loam of variable depth ranging between 10 and 20 cm.	A well-used vehicle track c. 2 m wide runs the length of the survey unit and has undergone recent maintenance, gravel importation and spear drain upgrading. Other disturbance in the SU includes pastoral, recreational camping and horse tracks.	Very low	*PPSU13/L1* AHIMS #57-4-0437
PPSU14	649385. 6045557	649451. 6045517	A very gently sloping drainage depression with a north-north easterly aspect. There is an incised watercourse with flowing water surrounded by very boggy and pugged earth. A discrete low	A well-used vehicle track c. 2 m wide traverses the survey unit and has undergone recent maintenance,	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			sedimentary outcrop is located to the south of the drainage depression containing poor quality chert. Elsewhere the ground if very slightly rocky. Soil is a dark brown silty loam, waterlogged. Elevated areas are eroding and the gully is aggrading.	gravel importation and spear drain upgrading. Other disturbance includes pastoral, pig rooting and horse pugging.		
PPSU15	649451. 6045517	649813. 6045505	A very gently sloping, low relief crest with a north-northeast aspect. The area is open grassland with scattered low shrubs. The geology is volcanic and outcrops as occasional small low degrading boulders. Soil is a brown silty loam of variable depth between 20 to 30 cm.	A well-used vehicle track c. 2 m wide traverses the survey unit and has undergone recent graded maintenance. Other disturbance in the SU includes pastoral, rabbit and horse impact.	Negligible	*PPSU15/L1* AHIMS #57-4-0397
PPSU16	649813. 6045505	649715. 6045052	An undulating crest landform relatively flat with an open aspect. The area is an open grassland with scattered low shrubs. The geology is volcanic and is present as outcrops, cobble and gravels. The higher elevations area highly eroded exposing a greater abundance of bedrock. Soil is brown silty loam and depth varies from shallow to greater than 30 cm.	Disturbances include pastoral, horse and rabbit impact.	Very low	*PPSU16/L1* AHIMS #57-4-0406 *PPSU16/L2* AHIMS #57-4-0396 *PPSU16/L3* AHIMS #57-4-0395

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
PPSU17	649628. 6045676	649854. 6045933	A crest landform (a broad, amorphous feature) of very gentle to gentle gradient with an aspect to the southeast. The area is a grassland with hakea shrubs. Geology is rhyolite/ ignimbrite. Soil is a gravelly loam c. 10-20 cm deep.	Disturbances include pastoral, horse and rabbit impact.	Negligible/ very low	Nil recorded
PPSU18	650001. 6045571	649957. 6044994	A simple slope landform of moderate to steep gradient with an easterly aspect. The area is grassland with scattered low shrubs. Geology is rhyolite/ ignimbrite. Soil is a very gravelly loam c. 10-30 cm (max.) deep.	Disturbances include pastoral, horse and rabbit impact. Mechanical ripping for rabbit control.	Negligible	Nil recorded
PPSU19	650166. 6045623	650119. 6045042	A series of very gently undulating low relief crests with a south-southeast aspect. The area is grassland with scattered low shrubs. Geology is rhyolite/ignimbrite which outcrops as boulders and low linear exposed bedrock. An area of c. 30 x 30 m has a cluster of boulders of 3 to 4 m in height. These occur at the termination of crest and are a focal visual locale in the landscape. Soil is a slightly gravelly loam c. 20 cm (max.) deep.	Disturbances include pastoral, horse and rabbit impact, with extensive areas of pig rooting. Recreational camping occurs in this survey unit and the area is relatively highly disturbed.	Very low	*PPSU19/L1* AHIMS #57-4-0407
PPSU20	649504. 60457267	650244. 6045620	A very gently sloping drainage depression of up to 30 m width with an easterly aspect (3rd order creek). The area is grassland with thick shrubs.	Relatively disturbed by pigs and horses.	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			Geology is rhyolite/ignimbrite which outcrops as boulders, cobble and gravels. The soil is a brown silty loam. The landform is aggraded. The SU is low lying and wet.			
PPSU21	649532. 6045765	650218. 6045791	A series of simple slopes of gentle to moderate gradient with a south to easterly aspect. The area is grassland with scattered low shrubs. Geology is rhyolite/ignimbrite outcrops as shatter and cobbles. Soil is a silty loam c. 10 - 20 cm (max.) deep.	Disturbances include pastoral, horse and abundant rabbit impact.	Negligible	Nil recorded
PPSU22	649780. 6045607	650006. 6045834	A simple slope landform of very gentle gradient with an easterly aspect. The area is grassland with scattered low shrubs with occasional small snow gums. Geology is rhyolite/ignimbrite. Soil is a silty loam less than 30 cm deep.	Disturbances include pastoral, horse and rabbit impact.	Very low	*PPSU22/L1* AHIMS #57-4-0394
PPSU23	649935. 6045899	650316. 6045908	A very gently sloping spring fed drainage depression with an easterly aspect. The area is grassland with scattered low shrubs. Soil is dark brown fine loam.	Disturbances include pastoral, horse and rabbit impact as well as abundant pig rooting.	Negligible	Nil recorded
PPSU24	650270. 6045687	650320. 6045891	A crest landform comprised of two small, low knolls. It has a gentle gradient and an open aspect. Geology is rhyolite/ignimbrite. Sparse low boulders (c. 1 m high). Soil is a brown	Disturbances include pastoral and rabbit impact.	Very low	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			slightly gravelly silty loam that is highly eroded and less than 15 cm deep.			

Table 62 Port Phillip Trail: A description of Aboriginal Object Locales.

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
PPSU4	*PPSU4/L1* AHIMS #57-4-0247	640751	6048523	Two artefacts 12 m apart; on a small bench on a crest; c. 20 m north of road corridor. Possibly old road remnant at site. The area between the road and the site is highly disturbed by roadworks.	Proximal grey with clasts possibly tuff focal Hertzian breakage along right margin 22x36x7 mm. Flake fragment pale yellow to white tuff left margin missing; focal platform Hertzian feather 40x17x4 mm.	Very low
PPSU4	*PPSU4/L2* AHIMS #57-4-0246	641646	6048366	The landform is a 50 m E/W x 20 m area adjacent to the road on the south side. The landform element is a north facing very gentle gradient crest; near water and a bog.	Archaeologically sensitive landform	Uncertain, however, possibly low
PPSU4	*PPSU4/L3* AHIMS #57-4-0245	641808	6048355	Located on the western edge of crest. A landform measuring 100 m N/S x 50 m E/W; bisected by road. A very gentle gradient crest; near water and a bog.	Archaeologically sensitive landform	Uncertain, however, possibly low/moderate
PPSU5	*PPSU5/L1* AHIMS #57-4-0243	642467	6048652	One artefact on a crest adjacent to Boundary Creek. The artefact is in the upper edge of road cutting on the north side of road.	Proximal good quality milky white quartz focal Hertzian 20x24x4 mm.	Uncertain; however, possibly low/moderate

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
PPSU5	*PPSU5/L2* AHIMS #57-4-0244	643909	6048988	One artefact located on the edge of the south side of road on a graded bank. The site area is highly disturbed from road works.	Flake milky white quartz focal bending 12x12x3 mm.	Very low
PPSU6	*PPSU6/L1* AHIMS #57-4-0238	644862	6048609	It is a 20 m x 5 m (E/W) area adjacent to road on south side. A north east facing very gentle gradient crest; near water and a bog.	Archaeologically sensitive landform	Uncertain, however, possibly low
PPSU6	*PPSU6/L2* AHIMS #57-4-0239	644809	6048686	It is a 40 m x 15 m area adjacent to road on north side. A north east facing very gentle gradient crest; near water and a bog.	Archaeologically sensitive landform	Uncertain, however, possibly low
PPSU7	*PPSU7/L1* AHIMS #57-4-0240	645084	6048520	One artefact located within a cambered scrape on the edge of the road on the north side. A bench ENE and parallel to road is an undisturbed area measuring 20 x 10 m and has some archaeological potential.	Red silcrete/quartzite proximal focal platform 13x16x3 mm.	Low
PPSU7	*PPSU7/L2* AHIMS #57-4-0403	645344	6048365	One artefact located within an erosional scald c. 10 m north of road on a flat ridge crest overlooking head waters Boundary Creek to the west. Some disturbances to site from spear drains, old vehicle track and erosion.	Mottled grey chert flake complete Hertzian focal step 22x8x3 mm.	Low
PPSU8	*PPSU8/L1* AHIMS #57-4-0402	645636	6048237	One artefact located on a graded road cutting.	Grey fine grained volcanic proximal fragment mid-dorsal ridge 19x21x9 mm.	Very low – negligible

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
PPSU8	*PPSU8/L2* AHIMS #57-4-0401	646247	6047954	Grader spoil pile on a crest on the north side of road. Area has high level of mechanical disturbance.	Good quality milky quartz flake Hertzian focal feather 24x16x9 mm.	Very low
PPSU9	*PPSU9/L1* AHIMS #57-4-0400	646455	6047557	A small flat elevated bench crest landform adjacent to a minor drainage line and sheltered from west and east. Located SW of road. The creek constricted in this valley which is narrowed at this point. Sensitive area c. 30 x 10 m on both sides of drainage line.	Archaeologically sensitive landform	Low
PPSU9	*PPSU9/L2* AHIMS #57-4-0399	646826	6047160	A lightly wooded elevated bench crest adjacent to wetland and Muffler Creek. Located north side of road. The area ENE opens up onto a grassed valley floor c. 50 - 100 m wide. The ASL is sheltered by a ridge to the north and a ridge to the south. ASL c. 30 m x 20 m.	Archaeologically sensitive landform	Low
PPSU10	*PPSU10/L1* AHIMS #57-4-0398	647565	6046414	Low bench on a crest overlooking wetland to south and east to Muffler Creek. Sheltered from the west. Area 50 x 50 m on both sides of the road and outside localised disturbed areas directly adjacent to existing road.	Archaeologically sensitive landform	Low
PPSU13	*PPSU13/L1* AHIMS #57-4-0437	648894	6045442	A sheltered area of crest measuring c. 200 m N/S >100 m wide extending both side of the road. In certain areas likely to be disturbed by vehicle traffic and livestock.	Archaeologically sensitive landform	Low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
PPSU15	*PPSU15/L1* AHIMS #57-4-0397	649486	6045435	An elevated relatively flat crest feature overlooking creek confluences with a north north-easterly aspect. A higher ridgeline shelters the area from the south.	Archaeologically sensitive landform	Very low
PPSU16	*PPSU16/L1* AHIMS #57-4-0406	649935	6045400	An area of c.100 x 100 m at the north end of a knoll directly above the valley. Soil within the ASL varies from 10 cm to greater than 30 cm. Ground exposures were negligible with mainly discrete areas of rabbit activity providing bare earth.	Archaeologically sensitive landform	Low
PPSU16	PPSU16/L2 AHIMS #57-4-0396	649850	6045186	A very gently sloping bench on a crest, an area of c. 50 x 50 m located below SU16/L1 and directly above the valley. Sparse rhyolite/ignimbrite exposures present as low outcrops. Soil within the ASL varies from 10 cm up to a maximum of 30 cm. Ground exposures were low with mainly discrete areas of rabbit activity providing bare earth for inspection.	Archaeologically sensitive landform	Very low
PPSU16	*PPSU16/L3* AHIMS #57-4-0395	649649	6045219	Broad level crest c. 200 m E/W x 150 m N/S located at the base of a short simple slope, overlooking valley and broader region.	Archaeologically sensitive landform	Low
PPSU19	*PPSU19/L1* AHIMS #57-4-0407	650388	6045369	One artefact located on a very gently sloping crest with an easterly aspect. The geology is rhyolite/ignimbrite outcrops as gravels, shatter and cobbles. The site area is 3 x 1 m and is located on the dam margin, c. 10 m east of boulder outcrop	Tuff distal 43x30x11 mm feather.	Very low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				noted in SU19. Disturbances include clearance and erosion from dam inundation/wave action.		
PPSU22	*PPSU22/L1* AHIMS #57-4-0394	650001	6045786	A relatively flat 'bench' area c. 250 m N/S x 100 m E/W located on a simple slope. The area is located adjacent to a spring fed drainage depression and sheltered from a higher crest to the south. Soil within the PAD is a silty loam and up to a maximum of 30 cm deep. Disturbances are minor and include pastoral and rabbit impact.	Archaeologically sensitive landform	Low

6.2.2.17 Tantangara Dam North

The field survey at Tantangara Dam North was conducted in December 2017. The Tantangara Dam North survey area has been subject to a reasonably comprehensive field survey. This survey extends from the junction with Port Phillip Trail, south to the northwest side of Tantangara Dam.

The total survey area at Tantangara Dam North has measured 53.2 hectares, of which some 47.8 hectares has been physically inspected. In all Survey Units, vegetation frequently posed a constraint; visibility of ground surfaces was often absent except for the fire trail exposures. The area is a mix of open grassland and snow gum woodland. Ground exposures were generally negligible. Certain areas were found to be relatively undisturbed.

A summary of the field survey results is presented in Table 63. The Tantangara Dam North Survey Units are described in Tables 64 and 65. It is noted that no previously recorded Aboriginal sites are known to be present in the Tantangara Dam North survey area. Four Aboriginal object sites were recorded during the field assessment. The Tantangara Dam North survey area is assessed to be generally of very low archaeologically sensitivity with the exception of occasional micro topographic elements.

The Tantangara Dam North survey area is now outside the development footprint.

Table 63 Tantangara Dam North: Summary of Aboriginal object site distribution.

SU	Previous sites	New sites	Total sites	Impacts
TNSU1	0	0	0	Nil
TNSU2	0	0	0	Nil
TNSU3	0	3	3	Nil
TNSU4	0	1	1	Nil
TNSU5	0	0	0	Nil
Total	0	4	4	

Table 64 Tantangara Dam North: Effective Survey Coverage.

SU ID	SU area (sq. m.)	Area inspected (%)	Area inspected (sq. m.)	GE (%)	GE (sq. m.)	AV (%)	NEC (sq. m.)	ESC (%)	Exposures
TNSU1	124851	90	112366	10	11237	70	7866	6.30	Low: bare earth, vehicle tracks and erosional scalds.
TNSU2	61938	90	55744.6	5	2787	40	1115	1.80	Very low: bare earth, vehicle tracks and erosional scalds.
TNSU3	202928	90	182635	5	9132	40	3653	1.80	Very low: bare earth, vehicle tracks and erosional scalds.
TNSU4	11530	90	10377.2	1	104	10	10	0.09	Negligible: thick grass cover, some bare earth.
TNSU5	130393	90	117353	2	2347	30	704	0.54	Very low: vehicle tracks, bare earth exposures.
Total	531640		478476		25606		13348	2.51	

Table 65 Tantangara Dam North: A description of Survey Units.

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
TNSU1	648226. 6043338	648281. 6042599	A crest landform with a southerly aspect. Vegetation is scattered regrowth snow gums and large areas of heath. Geology is shale bedrock exposed as low outcrops. The SU is rocky. The highly eroded soils are a lithosol.	Highly eroded and disturbed landform. Numerous vehicle tracks.	Very low	Nil recorded
TNSU2	648192. 6043243	648216. 6042629	A simple slope landform of gentle to moderate gradient and sloping to the west. Vegetation is grassland with heath. Geology is shale bedrock exposed as low outcrops. The SU is	Highly eroded and disturbed landform.	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			rocky. The highly eroded soils are a lithosol.			
TNSU3	648630. 6043727	648322. 6042605	Undulating amorphous simple slopes of gentle gradient. The aspect is easterly. Vegetation is grassland with heath. Geology is varied with areas of shale and granitic bedrock outcropping. Traces of sparse native quartz were observed in the background stone profile.	Extensive rabbit activity and mechanical excavations for rabbit control. Braided vehicle tracks.	Very low to negligible	*TNSU3/L1* AHIMS #57-4-0242 *TNSU3/L2* AHIMS #57-4-0241 *TNSU3/L3* AHIMS #57-4-0248
TNSU4	648668. 6043435	648851. 6043430	Drainage depression with a series of small streams which flow from springs in a southerly direction. Vegetation is grassland with heath. Streams are separated by small low elevated rises.	The main disturbance i is high levels of pig and rabbit disturbance.	Low to moderate	*TNSU4/L1* AHIMS #57-4-0249
TNSU5	648841. 6043471	649387. 6043214	Undulating amorphous simple slopes of gentle gradient. The aspect is south easterly. Grassland with scattered shrubs; occasional exposed rocky outcrops. The area has a number of small springs that start on the south side of the existing road and flow southward.	High levels of erosion; rabbit and mechanical rabbit control disturbance. A well-used dirt vehicle track traverses the SU.	Very low	Nil recorded

Table 66 Tantangara Dam North: A description of Aboriginal Object Locales

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
TNSU3	*TNSU3/L1* AHIMS #57-4-0242	648605	6042969	An area c.100 x 100 m flat bench on a spur crest with an easterly aspect. Geology is varied with areas of shale and granitic bedrock outcropping. Soil within the ASL is varied from shallow to greater than 20 cm. The area is within proximity to several watercourses and springs. Ground exposures were negligible with mainly a dirt vehicle track and discrete areas of rabbit activity providing bare earth for inspection.	Archaeologically sensitive landform	Low
TNSU3	TNSU3/L2 AHIMS #57-4-0241	648446	6042924	One artefact found within a highly disturbed area on an upper slope of a spur crest. Geology is varied with areas of shale and granitic bedrock outcropping. Traces of sparse native quartz were observed in the background stone profile. Continuous patch of exposures from scald erosion and rabbit burrows. There is little to no potential for sub surface deposit in and around site area as the soils are shallow, sloping and highly eroded.	Black chert flake focal Hertzian step measuring 45x23x5 mm parallel arises micro-scarring on both margins consistent with use wear c. 5% terrestrial cortex.	Very low
TNSU3	*TNSU3/L3* AHIMS #57-4-0248	648610	6043693	An area of ASL on a relatively flat bench close to a substantial spring. Immediately west of the Dam Trail. The ASL area measures 20 x 20 m.	Archaeologically sensitive landform	Moderate

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				Vegetation is grassland and heath. Ground exposures were negligible with mainly discrete areas of erosion and rabbit activity providing bare earth for inspection.		
TNSU4	*TNSU4/L1* AHIMS #57-4-0249	648775	6043420	A series of low rises between minor spring fed streams. Area of ASL c. 130 x 70 m. Vegetation is open woodland with an understorey of grasses and heath. Ground exposures were low with mainly discrete areas of pig and rabbit activity providing bare earth for inspection.	Archaeologically sensitive landform	Uncertain; perhaps moderate

6.2.2.18 Bullocks Hill Trail

The field survey at Bullocks Hill Trail was conducted in November 2017. The Bullocks Hill Trail survey area has been subject to a reasonably comprehensive field survey. This survey extends from the junction with the Snowy Mountains Highway, eastward along Bullocks Hill Trail to the intersection with Hains Hut Trail.

The total survey area at Bullocks Hill Trail has measured 28 hectares, of which some 21 hectares has been physically inspected. In all Survey Units, vegetation frequently posed a constraint; visibility of ground surfaces was often absent except for the fire trail exposures. The area is a mix of open grassland and snow gum woodland. Ground exposures were generally negligible. Certain areas were found to be relatively undisturbed.

A summary of field survey results for Bullocks Hill Trail is presented in Table 67. The Bullocks Hill Trail Survey Units are described in Tables 68 and 69. It is noted that no previously recorded Aboriginal sites are known to be present in the Tantangara Dam North survey area. One Aboriginal object site was recorded during the field assessment (Table 70). The Bullocks Hill Trail survey area is assessed to be generally of very low archaeologically sensitivity with the exception of occasional micro topographic elements.

The Bullocks Hill Trail survey area is now outside the development footprint. While the Aboriginal object sites are described below and their location is shown on relevant maps, they are not subject to any further assessment in this report.

Table 67 Bullocks Hill Trail: Summary of Aboriginal object distribution.

SU	Previous sites	New sites	Total sites	Impacts
BHSU1	0	1	1	Nil
BHSU2	0	0	0	Nil
BHSU3	0	0	0	Nil
Total	0	1	1	

Table 68 Bullocks Hill Trail: Effective Survey Coverage.

SU ID	SU area (sq. m.)	Area inspected (%)	Area inspected (sq. m.)	GE (%)	GE (sq. m.)	AV (%)	NEC (sq. m.)	ESC (%)	Exposures
BHSU1	148126	75	111095	15	16664	40	6666	4.50	Very low: vehicle track and bare earth.
BHSU2	31811	75	23858	10	2386	40	954	3.00	Very low: vehicle track and bare earth.
BHSU3	100264	75	75198	10	7520	40	3008	3.00	Very low: vehicle track and bare earth.
Total	280200		210150		26570		10628	3.79	

Table 69 Bullocks Hill Trail: A description of Survey Units.

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
BHSU1	636864. 6039868	641200. 6042206	An undulating ridge crest landform. Vegetation is woodland with occasional grassland. Geology is sedimentary. Soils area skeletal at east end; with an abundance of shatter.	Some disturbance from road construction. Otherwise relatively undisturbed. Modern horse camp and 330kV transmission line at west end.	Generally, very low	*BHSU1/L1* AHIMS #57-4-0250
BHSU2	641200. 6042206	641022. 6041321	A simple slope landform of moderate gradient with a north-westerly aspect. Geology is sedimentary and skeletal at west wend with high shale shatter. Occasional low ?granitic boulders. Traces of natural quartz observed in the background stone profile.	Relatively undisturbed other than road construction (slight cut and benching; road aggregate pavement) and erosional processes	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
BHSU3	641022. 6041321	642043. 6039262	Undulating ridge crest landform. Vegetation is generally, grassland with scattered trees. Geology is sedimentary. Soils are a fine brown silty loam with shale shatter.	Relatively undisturbed other than road construction; occasional cut and benching but otherwise deep wheel ruts.	Generally, very low	Nil recorded

Table 70 Bullocks Hill Trail: A description of Aboriginal Object Locale.

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
BHSU1	*Bullocks Hill Trail Test Area 1* AHIMS #57-4-0250	638785	6040286	A flat bench on a ridge crest landform. An area of ASL c. 200 x 100 m located on a major ridgeline feature. Vegetation is open woodland with a thick understorey of grasses. The closest watercourse to the ASL area is Tantangara Creek, located c. 1 km to the east. Disturbances include earlier pastoral grazing and horse activity.	Archaeologically sensitive landform	Predicted to be low or very low

6.2.2.19 Bullocks Hill Trail Portal

The field survey at Bullocks Hill Trail Portal was conducted in October and December 2018. The Bullocks Hill Trail Portal survey area has been subject to a reasonably comprehensive field survey. This survey extends north and west from Bullocks Hill Trail.

The total survey area at Bullocks Hill Trail Portal has measured 36.3 hectares, of which some 29 hectares has been physically inspected. In all Survey Units, vegetation frequently posed a constraint; visibility of ground surfaces was often absent except for the fire trail exposures. Ground exposures were generally negligible. The area is open grassland. The survey area was found to be relatively undisturbed.

The Bullocks Hill Trail Portal Survey Units are described in Tables 71 and 72. It is noted that no previously recorded Aboriginal sites are known to be present in the Bullocks Hill Trail Portal survey area. No Aboriginal object sites was recorded during the field assessment. The Bullocks Hill Trail Portal survey area is assessed to be generally of very low archaeologically sensitivity.

The Bullocks Hill Trail Portal survey area is now outside the development footprint.



Plate 33 Bullocks Hill Trail Portal: BHPSU1 looking 135°.

Table 71 Bullocks Hill Trail Portal: Effective Survey Coverage.

SU ID	SU area (sq. m.)	Area inspected (%)	Area inspected (sq. m.)	GE (%)	GE (sq. m.)	AV (%)	NEC (sq. m.)	ESC (%)	Exposures
BPSU1	194780	80	155824	5	7791	5	390	0.2	Low: very thick grass cover.
BPSU2	77582	80	62066	2	1241	5	62	0.1	Low: very thick grass cover.
BPSU3	90740	80	72592	2	1452	1	15	0.0	Low: very thick grass cover.
	363103		290482		10484		466	0.1	

Table 72 Bullocks Hill Trail Portal: A description of Survey Units.

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
BHPSU1	640146. 6042002	640609. 6042330	A broad undulating ridge crest landform overlooking the Murrumbidgee River. Vegetation is open grassland. Geology is metasedimentary presenting as outcropping, shatter, cobbles and gravels. Several areas of low bedrock outcropping. Soils very shallow gravelly silty loam and highly eroded (Plate 33).	Some disturbance from horses, pigs and earlier minor mining activities.	Very low	Nil recorded
BHPSU2	639987. 6042553	640513. 6042455	A simple slope landform of moderate gradient directly above the Murrumbidgee River. The aspect is northerly. A drainage line traverses along the eastern end of	Some disturbance from horses and earlier minor mining activities.	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			the SU. Vegetation is open grassland with occasional heath. Geology is metasedimentary presenting as outcropping, shatter, cobbles and gravels. Low bedrock outcropping. SU is very rocky and has high levels of shatter. Soils are skeletal and highly eroded.			
BHPSU3	639852. 6042031	639963. 6042566	A simple slope landform of moderate gradient. The aspect is westerly. A watercourse traverses along the western boundary of the SU. Vegetation is open grassland with occasional heath. Geology is metasedimentary presenting as outcropping, shatter, cobbles and gravels. Low bedrock outcropping. SU is very rocky and has high levels of shatter. Soils are skeletal and highly eroded.	Some disturbance from horses and earlier minor mining activities.	Negligible	Nil recorded

6.2.2.20 Hains Hut Trail

The field survey at Hains Hut Trail was conducted in January 2018. The Hains Hut Trail survey area has been subject to a reasonably comprehensive field survey. This survey extends east from Bullocks Hill Fire Trail.

The total survey area at Hains Hut Trail has measured 38.1 hectares, of which some 30.3 hectares has been physically inspected. In all Hains Hut Trail Survey Units, vegetation frequently posed a constraint; visibility of ground surfaces was often absent except for the fire trail exposures. The area is open grassland. Ground exposures were generally negligible.

The Hains Hut Trail Survey Units are described in Tables 73 and 74. It is noted that no previously recorded Aboriginal sites are known to be present in the Hains Hut Trail survey area. No Aboriginal object sites was recorded during the field assessment. The Hains Hut Trail survey area is assessed to be generally of very low archaeologically sensitivity.

The Hains Hut Trail survey area is now outside the development footprint.



Plate 34 Hains Hut Trail: The east end of HHSU3 and Hains Hut; looking 140°.

Table 73 Hains Hut Trail: Effective Survey Coverage.

SU ID	SU area (sq. m.)	Area inspected (%)	Area inspected (sq. m.)	GE (%)	GE (sq. m.)	AV (%)	NEC (sq. m.)	ESC (%)	Exposures
HSU1	10079	75	7559	10	755.9389	50	378	3.8	Very low: graded vehicle track.
HSU2	24229	75	18172	10	1817.176	50	909	3.8	Very low: graded vehicle track.
HSU3	347115	80	277692	1	2776.92	10	278	0.08	Very low: vehicle wheel track and animal tracks.
	381423		303423		5350.035		1564	0.4	

Table 74 Hains Hut Trail: A description of Survey Units.

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
HHSU1	642053. 6039240	642369. 6039192	An undulating ridge crest landform of very gentle to gentle gradient with a northerly aspect. Vegetation is open snow gum forest. Geology is sedimentary shale presenting as outcropping and shatter. Very occasional low outcropping of bedrock. Soil is a gravelly brown silty loam.	Main disturbance is a graded vehicle track with spear drains and roll overs. Other disturbances include earlier pastoral activities.	Negligible to very low	Nil recorded
HHSU2	642369. 6039192	643062. 6039562	A simple slope landform of moderate gradient with a gentle gradient and a northerly aspect. A series of first order north flowing drainage lines traverse the SU. Vegetation is open snow gum forest. Geology is sedimentary. Very occasional low bedrock outcrops. Soil is a slightly gravelly brown silty loam.	Main disturbance is a graded vehicle track with spear drains and roll overs. Other disturbances include earlier pastoral activities.	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
HHSU3	643062. 6039562	643818. 6090424	An undulating ridge crest of gentle to moderate gradient with a north-easterly aspect. SU directly overlooking the Murrumbidgee River and associated flats. A drainage line traverses the north eastern end of SU. Vegetation is generally grassland with scattered trees. Geology is sedimentary presenting as outcropping, cobbles and gravels. Soils are a slightly gravelly brown silty loam (Plate 34).	Disturbances include a vehicle track and historic pastoral occupation of area [Hains Hut located directly adjacent to SU].	Generally, very low	Nil recorded

6.2.2.21 Tantangara Dam

The field survey at Tantangara Dam was conducted in November 2017, October 2018 and February 2019. The Tantangara Dam survey area has been subject to a reasonably comprehensive field survey. This survey extends along the west side of the southern extent of Tantangara Dam.

The total survey area at Tantangara Dam has measured 517.4 hectares, of which some 90.2 hectares has been physically inspected. Survey Units TSU19 – TSU24 are currently un-surveyed. These encompass recent additions to the project footprint. They are each assessed to be of generally very low or low archaeological potential. These survey units are listed in Table 75 below and their location is shown on the relevant mapping. However, they are not included in the results tables below.

In all Tantangara Dam Survey Units vegetation frequently posed a constraint; visibility of ground surfaces was often absent except for the fire trail exposures. In addition, survey was limited to the areas that were not submerged at the time of survey. The area is grassland with woodland at higher elevations. Ground exposures were generally negligible. Certain areas were found to be relatively undisturbed.

A summary of field survey results for Tantangara is presented in Table 75. The Tantangara Dam Survey Units are described in Tables 76 and 77. It is noted that there are 11 previously recorded Aboriginal sites are known to be present in the Tantangara Dam survey area. Some 81 Aboriginal object sites were recorded during the field assessment (Table 78). Tantangara Dam survey area is assessed to be generally of very low archaeologically sensitivity with certain micro-topographies found to have an elevated sensitivity.

Table 75 Tantangara Dam: Summary of Aboriginal objects.

SU	Previous sites	New sites	Total sites	Impacts
TSU1	1	6	7	Main project
TSU2	3	6	9	Main project
TSU3	2	13	15	Main project
TSU4	2	5	7	Main project
TSU5	2	3	5	Main project
TSU6	1	1	2	Main project
TSU7	0	7	7	Main project
TSU8	0	1	1	Main project
TSU9	0	0	0	Main project
TSU10	0	0	0	Main project
TSU11	0	17	17	No
TSU12	0	3	3	No
TSU13	0	0	0	Main project
TSU14	0	2	2	Main project
TSU15	0	5	5	Main project
TSU16	0	0	0	Main project

SU	Previous sites	New sites	Total sites	Impacts
TSU17	0	0	0	Main project
TSU18	0	1	1	Main project
TSU19	0	0	0	Main project
TSU20	0	0	0	Main project
TSU21	0	0	0	Main project
TSU22	0	0	0	Main project
TSU23	0	0	0	Main project
TSU24	0	0	0	Main project
Total	11	70	81	

Table 76 Tantangara Dam: Effective Survey Coverage.

SU ID	SU area (sq. m.)	Area inspected (%)	Area inspected (sq. m.)	GE (%)	GE (sq. m.)	AV (%)	NEC (sq. m.)	ESC (%)	Exposures
TSU1	340445	60	204267	5	10213	60	6128	1.80	Very Low: bare earth, animal/ diggings/burrows/ tracks and wheel tracks.
TSU2	134252	60	80551	5	4028	60	2417	1.80	Very Low: bare earth, animal/ diggings/burrows/ tracks and wheel tracks.
TSU3	165122	50	82561	5	4128	50	2064	1.25	Very Low: bare earth, animal/ diggings/burrows/ tracks and wheel tracks.
TSU4	104696	60	62818	5	3141	60	1885	1.80	Very Low: bare earth, animal/ diggings/burrows/ tracks and wheel tracks.
TSU5	100488	60	60293	5	3015	60	1809	1.80	Very Low: bare earth, animal/ diggings/burrows/ tracks and wheel tracks.
TSU6	219918	60	131951	5	6598	60	3959	1.80	Very Low: bare earth, animal/ diggings/burrows/ tracks and wheel tracks.
TSU7	720375	60	432225	2	8644	40	3458	0.48	Very Low: bare earth, animal/ diggings/burrows/ tracks.
TSU8	159953	80	127962	5	6398	60	3839	2.40	Very Low: bare earth, animal/ diggings/burrows/ tracks and wheel tracks.
TSU9	118339	70	82837	2	1657	50	828	0.70	Very Low: bare earth, animal/ diggings/burrows/ tracks and wheel tracks.

SU ID	SU area (sq. m.)	Area inspected (%)	Area inspected (sq. m.)	GE (%)	GE (sq. m.)	AV (%)	NEC (sq. m.)	ESC (%)	Exposures
TSU10	188480	80	150784	5	7539	60	4524	2.40	Very Low: bare earth, animal/ diggings/burrows/ tracks and wheel tracks.
TSU11	891044	50	445522	2	8910	40	3564	0.40	Very Low: bare earth, animal/ diggings/burrows/ tracks.
TSU12	251804	60	151083	5	7554	60	4532	1.80	Very Low: bare earth, animal/ diggings/burrows/ tracks and wheel tracks.
TSU13	633788	50	316894	2	6338	40	2535	0.40	Very Low: bare earth, animal/ diggings/burrows/ tracks.
TSU14	538650	90	484785	5	24239	60	14544	2.70	Very Low: bare earth, animal/ diggings/burrows/ tracks and wheel tracks.
TSU15	357042	90	321337	5	16067	50	8033	2.25	Very low: bare earth, erosional scalds; animal diggings and burrows.
TSU16	31092	1	311	1	3	1	0	0.00	Negligible
TSU17	119235	5	5962	80	4769	5	238	0.20	Moderate: bare earth, erosional scalds; animal diggings and burrows.
TSU18	99561	90	89605	10	8960	80	7168	7.20	Low: bare earth, sheet erosion, animal tracks and burrows.
Total	5174284		902000		54039		29984	0.58	

Table 77 Tantangara Dam: A description of Survey Units.

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
TSU1	648792. 6038085	649672. 6037953	A low relief, gently undulating crest of an east facing spur. The aspect is	The crest is highly disturbed from historic	Negligible	*Quarry Rd 1* AHIMS

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			easterly. The landform overlooks a major watercourse, the former Murrumbidgee River, now Tantangara Dam. Geology is volcanic presenting as outcropping, cobbles and gravels. The area has occasional low outcrops of volcanic rock and is thickly vegetated with native grasses and *Hakea* shrubs. Increased outcropping exposures on the higher points across the SU. Soils area a slightly gravelly brown silty loam. Soil depths are variable from shallow to c. 25 cm maximum. Short drainage lines which flow from springs run easterly along the length of crest on the northern and southern boundaries.	impacts including grazing and recreation (fishing and camping). The landform is eroded. Vehicle tracks are numerous.		#57-4-0127 *TSU1/L2* AHIMS #57-4-0310 *TSU1/L3* AHIMS #57-4-0311 *TSU1/L4* AHIMS #57-4-0287 *TSU1/L5* AHIMS #57-4-0290 *TSU1/L6* AHIMS #57-4-0289 *TSU1/L7* AHIMS #57-4-0288
TSU2	648830. 6037843	649368. 6037839	A gently undulating crest of a north east facing spur. The aspect is north easterly. The SU overlooks the former Murrumbidgee River. The area is covered with dense patches of *Hakea*; small heath shrubs and native grasses. Geology is volcanic presenting as outcropping, cobbles and gravels. Occasional low outcropping of highly eroded volcanic bedrock. Soils area a dark brown	The crest is highly disturbed from historic impacts including grazing and recreation (fishing and camping). The SU is eroded and has been subjected to extensive vehicle traffic with a mosaic of tracks, rabbit and wild horse activity	Low	*Quarry Road 3* AHIMS #57-4-0126 *Quarry Road 4* AHIMS #57-4-0224 *Quarry Road 5* AHIMS #57-4-0125 *TSU2/L2* AHIMS

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			sandy loam. Soil depths are variable from shallow to c. 30 cm maximum. Short drainage lines which flow from springs run easterly along the length of crest on the northern and southern boundaries.			#57-4-0265 *TSU2/L3* AHIMS #57-4-0266 *TSU2/L5* AHIMS #57-4-0267 *TSU2/L6* AHIMS #57-4-0263 *TSU2/L8* AHIMS #57-4-0264 *TSU2/L9* AHIMS #57-4-0255
TSU3	648940. 6037581	649410. 6037526	A gently undulating crest of a southeast facing spur. A relatively broad landform. The SU overlooks the former Murrumbidgee River. Vegetation is grassland with Hakea. Geology is volcanic presenting as outcropping, cobbles and gravels. Numerous areas of volcanic bedrock exposed in the form of low outcropping. Soils are a gravelly silty loam, shallow with abundant decomposing saprolite. Short drainage lines which flow from springs run easterly along the length of crest on	The crest is disturbed from historic impacts including grazing and recreation (fishing and camping). The SU is eroded and has been subjected to extensive vehicle traffic with a mosaic of tracks, rabbit and wild horse activity	Low	*Quarry road -1* AHIMS #57-4-0143 *Quarry Road 2* AHIMS #57-4-0128 *TSU3/L1* AHIMS #57-4-0293 *TSU3/L2* AHIMS #57-4-0292 *TSU3/L3* AHIMS

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			the northern and southern boundaries.			#57-4-253 *TSU3/L4* AHIMS #57-4-0254 *TSU3/L5* AHIMS #57-4-0270 *TSU3/L6* AHIMS #57-4-0269 *TSU3/L7* AHIMS #57-4-0268 *TSU3/L8* AHIMS #57-4-0271 *TSU3/L11* AHIMS #57-4-0273 *TSU3/L12* AHIMS #57-4-0272 *TSU3/L13* AHIMS #57-4-0274 TSU3/L14 AHIMS #57-4-0275 *TSU3/L15* AHIMS

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
						#57-4-0262
TSU4	648923. 6037318	649329. 6037204	A very gently sloping east facing low relief crest landform. The area is vegetated with Hakea shrubs; occasional trees and an understorey of native grasses and scattered heath. Geology is volcanic presenting as outcropping, cobbles and gravels. Soil is a fine sandy loam up to a maximum depth of c. 40 cm. Short drainage lines which flow from springs run easterly along the length of crest on the northern and southern boundaries.	The crest is disturbed from historic impacts including grazing and recreation (fishing and camping). The SU is eroded and has been subjected to extensive vehicle traffic with a mosaic of tracks, rabbit and wild horse activity	Low/moderate	*Quarry Road 2* AHIMS #57-4-0123 *Quarry Road 6* AHIMS #57-4-0124 *TSU4/L1* AHIMS #57-4-0252 *TSU4/L2* AHIMS #57-4-0260 *TSU4/L3* AHIMS #57-4-0257 *TSU4/L4* AHIMS #57-4-0258 *TSU4/L6* AHIMS #57-4-0261
TSU5	648737. 6037069	649249. 6037031	A very gently sloping broad terminal spur crest directly above a valley floor and creek. The aspect is easterly. A deeply incised east-west drainage line traverses the southern boundary. Vegetation is low Hakea shrub and low heath groundcover. Occasional	The crest is disturbed from historic impacts including grazing and recreation (fishing and camping). The SU is eroded and has been subjected to extensive	Very low	*Quarry Road 7* AHIMS #57-4-122 *Quarry Road 8* AHIMS #57-4-121 *TSU5/L3*

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			mature snow gums located along the edge of crest. Geology is volcanic presenting as outcropping, cobbles and gravels. Numerous low outcropping of highly eroded volcanic rock on crest proper and only skeletal soils remain. Soil is a shallow fine sandy loam up to a maximum depth of c. 20 cm.	vehicle traffic with a mosaic of tracks, rabbit and wild horse activity.		AHIMS #57-4-0259 *TSU5/L4* AHIMS #57-4-0294 *TSU5/L5* AHIMS #57-4-0251
TSU6	649114. 6036480	648932. 9036993	A crest landform overlooking major watercourse and valley. Vegetation is open snow gum woodland with low Hakea shrub and low heath groundcover. Geology is volcanic presenting as outcropping, cobbles and gravels. Soils are a fine sandy loam of variable depths.	Main disturbance is a SMA rock quarry located along at the southern end of SU. Also, vehicle tracks, recent track maintenance and rehabilitation sites.	Negligible	*Tantangara Dam West* AHIMS #57-4-80 *TSU6/L1* AHIMS #57-4-0308
TSU7	648758. 6035990	648522. 6039583	A series of simple slopes of gentle to very gentle gradient, the mid slopes of a major ridge. The aspect is easterly. Numerous springs and drainage lines traverse this SU. Vegetation is open woodland with low heath and grass groundcover. Geology is volcanic presenting as outcropping, cobbles and gravels. Soils are a fine sandy loam of variable depths.	The SU has been subjected to rutted vehicle tracks, rabbit and wild horse infestation, consequently, influencing significant degradation in some areas.	Negligible/very low	*TSU7/L1* AHIMS #57-4-0291 *TSU7/L2* AHIMS #57-4-0286 *TSU7/L3* AHIMS #57-4-0282 *TSU7/L4* AHIMS #57-4-0283

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
						TSU7/L5 AHIMS #57-4-0285 *TSU7/L6* AHIMS #57-4-0284 *TSU7/L7* AHIMS #57-4-0307
TSU8	648841. 6035933	649509. 6036969	Gently undulating lower simple slopes/low relief crests. Vegetation is low Hakea shrub and low heath groundcover. Occasional scatter of mature snow gums. Geology is volcanic presenting as cobbles and gravels. Soils are a light brown silty loam of maximum depth of c. 45 cm.	The SU is highly disturbed by previous SMA works associated with construction of the Tantangara Dam. Numerous rutted vehicle tracks, rabbit and wild horses. The landform, particularly to the north, is highly eroded.	Negligible	*TSU8/L1* AHIMS #57-4-0256
TSU9	649238. 6035858	649193. 6036352	A spur crest landform of gentle gradient, part of series of northwest running spurs. Vegetation is open woodland with an understorey of grasses and shrubs. SU is traversed by numerous drainage lines. Geology is volcanic presenting as outcropping, shatter, cobbles and gravels. Soils are a fine sandy loam.	Main disturbance is the clearance and maintenance of the transmission line. Other disturbances include horses and earlier pastoral activities.	Very low to low	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
TSU10	649238. 6035858	650078. 6037446	A spur crest landform, part of series of low elevated northwest running spurs, and adjacent to a gently flowing drainage line. Vegetation is open grassland with scatter of low shrubs. Geology is volcanic presenting as outcropping, shatter, cobbles and gravels. Soils are a fine sandy loam.	Main disturbance is a formed dirt vehicle track. Other disturbances include clearance, rabbit and horse activities. High erosional context.	Very low to low	Nil recorded
TSU11	648744. 6035975	648194. 6039610	A ridge crest landform with an open aspect. The ridge trends north/south and is located directly west of the Tantangara Dam valley. Vegetation is woodland. The geology is Kellys Plain Volcanics and occurs as low outcrops, cobbles and gravels. Increased outcropping exposures on the higher elevations at the northern end of the SU. Traces of quartz and black chert is present, some of which is possibly artefactual. Black chert is naturally occurring. Soils are light brown gravelly silt.	Main disturbance is historic mining and grazing and more recently, feral animal activities.	Low	*TSU11/L1* AHIMS #57-4-0309 *TSU11/L2* AHIMS #57-4-0306 *TSU11/L3* AHIMS #57-4-0312 *TSU11/L4* AHIMS #57-4-0295 *TSU11/L5* AHIMS #57-4-0296 AHIMS *TSU11/L6* #57-4-0299 TSU11/L7 AHIMS #57-4-0298 *TSU11/L8*

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
						AHIMS #57-4-0297 *TSU11/L9* AHIMS #57-4-0300 *TSU11/L10* AHIMS #57-4-0303 *SH218* AHIMS #57-4-237 *TSU11/L11* This is duplicate of AHIMS #57-4-0301 *SH227* AHIMS #57-4-235 *TSU11/L12* This is duplicate of AHIMS #57-4-0281 *SH219* AHIMS # 57-4-236 This is duplicate of *TSU11/L13*

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
						AHIMS #57-4-0302 *TSU11/L14* AHIMS #57-4-304 *TSU11/L15* AHIMS #57-4-0305 *TSU11/L16* AHIMS #57-4-0276 *TSU11/L17* AHIMS #57-4-0277
TSU12	648257. 6038589	648003. 6039679	A series of simple slopes of gentle gradient, the upper slopes of a major ridge. The aspect is westerly. A spring and drainage line are located at the south-western end of SU. Vegetation is open woodland with low heath and grass groundcover. Geology is volcanic presenting as outcropping, cobbles and gravels. Increased outcropping exposures on the higher elevations at the northern end of the SU. Soils are a fine sandy loam of variable depths.	The SU has minor disturbance levels mainly from rabbit and wild horse infestation, consequently, influencing degradation in some areas. Other disturbances include earlier pastoral activities.	Very low	*TSU12/L1* AHIMS #57-4-0278 *TSU12/L2* AHIMS #57-4-0279 *TSU12/L3* AHIMS #57-4-0280
TSU13	648749. 6035984	648340. 6039551	A series of simple slopes of moderate to steep gradient, the upper slopes of a major ridge. The aspect is easterly.	The SU has minor disturbance levels mainly from rabbit and	Negligible to very low	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			Numerous springs and drainage lines traverse this SU. Vegetation is open woodland with low heath and grass groundcover. Geology is volcanic presenting as outcropping, cobbles and gravels. Soils are a fine sandy loam of variable depths.	wild horse infestation, consequently, influencing degradation in some areas. Other disturbances include earlier pastoral activities.		
TSU14	648224. 6039609	648626. 6040836	A gently undulating low local elevation crest divided by low order drainage lines. The crest gradient becomes steep in sections at the south eastern end of the SU. Vegetation is open grassland with scattered Eucalypts. The geology is Kellys Plain Volcanics and occurs as outcrops and gravels. Increased outcropping exposures on the higher elevations at the northern end of the SU. Traces of quartz and black chert is present, some of which is possibly artefactual. Black chert is naturally occurring. Soils are light brown gravelly silt.	Minor previous impacts: rabbit and horse, historic homestead site, recreational camping and earlier pastoral activity.	Negligible on higher elevations and western part of crest. AD potential increasing to low/moderate on low relief benches/shoulder east of main ridge crest.	*TSU14/L1* AHIMS #57-4-416 *TSU14/L2* AHIMS #57-4-415
TSU15	648564. 6039552	648890. 6040596	A series of upper valley spur crests interspersed with minor drainage lines. The gradient is gentle to very gentle and the aspect is easterly. Vegetation on the lower slopes is grass/heathland changing to an open Black Sallee and snow gum woodland	Minor previous impacts: rabbit, horse and wombat activities, recreational camping and earlier pastoral activity.	Low/moderate	*TSU15/L1* AHIMS #57-4-414 *TSU15/L2* AHIMS #57-4-413 *TSU15/L3*

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			with grass understorey on the upper slopes. The geology is Kellys Plain Volcanics and presenting as cobbles and gravels. Traces of naturally occurring black chert is present, some of which is possibly artefactual. A low and discrete outcropping of ?jasper boulders at 648899.6040441. Soil is a light brown slightly gravelly sandy silty loam c. 30 cm (max.) deep.			AHIMS #57-4-412 *TSU15/L4* AHIMS #57-4-411 *TSU15/L5* AHIMS #57-4-410
TSU16	648712. 6039368	648754. 6039153	A series of simple lower slopes interspersed with minor drainage lines. The gradient is gentle to very gentle and the aspect is easterly. The SU is within the area inundated by dam water rise and fall. It is likely to have hosted grassland previously. The geology is Kellys Plain Volcanics and occurs as cobbles and gravels. Soil is a red brown slightly gravelly very fine silty loam. Given high dam levels only the western edge of the SU was surveyed.	Moderate previous impacts: rabbit, horse and wombat activities, recreational camping and earlier pastoral activity. Dam water impacts continuous.	Very low.	Nil recorded
TSU17	648685. 6039408	649072. 6040607	A series of simple lower slopes interspersed with minor drainage lines. The gradient is very gentle and becomes moderate at the very northern end of the SU. The aspect is easterly. The SU is within the area	Moderate previous impacts: rabbit, horse and wombat activities, recreational camping and earlier pastoral	Very low.	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			inundated by dam water rise and fall. It is likely to have hosted grassland previously. The geology is Kellys Plain Volcanics and occurs as cobbles and gravels. Soil is a red brown slightly gravelly very fine silty loam. Given high dam levels only the western and northern edges of the SU were surveyed.	activity. Dam water impacts continuous.		
TSU18	648901. 6041117 SE 648775. 6041073 SW	648843. 6041543 NE 648654. 6041370 NW 648962. 6040664 S	A series of very gently undulating simple lower slopes interspersed with minor drainage lines. The aspect is north easterly. Parts of the SU is within the area inundated by dam water rise and fall. Vegetation is grassland with very occasional Hakea. The geology is Kellys Plain Volcanics and occurs as very low discrete outcrops, cobbles and gravels. Soil varies and on the lower slopes is a red brown slightly gravelly very fine silty loam. Soil on the higher slopes are an eroded gravelly loam. A small low reef of good quality quartz measuring 2.5 m long x 0.30 m wide is exposed on a higher slope, no apparent modifications were observed. North western end of SU has a higher potential for an elevated artefact density as the area is located in a	Moderate previous impacts: rabbit, horse and wombat activities, recreational camping and earlier pastoral activity. Dam water impacts continuous.	Very low.	*TSU18/L1 AHIMS* #57-4-0436

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			lower valley context near major water courses.			

Table 78 Tantangara Dam: A description of Aboriginal Object Locales.

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
TSU1	*Quarry Rd 1* AHIMS #57-4-0127 (Plate 35)	648913	6038064	Previously recorded by Boot. *Isolated Find 1* Note on AHIMS, this site is named QR1. This site contained one artefact on a crest. This locale is on a formed road covered with road base. It is on a mid-slope/ crest landform with a very gentle gradient and easterly aspect. No artefacts were found during the survey. Ground exposure at the locale was very low. Artefact density is predicted to be low in adjacent areas off road to the north and south.	Nil found	Negligible/very low
TSU1	*TSU1/L2* AHIMS #57-4-0310	649137	6038155	One stone artefact exposed in a patch of bare earth on the crest of a knoll. The site area is c. 1 m x 1 m. Ground exposures away from site was low due to hakea scrub and grasses with mainly discrete areas of erosion providing bare earth for inspection. Shallow skeletal soils.	Quartz flake fragment Hertzian feather 15x8x4 mm.	Negligible to very low
TSU1	*TSU1/L3* AHIMS #57-4-0311	649254	6037962	An area of ASL located on a low elevated flat bench of a spur crest of very gentle gradient. The aspect is easterly. Soil is brown silty loam. ASL c. 100 x 100 m associated to drainage lines. Ground	Archaeologically sensitive landform	Low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				exposures were very low due to thick grasses with mainly discrete areas of erosion providing bare earth for inspection.		
TSU1	*TSU1/L4* AHIMS #57-4-0287	649580	6038206	One stone artefact exposed in an area of eroded bare earth on the lower slope of a moderate gradient simple slope landform. Highly erosional context. Ground exposures were moderate with mainly areas of erosion providing bare earth for inspection.	Chert black flake focal Hertzian feather 21x33x6 mm.	Negligible
TSU1	*TSU1/L5* AHIMS #57-4-0290	649558	6038329	Two stone artefacts exposed in an area of eroded bare earth on a steep simple slope. Highly erosional context. Ground exposures were moderate with mainly areas of erosion providing bare earth for inspection.	Milky quartz compression flake broad feather 52x32x18 mm. quartz pebble [hammer stone] pitting on margins consistent with use [hammering] 30x22x15 mm.	Negligible
TSU1	*TSU1/L6* AHIMS #57-4-0289	649460	6038417	One stone artefact exposed in an area of eroded bare earth on the lower slope of a very gentle simple slope landform. Highly erosional context. The area is very rocky with frequent area of exposed bedrock. Ground exposures were moderate with mainly areas of erosion providing bare earth for inspection.	Black chert proximal focal 15x15x5 mm.	Negligible

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
TSU1	*TSU1/L7* AHIMS #57-4-0288	649021	6038390	One stone artefact exposed in an area of eroded bare earth on an extremely steep simple slope. Highly erosional context and most likely artefact location is not in the original setting. Ground exposures were moderate with mainly areas of erosion providing bare earth for inspection.	Red chert/jasper elongated flake focal bending feather small amount of white mottling at proximal end and along one margin 32x12x4 mm.	Negligible
TSU2	*Quarry Road 3* AHIMS #57-4-0126	648760	6037680	Previously recorded by Boot. This locale is on an excavated and formed road covered with road base. It is on a mid-simple slope/crest landform with a gentle gradient and easterly aspect. No artefacts were found during the survey. Ground exposure at the locale was very low/negligible. Artefact density is predicted to be low in adjacent areas off road to the east.	No artefacts found during survey	Low
TSU2	*TSU2/L2* AHIMS #57-4-0265	649027	6037843	An area of ASL located on a flat bench of a terminal spur crest of very gentle gradient. The aspect is easterly. Soil is brown silty loam. ASL c. 100 x 100 m within proximity to water. Ground exposures were very low due to grasses and hakea with mainly discrete areas of erosion providing bare earth for inspection.	Archaeologically sensitive landform	Low
TSU2	*TSU2/L3* AHIMS #57-4-0266	649032	6037832	Two stone artefacts located on a rocky bare patch on a gently sloping bench of a spur crest landform. Vegetation is grasses and hakea shrubs. The visible site extent is a	Chert mottled black and grey proximal 7x12x2 mm. Quartz; white pebble cortex	Very low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				patch of bare earth of 5 x 6 m. Ground exposures away from site was low due to hakea scrub and grasses with mainly discrete areas of erosion providing bare earth for inspection. Shallow soils.	LCS left Hertzian; feather 21x8x3 mm.	
TSU2	*Quarry Road 4* AHIMS #57-4-0224	649000	6037750	Previously recorded by Boot. This site is an open artefact scatter.	No artefacts found	Low
TSU2	*TSU2/L5* AHIMS #57-4-0267	649056	6037811	Six stone artefacts exposed along a vehicle track on a gently sloping crest landform. Vehicle track is deeply incised. The site area is c. 15 m x 3 m and has potential to extend to the west. Ground exposures away from site was low due to hakea scrub and grasses with mainly discrete areas of erosion providing bare earth for inspection. Shallow soils.	Milky quartz core 1 platform 2 scars 32x30x42 mm. Quartz grey bipolar flake 14x24x5 mm. Tuff proximal 9x8x1 mm. Quartz milky flaked piece 18x11x10 mm. Quartz flake fragment 13x13x3 mm. Quartz flake fragment 13x8x3 mm.	Low
TSU2	*TSU2/L6* AHIMS #57-4-0263	649097	6037888	One stone artefact exposed in a vehicle track on a gently sloping side of a crest landform. The artefact was exposed in a patch of bare earth. The site area is c. 1 m x 1 m. Ground exposures away from site was low due to hakea scrub and grasses with mainly discrete areas of erosion	Quartz milky Hertzian feather 20x15x10 mm.	Negligible to very low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				providing bare earth for inspection. Shallow skeletal soils.		
TSU2	*TSU2/L8* AHIMS #57-4-0264	649170	6037930	An area of ASL located on a low elevated flat bench of a spur crest of very gentle gradient. The aspect is easterly. Soil is brown silty loam. ASL c. 75 x 75 m within proximity to water. Ground exposures were very low due to grasses and hakea with mainly discrete areas of erosion providing bare earth for inspection.	Archaeologically sensitive landform	Low to moderate
TSU2	*TSU2/L9* AHIMS #57-4-0255	649272	6037855	An area of ASL located on a low elevated terminal spur crest of very gentle gradient. The aspect is easterly. Soil is brown silty loam. ASL c. 50 x 50 m and associated with a spring. Ground exposures were very low due to grasses and hakea with mainly discrete areas of erosion providing bare earth for inspection.	Archaeologically sensitive landform	Very low
TSU2	*Quarry Road 5* AHIMS #57-4-0125	648920	6037600	Previously recorded by Boot. This site is an open artefact scatter	No artefacts found	Low
TSU3	*Quarry road -1* AHIMS #57-4-0143	649083	6037444	This locale is on an excavated and formed road covered with road base. It is on a mid-simple slope/crest landform with a gentle gradient and easterly aspect. No artefacts were found during the survey. Ground exposure at the locale was very low/negligible. Two minor springs rise in the vicinity of the site. Artefact density is	No artefacts found	Low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				predicted to be low/moderate in adjacent areas off road to the west and east.		
TSU3	*Quarry Road 2* AHIMS #57-4-0128	649063	6037584	This locale is on an excavated and formed road intersection covered with road base. It is on a mid-simple slope/crest landform with a gentle gradient and easterly aspect. No artefacts were found during the survey. Ground exposure at the locale was very low/negligible. Artefact density is predicted to be low/moderate in adjacent areas off road to the west and east.	No artefacts found	Low
TSU3	*TSU3/L1* AHIMS #57-4-0293	649303	6037381	An area of ASL located on a series of low elevated spur crest of very gentle gradient. The aspect is easterly. Soil is brown silty loam. ASL c. 50 x 50 m and associated with bogs and springs. Ground exposures were very low due to grasses and hakea with mainly discrete areas of erosion providing bare earth for inspection.	Archaeologically sensitive landform	Very low
TSU3	*TSU3/L2* AHIMS #57-4-0292	649402	6037510	One stone artefact exposed in a vehicle track on a spur crest landform. The artefact was exposed in a patch of bare earth. The site area is c. 1 m x 1 m. Ground exposures away from site was low due to grasses with mainly discrete areas of erosion providing bare earth for inspection. Shallow skeletal soils.	Chert distal; feather; 30x10x5 mm.	Very low to low
TSU3	*TSU3/L3* AHIMS	649320	6037656	An area of ASL located on bench on a low relief spur crest of very gentle gradient.	Archaeologically sensitive landform	Low to moderate

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
	#57-4-0253			The aspect is easterly. ASL c. 100 x 100 m. Ground exposures were very low due to grasses and hakea scrub with mainly discrete areas of erosion providing bare earth for inspection.		
TSU3	*TSU3/L4* AHIMS #57-4-0254	649269	6037540	Eight stone artefacts exposed along a vehicle track on a spur crest landform. Spur crest falls away with a moderate gradient to the east. The artefact was exposed in a patch of rocky bare earth. The area is very rocky with areas of exposed bedrock observed. The site area is c. 50 m x 2 m. Ground exposures away form site was low due to hakea scrub and grasses with mainly discrete areas of erosion providing bare earth for inspection. Shallow soils.	Quartz red rose flake Hertzian feather 35x25x5 mm. Chert black banded distal feather some cortex 10x14x2 mm. Fine grained volcanic cobble stone hammerstone concentrated pitting one end. Chert black core frag orange cortex 35x35x20 mm. Chert red/ orange proximal broad Hertzian 10x14x5 mm. Chert black flake focal feather 20x13x2 mm.	Low to moderate
TSU3	*TSU3/L5* AHIMS #57-4-0270	649245	6037581	One stone artefact exposed in a vehicle track on a crest landform. The artefact was exposed in a patch of rocky bare earth. The	Chert black good quality material core multi-directional	Low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				area is very rocky. The site area is c. 1 m x 1 m. Ground exposures away form site was low due to hakea scrub and grasses with mainly discrete areas of erosion providing bare earth for inspection. Shallow skeletal soils.	some cortex 31x25x20 mm.	
TSU3	*TSU3/L6* AHIMS #57-4-0269	649216	6037601	Two stone artefacts exposed in a vehicle track on south side of crest landform. The artefact was exposed in a patch of rocky bare earth. The area is very rocky. The site area is c. 15 m x 2 m. Ground exposures away form site was low due to hakea scrub and grasses with mainly discrete areas of erosion providing bare earth for inspection. Shallow skeletal soils.	Quartz crystalline pebble cortex on platform poor quality yellow flake 37x40x10 mm. Quartz milky white good quality proximal Hertzian some damage along edges 18x29x5 mm.	Low to moderate
TSU3	*TSU3/L7* AHIMS #57-4-0268	649210	6037693	One stone artefact located on an upper slope of a crest landform. The artefact was exposed in a patch of rocky bare earth. The area is very rocky with frequent area of exposed bedrock. The site area is c. 8 m x 8 m. Ground exposure within the site area was assessed at 5% with archaeological visibility of 50%. Ground exposures away form site was very low due to thick hakea scrub and grasses with mainly discrete areas of erosion providing bare earth for inspection. Shallow skeletal soils.	Chert flake. Focal platform heather termination 13x8x4 mm.	Low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
TSU3	*TSU3/L8* AHIMS #57-4-0271	649135	6037668	An area of ASL located on bench on a spur crest of very gentle gradient. The aspect is easterly. Soil is brown silty loam. ASL c. 100 x 100 m and associated with a spring. Ground exposures were very low due to grasses and hakea scrub with mainly discrete areas of erosion providing bare earth for inspection.	Archaeologically sensitive landform	Low
TSU3	*TSU3/L11* AHIMS #57-4-0273	649030	6037609	Four stone artefacts exposed on a bare rocky area on south side of an upper crest landform. The area is very rocky with frequent area of exposed bedrock. The site area is c. 8 m x 6 m. Ground exposure within the site area was assessed at 10% with archaeological visibility of 40%. Ground exposures away form site was very low due to grasses and hakea scrub with mainly discrete areas of erosion providing bare earth for inspection. Shallow skeletal soils.	White grey chert micro core single platform 15x25x15 mm. Tuff grey distal; feather 23x23x2 mm. Fine grained volcanic sparkly grey flake Hertzian feather 30x23x4 mm. Quartz white flake fragment	Low to moderate
TSU3	*TSU3/L12* AHIMS #57-4-0272	649016	6037618	Five stone artefacts exposed on a bare rocky area on south side of an upper crest landform. The area is very rocky with frequent area of exposed bedrock. The site area is c. 15 m x 10 m. Ground exposure within the site area was assessed at 2% with archaeological visibility of 30%. Ground exposures away form site was very low due to grasses and hakea scrub with	Chert black microlith crescent good quality retouch along right margin with scars originating from ventral face possible use wear along left margin 20x10x3	Low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				mainly discrete areas of erosion providing bare earth for inspection. Shallow skeletal soils.	mm. Chert black LCS left feather 15x7x3 mm. Quartz milky flake frag 25x12x2 mm. Chert black proximal broad 12x8x4 mm. Chert black flake frag red pebble cortex 47x18x10 mm.	
TSU3	*TSU3/L13* AHIMS #57-4-0274	648988	6037603	One stone artefact exposed on a bare rocky area on a crest landform. The site area is c. 2 m x 2 m. Ground exposure within the site area was assessed at 5% with archaeological visibility of 30%. Ground exposures away form site was very low due to grasses and hakea scrub with mainly discrete areas of animal burrows and erosion providing bare earth for inspection.	Silcrete very fine grained pale yellow and grey mottling; proximal possible use wear along right margin 25x15x2 mm.	Very low to low
TSU3	*TSU3/L14* AHIMS #57-4-0275	648974	6037615	One stone artefact exposed under fallen tree stump in a patch of bare earth located on a spur crest landform of low elevation. The site area is c.1.5 m x 1.5 m. Ground exposure within the site area was assessed at 40% with archaeological visibility of 30%. Ground exposures away form site was very low due to grasses and hakea scrub with mainly discrete areas of erosion providing bare earth for inspection.	Quartz milky white proximal broad Hertzian good quality material 16x8x3 mm.	Low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
TSU3	*TSU3/L15* AHIMS #57-4-0262	649011	6037645	An area of ASL located on an elevated level crest. Soil is brown silty loam. ASL c. 100 x 100 m and is within proximity to water. Ground exposures were very low due to grasses and hakea scrub with mainly discrete areas of erosion providing bare earth for inspection.	Archaeologically sensitive landform	Low to moderate
TSU4	*Quarry Road 2* AHIMS #57-4-0123	648900	6037110	This recording is for one isolated artefact	No artefacts found during assessment.	Low
TSU4	*Quarry Road 6* AHIMS #57-4-0124	648920	6037050	This recording is for an open camp site	No artefacts found during assessment.	Low
TSU4	*TSU4/L1* AHIMS #57-4-0252	649163	6037212	An area of ASL located on a spur crest of gentle gradient. The aspect is easterly. Soil is brown silty loam. ASL c. 200 x 200 m and associated with a spring. Ground exposures were very low due to thick hakea scrub with mainly discrete areas of erosion providing bare earth for inspection.	Archaeologically sensitive landform	Very low
TSU4	*TSU4/L2* AHIMS #57-4-0260	649136	6037229	An area of ASL located on a spur crest of gentle gradient. The aspect is easterly. Soil is a deep brown silty loam. ASL c. 100 x 100 m. Ground exposures were low with mainly discrete areas of erosion providing bare earth for inspection.	Archaeologically sensitive landform	Very low
TSU4	*TSU4/L3* AHIMS #57-4-0257	649118	6037292	One stone artefact exposed in rabbit diggings on a crest landform. The visible site extent is a patch of bare earth of 1 sq.	Chert white flake broad bending; step 10x10x4 mm.	Very low to low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				m. The site has potential to extend outward from exposure and disturbance.		
TSU4	*TSU4/L4* AHIMS #57-4-0258	649106	6037300	An area of ASL located on a level bench of a crest landform. ASL c. 50 x 50 metres. Vegetation is grassland with sparse shrubs. The area is rocky with shallow soil. Ground exposures were low with mainly discrete areas of erosion providing bare earth for inspection.	Archaeologically sensitive landform	Low to moderate
TSU4	*TSU4/L6* AHIMS #57-4-0261	648999	6037259	One stone artefact exposed in a vehicle track on a crest landform. The visible site extent is a patch of bare earth of 1 sq. m. The site has potential to extend outward from exposure. An area to the south west has been assessed to have moderate subsurface potential. Area to the west and east of site is of low potential.	Chalcedony mottled red white milky flake Hertzian feather weathered 70% white cream chalky cortex on dorsal surface 15x20x2 mm.	Low to moderate
TSU5	*Quarry Road 7* AHIMS #57-4-122	648813	6037104	This locale is on an excavated and formed road covered with road base. It is on a mid-simple slope/crest landform. A large spring/bog is associated with this site to the north of the road. No artefacts were found during the field survey. However, ground exposure was very low/negligible. Artefact density is predicted to be low/moderate in adjacent areas off road but disturbed.	No artefacts found	Low
TSU5	*Quarry Road 8* AHIMS	648773	6037044	The locale was originally found on the road which is now formed and covered with road	No artefacts found	Low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
	#57-4-121			aggregate. It is a mid-simple slope/crest landform. The current road alignment looks to be different to the original and the artefacts may have been found some 10 - 15 m to the west. No artefacts were found during the survey. Artefact density is predicted to be low in adjacent areas off road but disturbed.		
TSU5	*TSU5/L3* AHIMS #57-4-0159	648995	6037129	A large area of rocky ground on a crest and located east of large spring. The aspect is easterly. Soil is a deep brown silty loam. ASL c. 50 x 50 m. Ground exposures were low with mainly discrete areas of erosion providing bare earth for inspection.	Archaeologically sensitive landform	Low to moderate
TSU5	*TSU5/L4* AHIMS #57-4-0294	649256	6037063	An area of ASL located on a low elevated rise and associated with bogs and springs. ASL c. 50 x 50 m. Ground exposures were low with mainly discrete areas of erosion providing bare earth for inspection.	Archaeologically sensitive landform	Low to moderate
TSU5	*TSU5/L5* AHIMS #57-4-0251	649135	6037098	An area of ASL located on a broad bench of a gently undulating crest landform. ASL c. 100 x 100 m and associated with bogs and springs. Ground exposures were low with mainly discrete areas of erosion providing bare earth for inspection.	Archaeologically sensitive landform	Low to moderate
TSU6	*Tantangara Dam West* AHIMS #57-4-80	648848	6036731	The original grid ref. for this locale is incorrect: A revised grid ref. is listed in this table. No artefacts were found during the field inspection; however, the road is	No artefacts found	Low to moderate

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				deeply excavated and covered with road aggregate, which limited the opportunity to do so. The locale is in a highly disturbed section of road on a saddle in a crest which descends from the ridge west of Tantangara Reservoir. Areas off road, while now grassed, exhibit obvious former track alignments. Artefact density across the flat is predicted to be low/moderate but disturbed.		
TSU6	*TSU6/L1* AHIMS #57-4-0308	648943	6036767	Four stone artefacts located on a crest of a knoll landform. The knoll crest is c. 100 x 100 m and gently rounded. Vegetation is grassland with sparse trees. The site extent is 5 x 25 m. Many places are eroded to bedrock. Soil is gravelly silty loam. Very shallow soils and rocky.	Three quartz flakes and one tuff flake.	Low to moderate
TSU7	*TSU7/L1* AHIMS #57-4-0291	648967	6038689	Two stone artefacts located on a lower simple slope landform. Site extent is 2 sq. m - an exposure of highly eroded bare earth.	Tuff flake broad feather bending 33x45x12 mm. Milky quartz poor quality bipolar core.	Very low
TSU7	*TSU7/L2* AHIMS #57-4-0286	648703	6038987	One stone artefact exposed in an area of eroded bare earth on the lower slope of a simple slope landform. The site is located c. 50 m from a watercourse. Vegetation is woodland. Soil is medium brown silty loam. The site extent is a 1 sq. m.	Black chert flake.	Very low to low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
TSU7	*TSU7/L3* AHIMS #57-4-0282	648566	6039221	One stone artefact exposed on ungraded vehicle track on a very gently simple slope of low elevation. Vegetation is woodland. Soil is medium brown silty loam. The site extent is a 1 sq. m.	Black chert flake gloss; focal Hertzian feather blade-like 14x7x2 mm.	Very low
TSU7	*TSU7/L4* AHIMS #57-4-0283	648682	6039485	One stone artefact exposed in an area of rabbit diggings on a lower simple slope. The slope is of gentle gradient. The visible site extent is a patch of bare earth of 1 sq. m.	Chert flake. Broad platform feather termination, 10x15x3 mm.	Very low
TSU7	*TSU7/L5* AHIMS #57-4-0285	648582	6039495	One stone artefact exposed on a rocky lower simple slope. The slope is of gentle gradient. The visible site extent is a patch of bare earth of 1 sq. m. High level of European debris of glass and metal scattered across area.	Chert flake broad platform feather termination 12x10x4 mm.	Very low to low
TSU7	*TSU7/L6* AHIMS #57-4-0284	648595	6039537	One stone artefact located on a gentle simple slope/basal slope. The artefact was exposed in an area of 3 x 2 m of bare earth rabbit diggings. The site extent is a 1 sq. m.	Chert flake broad platform feather termination 16x12x8 mm.	Very low
TSU7	*TSU7/L7* AHIMS #57-4-0307 (Plate 36)	648637	6036619	Two stone artefacts located on an upper slope of a simple slope landform of moderate gradient. Vegetation is woodland. The visible site extent is a patch of bare earth of 1 sq. m.	Quartz flake. Chert proximal broad Hertzian.	Very low
TSU8	*TSU8/L1* AHIMS #57-4-0256	649367	6036727	Two stone artefacts on a vehicle track c. 10 m apart located on a simple slope. The simple slope overlooks the transition point	Black chert proximal focal good quality material 10x15x3	Very low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				to very low gradient/level basal slope and water course. The visible site extent is a patch of bare earth in wheel track of 10 x 1 m. Site is c. 50 m from the water course. Soil is rich brown silty loam.	mm. Black chert core fragment one negative scar 20x15x10 mm.	
TSU11	*TSU11/L1* AHIMS #57-4-0309	648565	6036317	One stone artefact exposed by fallen tree located on an undulating crest landform. Soil is brown silty loam. Geology is shale and very rocky in places.	Grey quartzite LCS right flake pebble cortex Hertzian feather 35x35x8 mm	Negligible to very low
TSU11	*TSU11/L2* AHIMS #57-4-0306	648475	6036509	The ASL is a saddle on a crest, encompassing an area measuring c.100 x 100 m. Soil within the ASL is a gravelly loam. Ground exposures were negligible [assessed at 1% with archaeological visibility of 50%] due to vegetation of woodland and grasses. Soil is a brown gravelly loam.	Archaeologically sensitive landform	Low to moderate
TSU11	*TSU11/L3* AHIMS #57-4-0312	648311	6036831	One stone artefact located in a bare patch of earth on a crest landform. Geology is rocky and there is an occasional rocky outcrop. Soil is brown silty loam of variable depth. The site area is 1 m x 1 m and may potentially extend outward from exposure. Ground exposure is negligible as the area is covered in dead timber from fire, thick grass and an occasional shrub.	Black chert flake fragment left margin missing Hertzian feather 17x7x4 mm.	Low
TSU11	*TSU11/L4* AHIMS #57-4-0295	648372	6037349	One stone artefact located on a main ridge crest of very gentle gradient. The visible site extent is a patch of bare earth of 1 sq.	Volcanic river cobble showing small amount of use wear.	Very low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				m. Vegetation is remnant burnt timber woodland with a thick cover of grasses. Ground exposure is negligible.		
TSU11	*TSU11/L5* AHIMS #57-4-0296	648247	6038022	One stone artefact located on a main ridge crest of very gentle gradient. The visible site extent is a patch of bare earth of 1 sq. metres. Vegetation is remnant burnt timber woodland with a thick cover of regrowth and grasses. Ground exposure is negligible.	Quartz flake fragment 19x11x78 mm.	Very low
TSU11	*TSU11/L6* AHIMS #57-4-0299	648403	6038477	Nine artefacts exposed in a fallen tree root located on a flat bench of a crest with an open aspect. The visible site extent is a patch of bare earth of 2 sq. m surrounding uprooted tree with 100% ground visibility. Geology is rocky. Ground exposure elsewhere is generally very low. Soil is an orange brown gravelly loam.	Black chert possible knapping event	Very low to low
TSU11	*TSU11/L7* AHIMS #57-4-0298	648358	6038546	Two stone artefacts located in an uprooted dead tree at break of slope of bench on a ridge crest. The aspect is open. Vegetation is a woodland of dead burnt fallen and standing timber with an understory of thick grasses. The visible site extent is a patch of bare earth of 1 sq. m surrounding uprooted tree with 100% ground visibility. Geology is rocky. Ground exposure elsewhere is generally very low. Soil is an orange brown gravelly loam.	Chert greenish distal micro blade feather 12x5x2 mm Black banded chert flake Hertzian feather heat fractures across dorsal face 15x20x5 mm.	Very low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
TSU11	*TSU11/L8* AHIMS #57-4-0297	648459	6038529	Three stone artefacts in an uprooted fallen tree located at break of slope of bench on a ridge crest. The aspect is open. Occasional low discrete boulder outcropping. Soil is a very gravelly brown silty loam. The visible site extent is a patch of bare earth of 1 sq. m surrounding uprooted tree with 100% ground visibility. Geology is rocky. Ground exposure elsewhere is generally very low. Vegetation is a thick cover of grasses.	Chert black flake Hertzian left margin missing 30x21x3 mm. Chert black flake Hertzian feather 29 x 16 x 2mm. Chert light green flake Hertzian; feather edge damage along left margin 23x14x4 mm.	Very low
TSU11	*TSU11/L9* AHIMS #57-4-0300	648459	6038586	One artefact located in a wombat burrow on a bench of a ridge crest. the site area is 1 x 1 m and in an area of high wombat activity. Ground exposure is negligible as the area is covered in thick grass. Soil is an orange brown gravelly loam.	Chert black flake Hertzian feather 15x15x3 mm.	Very low
TSU11	*TSU11/L10* AHIMS #57-4-0303	648380	6038611	One stone artefact located on a bench of a ridge crest. The aspect is open. Artefact was exposed at base of fallen dead tree and c. 1 m west of a horse pad. Site area is 1 x 0.3 m. Ground exposure is negligible as the area is covered in thick grass. Soil is an orange brown gravelly loam.	Chert black flake broad platform Hertzian feather 16x17x5 mm.	Very low
TSU11	*TSU11/L11* AHIMS #57-4-0301	648357	6038690	An artefact scatter located in a saddle to the north of a bench of a crest. Scatter continues onto the next low crest at far northern end of ridge line. Thirteen stone	Chert grey proximal focal 14x16x4 mm. Black chert flake fragment. Black	Low to moderate

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				artefacts across an area of c. 30 x 30 m with some subsurface potential for site to extend further than exposures. Soil is brown silty gravelly loam; very rocky. Natural blocky flat cleavage black chert observed; most appear to have crenated surfaces; no diagnostics features. Vegetation is open woodland with thick understory of grasses. Ground visibility was negligible away from site exposure.	chert flaked piece 30x23x24 mm. Black chert flake fragment 13x9x2 mm. Black chert flake fragment 2x10x4 mm. Black chert flake fragment 26x10x15 mm. Black chert LCS Hertzian feather 9 x 6 x 3mm. Black chert LCS Hertzian step 21x10x4 mm. Black chert flake fragment 11x10x4 mm. Black chert proximal focal 16x18x5 mm. Black chert flake fragment 12x6x3 mm. Black chert flake fragment 20x16x6 mm. Chert light grey proximal broad 12x16x2 mm.	
TSU11	*TSU11/L12* AHIMS #57-4-0281	648257	6038746	Two stone artefacts exposed in bare earth at base of a fallen tree located on a crest landform, part of a main ridge line. Black chert was observed in the background stone profile. Site area is 5 x 1 m. Vegetation is open woodland with thick	Two black chert flakes	Very low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				understory of grasses. Ground visibility was negligible away from site exposure.		
TSU11	*TSU11/L13* AHIMS #57-4-0302	648285	6038865	Two artefacts located in a 50 m wide saddle and a knoll on a ridge crest. The gradient becomes moderate to the crest of knoll. Site area is c. 50 x 50 m. Vegetation is open woodland. The area is very rocky. Black chert and quartz are visible in the background stone profile, some which may be artefactual. There is little to no potential for sub surface deposit in and around site area as the soils are shallow and highly eroded.	Quartz white LCS left Hertzian feather 10x7x4 mm. Chert white mottled flake.	Low
TSU11	*TSU11/L14* AHIMS #57-4-0304	648174	6038926	One stone artefact exposed on a bare patch of earth, an area of c. 1m x 0.5 m, on a ridge crest landform. The aspect is south westerly. The exposure is part of a broader zone of previously burnt and shallow rabbit diggings.	Grey chert/fine grained silcrete [waxy-probably heat effected] flake/ scraper Hertzian broad feather 28x24x6 mm.	Very low
TSU11	*TSU11/L15* AHIMS #57-4-0305	648199	6039112	One stone artefact located on the uppermost side of a knoll landform. The aspect is westerly. The site is c. 15 m west of low bedrock outcrops on hill top/knoll. Artefact was exposed on surface dug by rabbits next to a fallen tree. The landform is eroding.	Pink grey silcrete flake focal Hertzian feather elongated flake with 2 blade scars on dorsal surface 31x13x6 mm.	Low
TSU11	*TSU11/L16* AHIMS	648186	6039456	Rock shelter with stone artefact and potential archaeological deposit. South	Black chert flake broad Hertzian	Low to moderate

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
	#57-4-0276 (Plate 37)			west side of rock outcropping provides some shelter with sediment floor. Rock shelter is c. 1.5 m high but sloping. Main chamber opens to 60 degrees and measures c.3 m long x 3 m wide x 1 m high. Mostly rocky floor but some sediment. Second chamber south west contains a small amount of floor sediment with charcoal fragments. Pieces of naturally occurring black chert was observed in the background stone profile.	24x20x9 mm. Black chert flake chunky form broad Hertzian 33x39x20 mm. Black chert flaked piece 24x19x9 mm.	
TSU11	*TSU11/L17* AHIMS #57-4-0277 (Plate 38)	648158	6039501	An artefact scatter occurring c. 60 m northwest and downslope of a rock shelter [see SU11/L16]. The exposure is a bare eroded earth located on located on a crest landform gently sloping to the north. The area is very rocky. Black chert and quartz are visible in the background stone profile, some which may be artefactual. Site area is 10 m x 20 m. There is little to no potential for sub surface deposit in and around site area as the soils are shallow, sloping and highly eroded. A sample of artefacts was recorded.	Grey very fine-grained quartzite core 2 platforms 8 negative scars 38x60x20 mm.	Low to moderate
TSU12	*TSU12/L1* AHIMS #57-4-0278	647880	6039022	One stone artefact located on a lower slope of very gentle gradient. The artefact was exposed in area of rabbit diggings. Occasional black chert visible in background stone profile. Site area is 1 x 1	Black chert core 1 platform 4 negative scars generally blocky 24x31x19 mm	Very low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				m. Vegetation is open woodland with thick understory of grasses. Ground visibility was negligible away from site exposure.		
TSU12	*TSU12/L2* AHIMS #57-4-0279	647873	6039644	A very gentle gradient low spur crest area of c. 150 x 150 m located near to spring. Ground exposures were very low with mainly discrete areas of animal burrows providing bare earth for inspection.	Archaeologically sensitive landform	Very low to low
TSU12	*TSU12/L3* AHIMS #57-4-0280	647895	6039032	An elevated rise within a flat landform area of c. 100 x 100 m located near to spring. Ground exposures were very low with mainly discrete areas of animal burrows providing bare earth for inspection.	Archaeologically sensitive landform	Very low to low
TSU14	*TSU14/L1* AHIMS #57-4-0416	648788	6040612	Four stone artefacts located on a level bench of a crest with a northerly aspect. Continuous patch of exposures from scald erosion and rabbit burrows. Site area is 20 x 10 m with potential for a broader area of ASL measuring 60 m EW x 40 m NS. Ground exposure within the site area was assessed at 80% with archaeological visibility of 30%. Ground exposure away from site was no more than 10% with archaeological visibility of 10%. Disturbances include high level of rabbit disturbance at site; elsewhere - bare earth scalds; horse pads; vehicle wheel track and historic pastoral activities.	Black chert flake heavily weathered patina 5% cortex broad Hertzian feather 24x29x4 mm. Black chert proximal focal 5% cortex 16x12x2 mm. Quartzite proximal crushed platform highly weathered patina 46x42x4 mm. Milky quartz left break LCS broad	Very low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
					feather 16x14x3 mm.	
TSU14	*TSU14/L2* AHIMS #57-4-0415	648473	6040501	Two stone artefacts located on a very gently sloping crest with a west north-westerly aspect. Continuous patch of exposures from scald erosion and rabbit burrows. Site area is 10 m x 3 m. There is little to no potential for sub surface deposit in and around site area as the soils are shallow, sloping and highly eroded. Abundance of naturally occurring black chert, some possibly artefactual, however the majority are not. Ground exposure within the site area was assessed at 30% with archaeological visibility of 10%. Ground exposure away from site was no more than 40% with archaeological visibility of 20%. Granite; spherical ball; no visible signs of modification; 42 mm diameter. Disturbances include high level of rabbit disturbance at site; elsewhere - bare earth scalds; horse pads; vehicle wheel track and historic pastoral activities.	Grey chert flake broad Hertzian feather 24x24x6 mm. Silcrete mottled core frag 3 negative flake scars 30x15x8 mm.	Negligible
TSU15	*TSU15/L1* AHIMS #57-4-0414	648567 648602	6039918 6039916	At least 12 artefacts located on a very gentle simple slope with an easterly aspect. Site extends east of break of slope of ride crest to c. 4 m east of vehicle track. Continuous patch of exposures from scald	Sample recorded: Cream silcrete flake broad Hertzian step 17x28x5 mm.	Very low to low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				erosion and rabbit burrows. Site area is 20 x 4 m with potential for a broader area of ASL measuring 50 m EW x 80 m NS [avoiding from rabbit diggings]. Soil is a light brown gravelly sandy silty loam c. 30 cm (max.) deep. Ground exposure within the site area was assessed at 20% with archaeological visibility of 20%. Ground exposure away from site was no more than 2% with archaeological visibility of 5%. Disturbances include rabbits, earth scalds; horse pads; vehicle wheel track and historic pastoral activities.	Cream silcrete flaked piece 18x9x9 mm. Mottled cream silcrete flaked piece 20x8x7 mm. Grey silcrete flake focal Hertzian feather 10x9x1 mm. Grey silcrete flake focal Hertzian feather 10x10x2 mm.	
TSU15	*TSU15/L2* AHIMS #57-4-0413	648759 648735	6039968 6039934	Eight artefacts scattered over an area 30 x 20 m located on a gentle simple slope with an easterly aspect. Site area has potential to extend upslope c. 20 m in a westerly direction on to a near-level bench [c. 20 x 20 m]. Highly possible artefacts originated on this bench or above as there is a great deal of downslope soil movement [sheet/slope wash]. Soil is a light brown granitic gravelly loam with depth varying from shallow to c. 40 cm (max.). High levels of naturally occurring black chert is present, some of which is possibly artefactual. Much of the black chert is highly fractured. Ground exposure within the site area was assessed at 80% with archaeological visibility of 80%. Ground	Grey silcrete flake focal step Hertzian 24x14x3 mm. Grey red mottled silcrete flake missing left margin 45x26x4 mm. Grey silcrete flaked piece 26x24x6 mm. Grey silcrete core frag unifacially flaked single platform 28x22x11 mm. Grey silcrete core frag blade scars 36x20x12 mm. Black chert flake broad	Low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				exposure away from site was no more than 5% with archaeological visibility of 10%. Disturbances include modern recreational camping, earth scalds, sheet erosion and historic pastoral activities.	Hertzian step 19x28x6 mm. Black chert flake focal Hertzian; feather 15x24x2 mm. Black chert flake 30% cortex highly fractured ventral surface 32x24x6 mm.	
TSU15	*TSU15/L3* AHIMS #57-4-0412	648796	6040070	Three artefacts scattered over an area 15 x 10 m located on a very gentle simple slope with an easterly aspect. Site area has potential to extend upslope in a westerly direction on to a near-level bench [c. 50 m NS x 20 m EW]. Highly possible artefacts originated on this bench or above as there is a great deal of downslope soil movement [sheet/slope wash]. Soil is a light brown granitic gravelly loam with depth varying from shallow to c. 30 cm (max.). High levels of naturally occurring black chert is present, some of which is possibly artefactual. Ground exposure within the site area was assessed at 90% with archaeological visibility of 90%. Ground exposure away from site was no more than 50% with archaeological visibility of 10%. Three broken river cobbles observed near site; no apparent modifications noted.	Grey tuff flake broad Hertzian feather 39x31x7 mm. Grey tuff flake broad Hertzian feather edge damage along distal 29x33x4 mm. Grey silcrete flake possible use wear along right margin scars from dorsal face 52x30x7 mm.	Very low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				Disturbances include earth scalds, horse and rabbit impacts, sheet erosion and historic pastoral activities.		
TSU15	*TSU15/L4* AHIMS #57-4-0411	648948	6040538	One stone artefact located on a micro-landform, a very gently sloping low relief rise, flanked either side by running spring fed drainage lines. The aspect is easterly. Site area is 10 x 10 m and has potential to extend further [c. 30 m NS x 50 m EW]. Ground exposure within the site area was assessed at 70% with archaeological visibility of 70%. Ground exposure away from site was no more than 5% with archaeological visibility of 10%. Disturbances include erosion, horses and historic pastoral activities.	Grey tuff geometric microlith - crescent retouched along three margins scars originating from ventral face possible use wear and/or edge damage along thin margin.	Very low
TSU15	*TSU15/L5* AHIMS #57-4-0410	648582	6040152	Five stone artefacts scattered over an area 5 x 10 m with subsurface potential extending c. 30 x 30 m. Site area located on a very gentle simple slope with an easterly aspect. Soil is a light brown granitic gravelly loam with depth varying from shallow to c. 30 cm (max.). High levels of naturally occurring black chert is present, some of which is possibly artefactual. Ground exposure within the site area was assessed at 40% with archaeological visibility of 50%. Ground exposure away from site was no more than 10% with	Black chert flake broad Hertzian step 29x22x10 mm. Black chert flake focal hinge 20% cortex; 34x41x5 mm. Black chert proximal focal 5% cortex 23x22x4 mm. Black chert flake crushed platform feather 18x13x2 mm. Black chert flaked piece	Very low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				archaeological visibility of 10%. River cobble observed near site, no apparent modifications. Disturbances include rabbits, earth scalds; vehicle wheel track and historic pastoral activities.	snapped steep edge retouch 20x15x4 mm.	
TSU18	*TSU18/L1* AHIMS #57-4-0436	648723	6041338	An area of ASL on a level crest directly adjacent to a spring, creek and valley. The aspect is open. ASL area measures 100 m (NW/SE) x 50 m (NE/SW). Soils are a very shallow gravelly loam up to a maximum depth 20 cm. Occasional exposures of volcanic boulder outcrops up to 1 m high. Vegetation is snowgrass and would be exposed during different times of the year.	Archaeologically sensitive landform	Negligible to very low



Plate 35 Tantangara Dam: AHIMS 57-4-127; looking 30° along Survey Unit 1.



Plate 36 Tantangara Dam: TSU7/L7 looking south.



Plate 37 Tantangara Dam: TSU11/L16 rock shelter looking 200°.



Plate 38 Tantangara Dam: TSU11/L17 situated immediately to the north of the rock shelter; looking 80°.

6.2.2.22 Tantangara Road

The field survey at Tantangara Road was conducted in October 2017 over several days. The Tantangara Road survey area has been subject to a reasonably comprehensive field survey. This survey extends from the Snowy Mountains Highway, north to the southern end of Tantangara Dam.

The total survey area at Tantangara Road has measured 186.8 hectares, of which some 149.5 hectares has been physically inspected. An additional surveyed Survey Unit (SMHSU1) on the Snowy Mountains Highway is added to this group. This encompasses a recent addition to the project footprint. It is assessed to be of generally very low or low archaeological potential. This survey units are listed in Table 75 below and its location is shown on the relevant mapping. However, it is not included in the results tables below.

In all Tantangara Road Survey Units, vegetation frequently posed a constraint; visibility of ground surfaces was often absent. The area is a mix of grassland and woodland. Ground exposures were generally negligible. The area of the road itself and adjacent areas was found to be grossly disturbed.

The Tantangara Road Survey Unit is described in Tables 79 and 80. It is noted that two previously recorded Aboriginal sites are known to be present in the Tantangara Road survey area: Tantangara 1 AHIMS #57-4-0161 and Gang Gang Creek AHIMS #57-4-0038. Aboriginal objects could not be found in either site during our survey.

AHIMS #57-4-0161 is described as a habitation site (Note. No AHIMS site card is available). The area in which it plots was carefully inspected and there was nothing found which could in any way be considered a habitation. It is assumed that the grid reference or datum is incorrect for the site. AHIMS #57-4-0038 is an artefact scatter located east of the existing road in the adjacent transmission line easement. Considering the site description, the AHIMS grid reference is wrong and should be: 646263.6024833. No artefacts were found in the locations despite very high ESC. Accordingly, the site is assessed to be a very low density artefact scatter.

Twelve Aboriginal object sites was recorded during the field assessment, seven of which are landform elements defined as Archaeologically Sensitive Landforms. The Tantangara Road survey area is assessed to be generally of very low archaeologically sensitivity.

Table 79 Tantangara Road: Summary of Aboriginal object site distribution.

SU	Previous sites	2	Total sites	Impacts
TRdSU1	2	12	14	Main Project
SMHSU1	0	0	0	Main Project
Total	2	12	14	

Table 80 Tantangara Road: Effective Survey Coverage.

SU ID	SU area (sq. m.)	Area inspected (%)	Area inspected (sq. m.)	GE (%)	GE (sq. m.)	AV (%)	NEC (sq. m.)	ESC (%)	Exposures
TRd1	1868305	80	1494644	40	597858	70	418500	22.40	Low: graded vehicle track, bare earth, sheet erosion, animal tracks and burrows.

Table 81 Tantangara Road: A description of Survey Units.

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
TRdSU1	649259. 6035807	645628. 6022836	An undulating crest/simple slope landform. The gradient varies throughout the SU from very gentle to moderate. Vegetation is woodland with occasional grassland in frost hollow drainage depressions. Geology is sedimentary shale presenting as shatter, cobbles and gravels. Soil is a brown silty loam.	Some disturbance from clearance, construction of formed dirt vehicle track and road culverts. Other disturbances include SMA and earlier pastoral activities.	Generally, very low	*Tantangara 1* AHIMS #57-4-0161 *Gang Gang Creek* AHIMS #57-4-0038 *TRdSU1/L1* AHIMS #57-4-0327 *TRdSU1/L2* AHIMS #57-4-0328 *TRdSU1/L3* AHIMS #57-4-0329 TRdSU1/L4 AHIMS #57-4-0332 *TRdSU1/L5*

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
						AHIMS #57-4-0330 *TRdSU1/L6* AHIMS #57-4-0331 Tantangara Road SU1/L7 AHIMS #57-4-332 Tantangara Road SU1/L8 AHIMS #57-4-334 Tantangara Road SU1/L9 AHIMS #57-4-333 Tantangara Road SU1/L10 AHIMS #57-4-336 Tantangara Road SU1/L11 AHIMS #57-4-337 Road SU1/L12 AHIMS

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
						#57-4-338

Table 82 Tantangara Road: A description of Aboriginal Object Locales.

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
TRdSU1	*TRdSU1/L1* AHIMS #57-4-0327	647289	6030694	A gently sloping spur crest overlooking Nungar Creek. The area of ASL is 75 x 75 m. Occasional low rock outcrops. Ground exposures were negligible due to dense vegetation and thick cover of leaf litter. An amorphous landform element therefore artefact density predicted to be low.	Archaeologically sensitive landform	Low
TRdSU1	*TRdSU1/L2* AHIMS #57-4-0328 (Plate 39)	647480	6031488	A flat crest landform overlooking Nungar Creek. The area of ASL is 100 x 100 m and within 200 m of a major water course. Area is relatively undisturbed. Ground exposures were negligible due to thick grass, leaf litter etc. The area appears to be relatively undisturbed.	Archaeologically sensitive landform	Low to moderate
TRdSU1	*TRdSU1/L3* AHIMS #57-4-0329	647379	6033057	A sloping spur crest landform of gentle gradient to 310°. The area of ASL is associated with a spring. Area is moderately disturbed from a wombat borrow. Ground exposures were negligible due to think vegetation and grass.	Archaeologically sensitive landform	Low to moderate
TRdSU1	*TRdSU1/L4* AHIMS #57-4-0332	647518	6033262	A gentle gradient crest within 100 m of a watercourse. Ground exposures were negligible. Area is moderately disturbed.	Archaeologically sensitive landform	Low to moderate

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
TRdSU1	*TRdSU1/L5* AHIMS #57-4-0330 (Plate 40)	647718	6033530	One artefact located in a bare earth exposure of the road cutting on south side of a low broad undulating flat crest. Exposure area is 15 x 4 m. Ground exposure within the site area was assessed at 80% with archaeological visibility of 80%. Wombat disturbance within exposure. Landform element is large and amorphous. Accordingly, predicted artefact density of area is low.	Chert grey flaked piece 26x22x9 mm.	Low
TRdSU1	*TRdSU1/L6* AHIMS #57-4-0331	647916	6033618	One artefact eroding in east bank of Tantangara Road on a crest landform. Exposure area is 1 x 1 m and associated with a small spring on west side of road. Naturally occurring black chert was observed in the background stone profile. Disturbances are mainly from original clearance, road construction and maintenance as well as earlier pastoral and SMA activities.	Milky quartz flake 40x30x8 mm.	Low
TRdSU1	*TRdSU1/L7* AHIMS #57-4-0334	646715	6025486	A broad saddle on an undulating crest landform. Ground exposures were low due to dense vegetation. A discrete, albeit large landform element, therefore artefact density predicted to be low/moderate. Road disturbance extends either side of road for c. 10 m.	Archaeologically sensitive landform	Low moderate

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
TRdSU1	*TRdSU1/L8* AHIMS #57-4-0334	646715	6025486	A flat landform west of Gang Gang Creek. Ground exposures were negligible due to dense vegetation. An amorphous landform element therefore artefact density predicted to be low. Road disturbance extends eastward 10 m from road.	Archaeologically sensitive landform	Low
TRdSU1	*TRdSU1/L9* AHIMS #57-4-0333	646659	6025283	A flat landform west of Gang Gang Creek. Ground exposures were negligible due to dense vegetation. An amorphous landform element therefore artefact density predicted to be low. Road disturbance extends eastward 10 m from road.	Archaeologically sensitive landform	Low
TRdSU1	*TRdSU1/L10* AHIMS #57-4-0336	646659	6025283	Two artefacts 15m west of Tantangara Road on a very gentle south east sloping simple slope landform. The artefacts were 2 m apart in an exposure of bare earth measuring 15 x 15 m. Ground exposure of that area was estimated to be 2% with c. 30% of that assessed to be archaeological visibility. Disturbances are mainly from original clearance, road construction and maintenance as well as earlier pastoral and SMA activities.	Milky quartz proximal flake frag. 19x18x9 mm. Grey silcrete medial flake frag. 11x12x3 mm.	Low
TRdSU1	*TRdSU1/L11* AHIMS #57-4-0337 (Plate 41)	645922	6023538	One artefact west of Tantangara Road on a moderate gradient simple slope landform. The artefact a small exposure of bare earth. Ground exposure of that area was estimated	Mottled grey brown chert proximal flake frag. 22x17x10 mm.	Very low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				to be 40% with c. 10% of that assessed to be archaeological visibility.		
TRdSU1	*TRdSU1/L12* AHIMS #57-4-0338 (Plate 42)	646507	6025227	One artefact west of Tantangara Road on a highly disturbed SMA site.	Mottled grey chert flake 21x25x5 mm.	Very low



Plate 39 Tantangara Road: TRdSU1/L2 looking south.



Plate 40 Tantangara Road: TRdSU1/L5 looking south.



Plate 41 Tantangara Road: TRdSU1/L11 looking 310°.



Plate 42 Tantangara Road: TRdSU1/L12 looking 250°.

6.2.2.23 Denison

The field survey at Denison was conducted in November 2018. The Denison survey area has been subject to a reasonably comprehensive field survey. This survey extends from the Alpine Creek Sawmill Site east, along the Snowy Mountains Highway, and hence to Providence Portal.

The total survey area at Denison has measured 42.3 hectares, of which some 21.2 hectares has been physically inspected. In all Denison Survey Units, vegetation frequently posed a constraint; visibility of ground surfaces was often absent except for the fire trail exposures. The area is open grassland. Ground exposures were generally negligible. Certain areas were found to be relatively undisturbed.

A summary of the field survey results for Denison is presented in Table 83. The Denison Survey Units are described in Tables 84 and 85. It is noted that no previously recorded Aboriginal sites are known to be present in the Denison survey area. Three Aboriginal object locales was recorded during the field assessment (Table 86). The Denison survey area is assessed to be generally of very low archaeologically sensitivity.

The Denison survey area is now outside the project area except for a small area of Survey Unit 6 at the Tantangara Road intersection with the Snowy Mountains Highway; no Aboriginal objects are in small area of development footprint in the survey area.

Table 83 Denison: Summary of Aboriginal object distribution.

SU	Previous sites	New sites	Total sites	Impacts
DSU1	0	0	0	No
DSU2	0	2	2	No
DSU3	0	0	0	No
DSU4	0	1	1	No
DSU5	0	0	0	No
DSU6	0	0	0	Yes
Total	0	3	3	

Table 84 Denison: Effective Survey Coverage.

SU ID	SU area (sq. m.)	Area inspected (%)	Area inspected (sq. m.)	GE (%)	GE (sq. m.)	AV (%)	NEC (sq. m.)	ESC (%)	Exposures
DSU1	59822	50	29911.1	1	299	60	179	0.30	Negligible: thick vegetation cover: bare earth.
DSU2	35773	50	17886.3	5	894	60	537	1.50	Very low: thick grass cover: bare earth, vehicle wheel tracks.
DSU3	7075	50	3537.52	5	177	60	106	1.50	Very low: thick grass cover: wheel tracks.
DSU4	105556	50	52778	5	2639	30	792	0.75	Very low: thick grass cover: bare earth, wheel tracks, grader scrapes.
DSU5	100492	50	50245.9	1	502	20	100	0.10	Very low: thick grass cover: bare earth and wheel tracks.
DSU6	114706	50	57352.9	1	574	20	115	0.10	Very low: thick regrowth forest cover: bare earth and animal tracks.
Total	423424		211712		5085		1829	0.43	

Table 85 Denison: A description of Survey Units.

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
DSU1	643845. 6022062	643332. 6021982	A simple slope landform of gentle to moderate gradients with a south westerly aspect. Vegetation is Eucalypt [often thick], tussock, grasses and shrubs. No outcropping. High level of quartz was observed, none is likely to be artefactual.	Vegetation clearance, vehicle track with drains.	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
DSU2	648007. 6021071	647576. 6021441	A simple slope landform of moderate gradient with an east south easterly aspect. Vegetation is grasses and tussock. Geology is shale. Very low level of quartz observed, none of which is artefactual. This landform is eroding.	Transmission line, vegetation clearance, erosion and vehicle track with drains.	Negligible	*DSU2/L1* AHIMS #57-4-0352 *DSU2/L2* AHIMS #57-4-0351
DSU3	648011. 6021072	648098. 6021008	A simple slope landform of moderate gradient with west north westerly aspect. Vegetation is grasses and tussock. Geology is shale. Low level of quartz observed in background stone profile, some of which is possibly artefactual. This landform is eroding.	Moderate level of previous impacts: Transmission line, vegetation clearance, erosion and vehicle track with drains.	Negligible	Nil recorded
DSU4	647530. 6021512	646273. 6022570	A simple slope landform of moderate to steep gradient with a south westerly aspect. Vegetation is grasses, shrubs and tussock. Geology is shale presenting as cobbles and shatter. Occasional exposures of bedrock throughout SU. High level of poor-quality quartz was observed in background stone profile, none of which is likely to be artefactual. Soils are shallow. This landform is eroding.	Moderate level of previous impacts: Transmission line, vegetation clearance, vehicle track and mechanical grading.	Negligible	*DSU4/L1* AHIMS #57-4-0350
DSU5	643867. 6022086	644750. 6022356	A simple slope landform of very gentle gradient with a south easterly aspect. Vegetation is forest. Geology is schist presenting as cobbles and gravels. No bedrock outcropping was observed. Very	A moderate level of previous land impacts. The main disturbance is a drainage ditch adjacent to Highway. Other	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			low levels of quartz are present, some of which is possibly artefactual. Soils are loam.	disturbance includes areas of possible road work activities [?road dumps] and some erosion.		
DSU6	644750. 6022356	645751. 6022769	A gentle to moderate gradient simple slope with a north north-westerly aspect. Vegetation is regrowth woodland. Geology is sedimentary presenting as cobbles and gravels. Very low levels of quartz are present, some of which is possibly artefactual. Soils are a gravelly loam.	Low to moderate levels of previous land impacts. The main disturbance is the north side of the road and slightly less disturbance level on the south side of the road. Other disturbance includes erosion and animal tracks/diggings.	Negligible	Nil recorded

Table 86 Denison: A description of Aboriginal Object Locales.

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
DSU2	*DSU2/L1* AHIMS 57-4-0352 (Plate 43)	647942	6021145	One artefact located on a simple slope of gentle gradient with a westerly aspect. The site area is 10 m x 10 m and has some potential to extend outwards from exposure. Ground exposure within the site area was assessed at 60% with archaeological visibility of 80%. Ground exposure away from site was no more than 20% with archaeological visibility of 20%. Disturbances include vehicle track and erosion.	Black chert distal sig an *érraillure* scar feather 25x15x5 mm.	Very low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
DSU2	*DSU2/L2* AHIMS #57-4-0351	647986	6021119	Two artefacts located on a simple slope landform of gentle gradient with a southerly aspect. The site area is 10 m x 10 m and has potential to extend outwards from exposure. Ground exposure within the site area was assessed at 40% with archaeological visibility of 70%. Ground exposure away from site was no more than 20% with archaeological visibility of 20%. Disturbances include vehicle track and erosion.	Grey fine grained volcanic proximal broad Hertzian 30x20x7 mm. Grey mottled quartzite flake fragment 30x21x7 mm.	Very low
DSU4	*DSU4/L1* AHIMS #57-4-0350 (Plate 44)	646325	6022522	One artefact located on a level bench with an open aspect. The site area is 10 m x 10 m and has potential to extend outwards along bench feature from exposure. Ground exposure within the site area was assessed at 30% with archaeological visibility of 40%. Ground exposure away from site was no more than 5% with archaeological visibility of 15%. Disturbances include, transmission line, vegetation clearance and vehicle track.	Grey chert proximal Hertzian broad 19x17x5 mm.	Negligible



Plate 43 Denison: DSU2/L1 looking 200°.



Plate 44 Denison: DSU4/L1 looking 300°.

6.2.2.24 Rocky Plains Transmission Line

The field survey at Rocky Plains Transmission Line was conducted in November 2018. The Rocky Plains Transmission Line survey area has been subject to a reasonably comprehensive field survey. This survey extends from the Alpine Creek Sawmill site, northwest along the transmission line to its intersection with the Snowy Mountains Highway west of the Rocky Plains Horse Camp.

The total survey area at Rocky Plains Transmission Line has measured 91.2 hectares, of which some 44.8 hectares has been physically inspected. In all Rocky Plains Transmission Line Survey Units, vegetation frequently posed a constraint; visibility of ground surfaces was often absent except for the fire trail exposures. The area is primarily woodland/forest, although the transmission line easement is cleared. Ground exposures were generally negligible. Certain areas were found to be relatively undisturbed.

A summary of the field survey results for the Rocky Plains Transmission Line area is presented in Table 87. The Rocky Plains Transmission Line Survey Units are described in Tables 88 and 89. It is noted that two previously recorded Aboriginal sites are known to be present in the Rocky Plains Transmission Line survey area. Neither could be located during the survey and it is believed that either the grid references or datum are incorrect. Six Aboriginal object sites was recorded during the field assessment (Table 90). The Rocky Plains Transmission Line survey area is assessed to be generally of very low archaeologically sensitivity.

The Rocky Plains Transmission Line survey area is now outside the development footprint.

Table 87 Rocky Plains Transmission Line: Summary of Aboriginal object distribution.

SU	Previous sites	New sites	Total sites	Impacts
RPTxSU1	0	0	0	No
RPTxSU2	1	1	2	No
RPTxSU3	1	4	5	No
RPTxSU4	0	0	0	No
RPTxSU5	0	0	0	No
RPTxSU6	0	0	0	No
RPTxSU7	0	1	1	No
RPTxSU8	0	0	0	No
Total	2	6	8	

Table 88 Rocky Plains Transmission Line: Effective Survey Coverage.

SU ID	SU area (sq. m.)	Area inspected (%)	Area inspected (sq. m.)	GE (%)	GE (sq. m.)	AV (%)	NEC (sq. m.)	ESC (%)	Exposures
RPTxSU1	99876	50	49938	2	999	50	499	0.50	Very low: vehicle wheel tracks and bare earth.
RPTxSU2	256657	50	128328	2	2567	50	1283	0.50	Very low: vehicle wheel tracks and animal tracks.
RPTxSU3	133671	50	66835	5	3342	70	2339	1.75	Very low: bare earth, vehicle wheel tracks, grader scrapes and animal tracks.
RPTxSU4	50551	50	25275	5	1264	80	1011	2.00	Very low to low: bare earth, vehicle track and animal tracks.
RPTxSU5	52254	50	26127	0	0	0	0	0.00	Nil
RPTxSU6	27056	20	5411	0	0	0	0	0.00	Nil
RPTxSU7	129094	50	64547	1	645	30	194	0.15	Negligible: vehicle track covered with road base: animal tracks.
RPTxSU8	163296	50	81648	1	816	20	163	0.10	Negligible to very low: animal tracks and bare earth.
Total	912454		448111		9633		5490	0.60	

Table 89 Rocky Plains Transmission Line: A description of Survey Units.

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
RPTxSU1	643320. 6021972	643266. 6022866	A gently undulating low local relief crest/simple slope (lower slopes) landform interspersed by minor drainage lines. The aspect is east south easterly. Vegetation is regrowth forest. Geology is granite. Very low levels of quartz are	A moderate level of previous land impacts. The main disturbance is earlier logging activities. Other disturbance includes erosion, animal and vehicle tracks.	Very low	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			present, some of which is possibly artefactual. Soils are a gravelly loam. Relatively close to Alpine Creek.			
RPTxSU2	643266. 6022866	642696. 6024406	A series of north sloping crests interspersed with minor drainage lines. The gradient is gentle to moderate (steep in places) and the aspect is northerly. Vegetation in woodland. Geology is granite. The SU is rocky, up to 20% of area is exposed bedrock outcropping. Traces of quartz is present, some of which is possibly artefactual. Soils are gravelly loam.	The main disturbance the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A transmission line maintenance track c. 2 m wide runs the length of the survey unit. Parts of the vehicle track have undergone recent grading/maintenance including gravel importation. Other disturbance includes animal tracks.	Negligible to very low	*Alpine Hill 3* AHIMS # 57-4-0163 *RPTxSU2/L1* AHIMS #57-4-0349
RPTxSU3	642696. 6024406	640436. 6024724	A gently undulating upper crest interspersed by minor drainage lines. The aspect is open. Vegetation is woodland outside of cleared transmission line easement. Geology is granite. Low levels of quartz are present, some of which is possibly artefactual. Soil is a gravelly loam.	The main disturbance is the clearing and construction of the existing transmission line, a corridor c. 40 m wide. A transmission line maintenance track c. 2 m wide runs the length of the survey unit. Parts of the	Low	*Alpine Hill 2* AHIMS # 57-4-0165 *RPTxSU3/L1* AHIMS #57-4-0348 *RPTxSU3/L2* AHIMS #57-4-0347

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
				vehicle track have undergone recent grading/maintenance including gravel importation. Other disturbance includes animal tracks.		*RPTxSU3/L3* AHIMS #57-4-0346 *RPTxSU3/L4* AHIMS #57-4-0345
RPTxSU4	640436. 6024724	640029. 6025057	A simple slope landform of moderate to steep gradient and a north-west to westerly aspect. Vegetation is woodland on the higher elevations giving way to grassland on the lower elevations. Geology is granite presenting as outcrops. SU is slightly rocky. Soil is a gravelly loam. Landform is steep and eroding.	The main disturbance is the clearing and construction of the existing transmission line and a maintenance access track. Other disturbances include earlier pastoral activity.	Negligible	Nil recorded
RPTxSU5	640029. 6025057	639632. 6025375	A level valley floor with an open aspect. Vegetation is grassland and sparse shrubs. The valley is now infilled and fen-like. Landform is aggrading.	The main disturbance is the construction of the existing transmission line and a maintenance access track. Other disturbances include earlier pastoral activity.	Negligible	Nil recorded
RPTxSU6	639632. 6025375	639431. 6025549	Landform is a steep to very steep simple slope with a westerly aspect. Vegetation is woodland. Geology is granite presenting as outcrops. Soil is loam. Landform is eroding.	The main disturbance is the clearing and construction of the existing transmission line and a maintenance access	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
				track. Imported materials were observed along sections of vehicle track. Other disturbances include earlier pastoral activity.		
RPTxSU7	639431. 6025549	638442. 6026380	A series of simple slopes of moderate gradient with a northerly aspect. SU dissected with south flowing drainage line. Vegetation is woodland.	The main disturbance is the construction of the existing transmission line and a maintenance access track. Other disturbances include some animal activity and earlier pastoral activity.	Very low	#57-4-0095 *RPTxSU7/L1* AHIMS #57-4-0353
RPTxSU8	639397. 6026464	640021. 6025090	A very gently undulating plain landform with an open aspect. Vegetation is heathland with Hakea. Geology is volcanic presenting as outcrops, cobbles and gravels. Occasional outcrop exposures up to 1 m high. Majority of SU is low lying and subject to periodic inundation.	Main disturbance is highway construction activities evident on both sides of Highway, although higher disturbance along northern side. Other road works include drains and laydown areas. Other disturbances include earlier pastoral activities.	Negligible	Nil recorded

Table 90 Rocky Plains Transmission Line: A description of Aboriginal Object Locales.

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
RPTxSU2	*RPTxSU2/L1* AHIMS #57-4-0349 (Plate 45)	642693	6023979	One artefact located on a gently sloping crest with a northerly aspect. Site area is 2 x 2 m and there is potential for the site to extend outwards from the exposure and to contain *in situ* subsurface deposit. Ground exposure within the site area was assessed at 80% with archaeological visibility of 80%. Ground exposure away from site was no more than 5% with archaeological visibility of 80%.	Chert flake fragment 26x12 x7 mm.	Very low
RPTxSU3	*RPTxSU3/L1* AHIMS #57-4-0348	641313	6024493	Five stone artefacts observed along a graded vehicle track on a very gentle crest with an open aspect. Site area 40 x 2 m with no subsurface potential remaining. Site may extend outward from exposure with potential for a broader area of ASL. Very low level of quartz is present across site area, some of which is possibly artefactual. Ground exposure within the site area was assessed at 10% with archaeological visibility of 60%. Ground exposure away from site is negligible. Disturbances include	Chert flake 26x18x3 mm. Tuff flake fragment 17x16x2 mm. Quartz possible flake 16x15x4 mm. Tuff flake fragment 17x12x4mm. Chert flake fragment 10x9x3 mm.	Low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				graded vehicle track and historic pastoral activities.		
RPTxSU3	*RPTxSU3/L2* AHIMS #57-4-0347	641118 East end	6024529 East end	Four stone artefacts observed along a vehicle wheel track located on a very gentle simple slope with an easterly aspect. Exposure area greater than 40 m long x 2 m wide Site size is 20 m x 2 m and may extend outward from exposure with potential for a broader area of ASL. Low levels of quartz is present across site area, some of which is possibly artefactual. Ground exposure within the site area was assessed at 0.4% with archaeological visibility of 70%. Ground exposure away from site is negligible. Disturbances include vehicle track and historic pastoral activities.	Chert grey very fine-grained flake fragment 15x7x3 mm. Pink silcrete flake - scraper 23x22x10 mm. Silcrete thumbnail scraper medial section 17x12x8 mm. Black chert flake fragment 45x40x15 mm.	Low
RPTxSU3	*RPTxSU3/L3* AHIMS #57-4-0346 (Plate 46)	640984	6024546	Six stone artefacts observed along a vehicle wheel track located on a very gentle crest landform with a westerly aspect. Exposure area is greater than 40 m long x 2 m wide Site size is 10 m x 2 m and may extend outward from exposure with potential for a broader area of ASL. Low levels of quartz is present	Light grey chert flake fragment 18x10x8 mm. Chert flake red cortex 17x22x7 mm. Tuff proximal 21x16x4 mm. Quartzite flaked piece 18x18x6 mm. Tuff flake fragment 17x13x7 mm.	Low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				across site area, some of which is possibly artefactual. Ground exposure within the site area was assessed at 0.4% with archaeological visibility of 70%. There was no ground exposure away from site. Disturbances include vehicle track and historic pastoral activities.	Chert black; flake fragment; 16x11x5 mm.	
RPTxSU3	*RPTxSU3/L4* AHIMS #57-4-0345	640872	6024588	One stone artefact observed along a vehicle wheel track located on a very gentle crest landform with a westerly aspect. Exposure area greater than 40 m long x 2 m wide. Site size is 1 m x 2 m and may extend outward from exposure with potential for a broader area of ASL. Low levels of quartz is present across site area, some of which is possibly artefactual. Ground exposure within the site area was assessed at 0.4% with archaeological visibility of 60%. There was no ground exposure away from site. Disturbances include vehicle track, animal tracks and historic pastoral activities.	Tuff flake terrestrial cortex 50x55x11 mm.	Very low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
RPTxSU7	*RPTxSU7/L1* AHIMS #57-4-0353	638629	6026216	One stone artefact observed directly under transmission line on a steep simple slope with an easterly aspect. Site area is 1 m x 1 m. No ground exposure. No potential for site to contain *in situ* subsurface material nor to extend further outward. Artefact located on a steep slope and out of context. Very low levels of quartz is present across site area, some of which is possibly artefactual. Disturbances include transmission line clearance and construction, animal burrows and tracks.	Fine grained grey chert flake microscopic use wear 39x22x5 mm.	Negligible

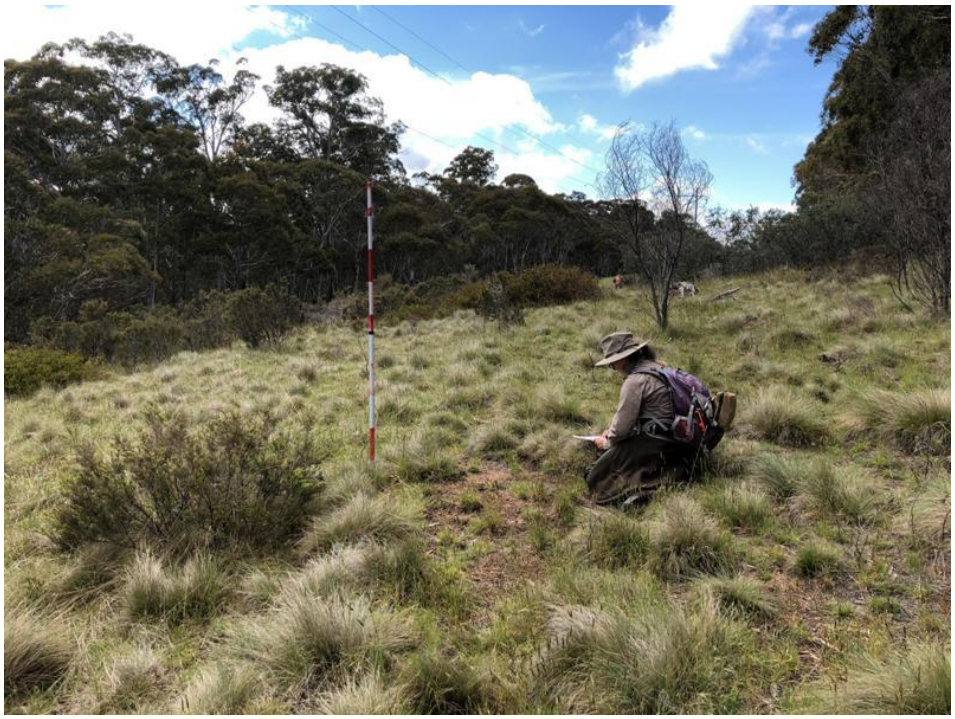


Plate 45 Rocky Plains Transmission Line SU2/L1 looking 90°.



Plate 46 Rocky Plains Transmission Line SU3/L3 looking 200°.

6.2.2.25 Rocky Plains

The field survey at Rocky Plains survey area has been subject to a reasonably comprehensive field survey. This survey extends from the Snowy Mountains Highway, north to the south-east end of Kiandra via the Rocky Plains Horse Camp. However, two additional development footprint areas have been added to the Rocky Plains survey area since the fieldwork was conducted. These have not yet been surveyed.

The total survey area at Rocky Plains has measured 66.1 hectares, of which some 36.3 hectares has been physically inspected. In all Rocky Plains Survey Units, vegetation frequently posed a constraint; visibility of ground surfaces was often absent except for the fire trail exposures. The area is open grassland. Ground exposures were generally negligible. Certain areas were found to be relatively undisturbed.

A summary of the field survey results for the Rocky Plains area is presented in Table 91. The Rocky Plains Survey Units are described in Tables 92 and 93. It is noted that no previously recorded Aboriginal sites are known to be present in the Rocky Plains survey area. One Aboriginal object site was recorded during the field assessment (Table 94). The Rocky Plains survey area is assessed to be generally of very low archaeologically sensitivity.

The Rocky Plains survey area is now outside the development footprint.

Table 91 Rocky Plains: Summary of Aboriginal object site distribution.

SU	Previous sites	New sites	Total sites	Impacts
RPSU1	0	0	0	No
RPSU2	0	0	0	No
RPSU3	0	0	0	No
RPSU4	0	0	0	No
RPSU5	0	1	1	No
Total	0	1	1	

Table 92 Rocky Plains: Effective Survey Coverage.

SU ID	SU area (sq. m.)	Area inspected (%)	Area inspected (sq. m.)	GE (%)	GE (sq. m.)	AV (%)	NEC (sq. m.)	ESC (%)	Exposures
RPSU1	212493	30	63747.9	0	0	0	0	0.00	Negligible
RPSU2	16074	50	8037	5	402	90	362	2.25	Very low: bare earth.
RPSU3	248947	90	224052	1	2241	0	0	0.00	Very low: very occasional bare earth.
RPSU4	125107	30	37532.2	1	375	30	113	0.09	Very low: bare earth and animal tracks.
RPSU5	58740	50	29370	1	294	70	206	0.35	Very low: bare earth, animal tracks and graded vehicle track.
Total	661361		362739		3311		680	0.10	

Table 93 Rocky Plains: A description of Survey Units.

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
RPSU1	639157. 6027069	637914. 6026819	A lower simple slope landform of gentle gradient with a south-easterly aspect; dissected by minor drainage lines. Becomes steep at southern end of SU. Vegetation is woodland and thick regrowth scrub. Geology is sedimentary. Soil is a rocky loam. Landform is stable (Plate 47).	Minor previous impacts: recreational camping, animal diggings and earlier pastoral activity.	Negligible	Nil recorded
RPSU2	637914. 6026819	637819. 6026898	A crest landform of gentle gradient with an open aspect. Vegetation is grassland and shrubs. Geology is sedimentary presenting as outcrops and shatter. The SU is very rocky with up to 50% bedrock outcropping exposed. Very low levels of quartz are present, none of which is artefactual. Soils are skeletal.	The main disturbance is the clearing and construction of the existing transmission line. Other disturbances include earlier pastoral activity.	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
RPSU3	637819. 6026898 637182. 6027766	637796. 6028010 637452. 6027197	A simple slope of moderate gradient following an old road in Crown Road Reserve, Snowy Mountains Highway and part of a transmission line easement. Vegetation is regrowth woodland with thick understory of grass and shrubs. Geology is sedimentary presenting as outcrops and shatter. Occasional outcrop exposures up to 1 m high. SU is slightly rocky. Soil is shallow. Landform is eroding.	Previous impacts include earlier pastoral activity, road construction activities along highway and part of transmission line corridor.	Negligible	Nil recorded
RPSU4	637803. 6027957	636688. 6027791	A gently undulating valley bottom open depression with an open aspect. Vegetation is grassland. Occasional outcropping. SU is a frost hollow (Plate 48).	Minor previous impacts: animal activity and earlier pastoral activity.	Negligible	Nil recorded
RPSU5	639206. 6027038	639397. 6026462	A gently sloping simple slope landform with a south south-easterly aspect. Vegetation is regrowth Black Sallee, thick Hakea, heath and grasses. Geology is volcanic. Soil is a variable. South west side of track soil is sandy silty loam becoming a very gravelly loam on northeast side of track. Majority of SU is low lying and subject to periodic inundation.	Moderate previous impacts: modern horse camp area with toilets and loading ramp at northern end of SU, vehicle track with imported gravels, earlier pastoral, highway construction activities at southern end of SU.	Negligible	RPSU5/L1 AHIMS #57-4-0435

Table 94 Rocky Plains: A description of Aboriginal Object Locales.

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
RPSU5	*RPSU5/L1* AHIMS #57-4-0435	639204	6027011	Seven artefacts located on a very gentle simple slope of low elevation adjacent to a spring above Rocky Plains. The aspect is south easterly. Occasional black chert pieces observed in background stone. Site area is 4 x 10 m along a vehicle track and there is potential for the site to extend outwards from the exposure. An area of ASL extends 50 m N/S x 100 m E/W. Ground exposure within the site area was assessed at 90% with archaeological visibility of 90%. There was very limited ground exposure away from site. A high level of imported gravel is located on the vehicle track directly south of visible site area. Disturbances include clearance, vehicle track maintenance, toilet and loading ramp construction, modern horse camp activities and earlier pastoral.	Silcrete grey core bipolar 4 scars 25x24x15 mm. Chert grey flake focal step fracture 15x31x10 mm. Tuff grey distal feather 35x20x5 mm. Silcrete light grey distal edge damage 30x12x9 mm. Tuff grey medial 11x14x2 mm. Chert red/white mottling flaked piece 9x15x3 mm. Chert, red/white mottling proximal fragment focal blade 22x7x4 mm.	Low

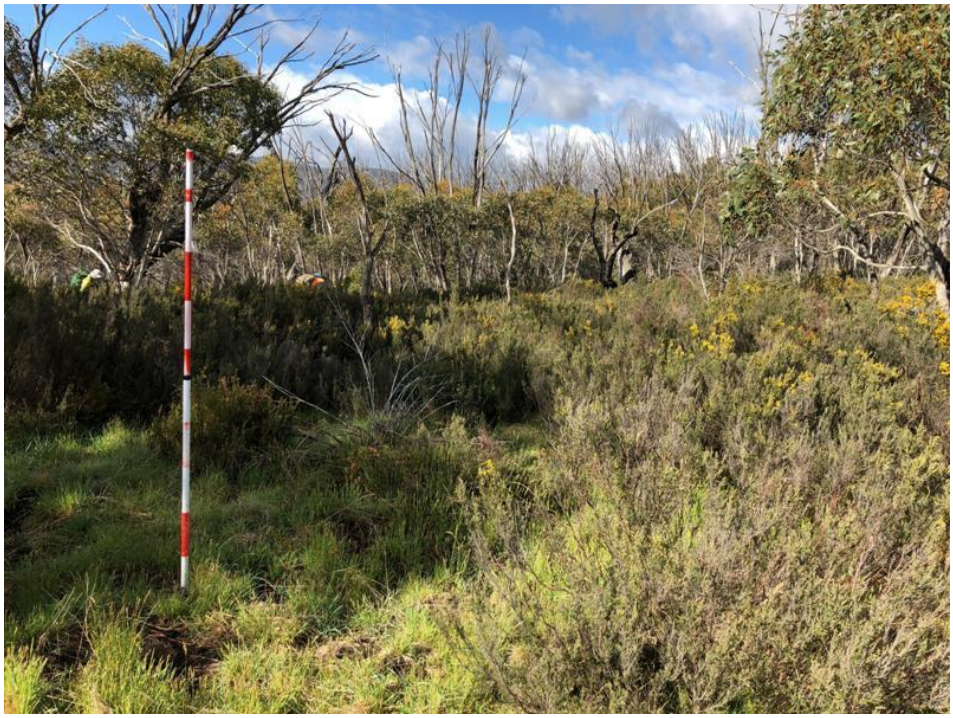


Plate 47 Rocky Plains Survey Unit 1 looking 195°.



Plate 48 Rocky Plains Survey Unit 4 looking 170° along an old crown road alignment.

6.2.2.26 Kiandra

The field survey at Kiandra survey area has been subject to a comprehensive field survey. This survey extends from Link Road and along the Snowy Mountains Highway to the south-east end of Kiandra.

The total survey area at Kiandra has measured 33.3 hectares, of which some 31.7 hectares has been physically inspected. In all Kiandra Survey Units, vegetation frequently posed a constraint; visibility of ground surfaces was generally absent. The area is open grassland. Ground exposures were generally negligible. The majority of the area was found to be highly disturbed as a result of intensive settlement and gold mining.

The Kiandra Survey Units are described in Tables 95 and 96. It is noted that no previously recorded Aboriginal sites are known to be present in the Kiandra survey area. No Aboriginal object sites was recorded during the field assessment. The Kiandra survey area is assessed to be generally of very low archaeologically sensitivity.

The Kiandra survey area is now outside the development footprint and is not subject to any further assessment in this report.

Table 95 Kiandra: Effective Survey Coverage.

SU ID	SU area (sq. m.)	Area inspected (%)	Area inspected (sq. m.)	GE (%)	GE (sq. m.)	AV (%)	NEC (sq. m.)	ESC (%)	Exposures
KSU1	37924	95	36028	30	10808	20	2162	5.7	Very low: bare earth and animal burrows.
KSU2	86295	95	81980	2	1640	10	164	0.19	Very low: bare earth and animal burrows.
KSU3	87989	95	83590	2	1672	10	167	0.19	Very low: bare earth and animal burrows.
KSU4	120984	95	114935	5	5747	20	1149	0.95	Very low: bare earth and animal burrows.
Total	333192		316532		19866		3642	3332	

Table 96 Kiandra: A description of Survey Units.

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
KSU1	634898. 6029539	634999. 6029298	A lower simple slope landform of gentle gradient with a northerly aspect. Vegetation is grassland. Geology is sedimentary. Soil is a rocky loam.	High disturbance due to intensive settlement and gold mining.	Negligible	Nil recorded
KSU2	634999. 6029298	634895. 6028480	A crest landform of gentle gradient with an open aspect. Vegetation is grassland and shrubs. Geology is sedimentary presenting as outcrops and shatter. The SU is very rocky with up to 50% bedrock exposed. Very low levels of quartz are present, none of which is artefactual. Soils are skeletal (Plate 49).	High disturbance due to intensive settlement and gold mining.	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
KSU3	634895. 6028480	635519. 6027946	An open undulating crest landform with minor drainage (Plate 50).	High disturbance due to intensive settlement and gold mining.	Negligible	Nil recorded
KSU4	635519. 6027946	636684. 6027789	Gently undulating simple slopes with a northerly aspect. Vegetation is grassland. SU is a frost hollow.	High disturbance due to intensive settlement and gold mining.	Negligible	Nil recorded



Plate 49 Kiandra Survey Unit 2; looking south. Note, Wolgal Hut in distance.



Plate 50 Kiandra Survey Unit 3; looking west.

6.2.2.27 Nungar Creek Trail

The field survey at Nungar Creek Trail survey area has been subject to a reasonably comprehensive field survey. This survey extends from the Snowy Mountains Highway at Kiandra, northeast to Wares Hut Campground on Tantangara Road.

The total survey area at Nungar Creek Trail has measured 82.8 hectares, of which some 44.3 hectares has been physically inspected. Survey Unit NCTSU37 is currently un-surveyed. This encompasses a recent addition to the project footprint. It is assessed to be of generally low archaeological potential. This survey unit is listed in Table 97 below and its location is shown on the relevant mapping. However, it is not included in the results tables below.

In all Nungar Creek Trail survey vegetation frequently posed a constraint; visibility of ground surfaces was often absent except for the fire trail exposures. The area is open grassland with some woodland. Ground exposures were generally negligible. Certain areas were found to be relatively undisturbed.

A summary of the field survey results is presented in Table 97. The Nungar Creek Trail Survey Units are described in s 98 and 99. It is noted that no previously recorded Aboriginal sites are known to be present in the survey area. Some 13 Aboriginal object sites were recorded during the field assessment (Table 100). The Nungar Creek Trail survey area is assessed to be generally of very low archaeologically sensitivity.

Table 97 Nungar Creek Trail: Summary of Aboriginal object distribution.

SU	Previous sites	New sites	Total sites	Impacts
NCTSU1	0	1	1	Main project
NCTSU2	0	1	1	Main project
NCTSU3	0	0	0	Main project
NCTSU4	0	3	3	Main project
NCTSU5	0	0	0	Main project
NCTSU6	0	0	0	Main project
NCTSU7	0	0	0	Main project
NCTSU8	0	1	1	Main project
NCTSU9	0	0	0	Main project
NCTSU10	0	4	4	Main project
NCTSU11	0	0	0	Main project
NCTSU12	0	0	0	Main project
NCTSU13	0	0	0	Main project
NCTSU14	0	0	0	Main project
NCTSU15	0	1	1	Main project
NCTSU16	0	0	0	Main project
NCTSU17	0	1	1	Main project
NCTSU18	0	0	0	Main project
NCTSU19	0	0	0	Main project

SU	Previous sites	New sites	Total sites	Impacts
NCTSU20	0	0	0	Main project
NCTSU21	0	0	0	Main project
NCTSU22	0	0	0	Main project
NCTSU23	0	0	0	Main project
NCTSU24	0	0	0	Main project
NCTSU25	0	0	0	Main project
NCTSU26	0	0	0	Main project
NCTSU27	0	1	1	Main project
NCTSU28	0	0	0	Main project
NCTSU29	0	0	0	Main project
NCTSU30	0	0	0	Main project
NCTSU31	0	0	0	Main project
NCTSU32	0	0	0	Main project
NCTSU33	0	0	0	Main project
NCTSU34	0	0	0	Main project
NCTSU35	0	0	0	Main project
NCTSU36	0	0	0	Main project
NCTSU37	0	0	0	Main project
Total	0	13	13	

Table 98 Nungar Creek Trail: Effective Survey Coverage.

SU ID	SU area (sq. m.)	Area inspected (%)	Area inspected (sq. m.)	GE (%)	GE (sq. m.)	AV (%)	NEC (sq. m.)	ESC (%)	Exposures
NCTSU1	49175	40	19670	1	197	5	10	0.02	Very low: bare earth, grader scrapes and wheel tracks.
NCTSU2	21067	50	10534	5	527	50	263	1.25	Low: bare earth, grader scrapes, wombat burrows and wheel tracks.
NCTSU3	16962	25	4241	1	42	1	0	0.00	Negligible: thick cover of swamp grasses: wheel tracks.
NCTSU4	37052	70	25937	5	1297	40	519	1.40	Very low: thick grass cover: bare earth, animal burrows and graded vehicle track with spear drains.
NCTSU5	23880	25	5970	2	119	5	6	0.03	Very low: thick regrowth forest cover: bare earth and animal tracks.
NCTSU6	16748	50	8374	5	419	5	21	0.13	Low: thick regrowth forest cover: bare earth and vehicle wheel tracks.
NCTSU7	34098	50	17049	1	170	1	2	0.01	Very low: thick grass cover: thick forest debris, grasses and leaf litter: graded vehicle track with spear drains.
NCTSU8	18280	50	9140	1	91	10	9	0.05	Very low: thick Hakea, grass and heath cover: bare earth, horse pads, rabbit warren and vehicle wheel track with some graded areas.

SU ID	SU area (sq. m.)	Area inspected (%)	Area inspected (sq. m.)	GE (%)	GE (sq. m.)	AV (%)	NEC (sq. m.)	ESC (%)	Exposures
NCTSU9	43326	50	21663	1	217	50	108	0.25	Very low: thick grassland cover: bare earth, horse tracks and vehicle wheel track.
NCTSU10	49710	60	29826	1	298		0	0.00	Very low: Regrowth forest with thick cover of leaf matter and grasses: graded vehicle track.
NCTSU11	28735	60	17241	1	172	10	17	0.06	Very low: thick grasses, leaf matter and heath cover: bare earth, horse pads and graded vehicle wheel track.
NCTSU12	14482	40	5793	5	290	50	145	1.00	Graded vehicle track.
NCTSU13	3277	50	1639	1	16		0	0.00	Very low: thick cover of grasses and tussock: mostly grassed over vehicle wheel track.
NCTSU14	12807	50	6403	5	320	10	32	0.25	Low: thick cover of grasses: bare earth, pig diggings graded vehicle track.
NCTSU15	88846	70	62192	2	1244	30	373	0.42	Very low: thick grassland and heath cover: bare earth, rabbit diggings, horse tracks and vehicle wheel track with some graded areas.
NCTSU16	23746	60	14247	10	1425	30	427	1.80	Low: thick cover of grasses: bare earth and graded vehicle track.
NCTSU17	3450	75	2587	5	129	5	6	0.19	Low: thick cover of grasses: bare earth and graded vehicle track.

SU ID	SU area (sq. m.)	Area inspected (%)	Area inspected (sq. m.)	GE (%)	GE (sq. m.)	AV (%)	NEC (sq. m.)	ESC (%)	Exposures
NCTSU18	43208	50	21604	40	8642		0	0.00	Bare earth, graded vehicle track and some sheet erosion.
NCTSU19	12526	60	7515	5	376	10	38	0.30	Very low: thick forest cover: bare earth and graded vehicle track.
NCTSU20	3984	60	2391	2	48	10	5	0.12	Very low: bare earth
NCTSU21	26053	60	15632	10	1563	20	313	1.20	Very low: thick grass cover: bare earth and graded vehicle track.
NCTSU22	12283	60	7370	25	1842	60	1105	9.00	Low to moderate: grasses and shrubs: bare earth and graded vehicle track.
NCTSU23	23371	75	17529	10	1753	20	351	1.50	Low: grasses and shrubs: bare earth, animal burrows, sheet erosion and graded vehicle track.
NCTSU24	12628	80	10102	30	3031	10	303	2.40	Moderate: bare earth, grader scrapes and graded vehicle track.
NCTSU25	32363	30	9709	1	97	1	1	0.00	Very low: forest cover with a thick shrub understorey: bare earth and animal pad.
NCTSU26	7483	40	2993	1	30	5	1	0.02	Very low: bare earth, animal tracks and burrows.
NCTSU27	4487	80	3590		0	10	0	0.00	Very low: thick grass cover: bare earth and horse pad.
NCTSU28	6626	60	3976	0	0	0	0	0.00	Nil

SU ID	SU area (sq. m.)	Area inspected (%)	Area inspected (sq. m.)	GE (%)	GE (sq. m.)	AV (%)	NEC (sq. m.)	ESC (%)	Exposures
NCTSU29	15271	60	9163		0	5	0	0.00	Very low: thick cover of grasses and shrubs: bare earth and animal burrow.
NCTSU30	3293	80	2634	0	0	0	0	0.00	Nil
NCTSU31	7623	60	4574		0	5	0	0.00	Very low: Thick cover of grasses, shrubs and sedges.
NCTSU32	67203	30	20161	5	1008	5	50	0.08	Very low: thick cover of grasses and woodland: bare earth and animal scratching.
NCTSU33	16829	50	8414		0	10	0	0.00	Very low: thick forest cover: bare earth and graded vehicle track.
NCTSU34	15201	60	9120	5	456	5	23	0.15	Very low: forest with thick grass and shrub understorey: graded vehicle track.
NCTSU35	19977	75	14983	5	749	1	7	0.04	Very low: thick cover of grasses: bare earth.
NCTSU36	11581	75	8686	5	434	50	217	1.88	Very low: thick cover of grasses: bare earth, rabbit burrows and graded vehicle track.
Total	827634		442652		27003		4354	0.53	

Table 99 Nungar Creek Trail: A description of Survey Units.

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
NCTSU1	643092. 6028184	643350. 6029297	A series of undulating crests of toe slopes directly above a broad valley and intersected by drainage lines. The landform gradient is very gentle, and the aspect is north easterly. Vegetation is a mix of immature and mature mountain Eucalypts. Geology is a volcanic as well as metasedimentary. Volcanic presenting as small low discrete boulder outcropping, cobbles and gravels. Black and grey chert is naturally occurring. Traces of quartz of variable quality is visible within the background stone profile, some of which may possibly be artefactual. Soil is dark brown silty loam.	The main disturbance within the survey unit is the existing vehicle track. Areas at the northern end are cut and benched along with the construction of spear drains. Other recent road maintenance activities include importation of road gravels and modified watercourse crossings.	Negligible	*NCTSU1/L1* AHIMS #57-4-0434
NCTSU2	643349. 6029296	643070. 6029966	A series of low elevated rises intersected by drainage lines of very gentle gradient. The aspect is variable from east to north-easterly. Vegetation is open snow gum forest with grass and heath understorey. Geology is sedimentary sandstone presenting as outcrops, cobbles and gravels. the SU is very slightly rocky with occasional rounded volcanic boulder outcrop clusters appearing on north east side of track. Traces of quartz is visible in the background stone profile, some which	The main disturbance is the existing vehicle track. Recent road maintenance activities include importation of road gravels and modified watercourse crossings. Other disturbances include wombat diggings.	Very low	*NCTSU2/L1* AHIMS #57-4-0417

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			is possibly artefactual. Soil is a loose brown sandy loam. The SU is sheltered from the SW by a higher ridge.			
NCTSU3	634068. 6029966	643038. 6030012	A wide drainage depression landform of c. 30 m. Vegetation is bog species and low heath and tussocks. Geology is volcanic with occasional exposures of low boulder outcrops. Soil is sandy silty loam. The landform is aggrading, low lying and damp.	The main disturbance is road maintenance activities including importation of road gravels and modified watercourse crossings.	Negligible	Nil recorded
NCTSU4	643039. 60300012	642702. 6030981	A series of toe slope crests of low elevation. The gradient is level to very gentle. The aspect is north easterly. A spring is located within the SU. Vegetation is open snow gum forest with grasses and heath. Geology is volcanic presenting as outcrops, cobbles and gravels. Some quartz was visible within the background stone profile, some of which is possibly artefactual. The SU is very slightly rocky. Soil is brown silty loam with depths greater than 30 cm. Micro topographical features within the SU have elevated archaeological sensitivity where they occur in proximity to water.	The main disturbance is a vehicle track with some upgrades and imported gravels placed on the low areas, horses and earlier pastoral activities.	Very low	*NCTSU4/L1* AHIMS #57-4-0433 *NCTSU4/L2* AHIMS #57-4-0432 *NCTSU4/L3* AHIMS #57-4-0431
NCTSU5	642702. 6030981	642244. 6031287	An undulating simple slope landform of gentle to moderate gradient. Vegetation	The main disturbance is the	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			is dense snow gum forest with occasional understorey of grasses and heath. Geology is a metasedimentary presenting as shatter, cobbles and small gravels. Traces of good quality quartz and naturally occurring black chert is present, some of which is possibly artefactual. Soils are gravelly brown silty loam to a depth greater than 20 cm.	existing vehicle track. Some areas along track have spear drains and cut banks.		
NCTSU6	642244. 6031287	642134. 6031703	A very gentle to almost level undulating ridge crest landform. Vegetation is regrowth snow gum forest, mostly juveniles, with grasses and heath. Geology is volcanic presenting as outcrops, shatter, cobbles and gravels. Occasionally very low outcrops. Soil is a shallow brown silty loam. The landform is eroding.	The main disturbance is the vehicle wheel tracks and a modern borrow pit. Other disturbances include earlier pastoral activities.	Negligible	Nil recorded
NCTSU7	642135. 6031701	642140. 6032492	An undulating simple slope landform ranging from very gentle on the upper slopes to moderate gradients on the mid to lower slopes. The aspect is northerly. Vegetation is mostly juvenile snow gums with an occasional mature snow gums and an understorey of grasses and heath. There are many fallen trees in the SU. Geology is volcaniclastic presenting as outcrops, cobbles and gravels. The SU is very slightly rocky with most outcropping	The main disturbance is the vehicle wheel tracks and spear drains and roll overs. Other disturbances include earlier pastoral activities.	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			occurring on the lower slopes. Soil is a very gravelly brown silty loam greater than 30 cm on the upper slopes to less than 20 cm deep on the lower slopes. Ground exposures were very low due to thick grass cover and leaf litter.			
NCTSU8	642139. 6032491	641800. 6032794	A series of sloping spur crests travelling along the lower slopes and intersected by minor drainage lines. The landform has a very gentle to gentle gradient with a north north-easterly aspect and located directly above Boggy Plain. Vegetation is mainly hakea, heath and grasses. Geology is volcanic presenting as outcrops, cobbles and gravels. Soil is slightly gravelly brown loam.	The main disturbance is the vehicle wheel tracks with occasional cut banks. Other disturbances include horses, rabbits and earlier pastoral activities.	Negligible	*NCTSU8/L1* AHIMS #57-4-0430
NCTSU9	641800. 6032794	641531. 6033767	A series of undulating short spur-line toe slope crests of low elevation with varying gradients from level to gently sloping. The spur-lines are intersected by minor drainage lines. The aspect is north easterly. Vegetation is tussock grassland with occasional Eucalypt, Hakea and heath. Occasional low and discrete outcropping. Soils brown slightly gravelly loam with depths greater than 20 cm. SU is directly above Boggy Plain, however, relatively exposed and subject to cold air drainage.	The main disturbance is the vehicle wheel tracks with occasional introduced gravels placed in low lying areas. Other disturbances include horses and earlier pastoral activities.	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
NCTSU10	641535. 6033774	641158. 6033339	Undulating simple slope coming off ridge crest of gentle to moderate gradient. Majority of SU is moderately sloping. Vegetation on the upper slope is a combination of mature and immature snow gums. Vegetation change on mid and lower slopes to open snow gum forest with grasses and occasional Hakea. Geology is volcanic presenting as outcrops, cobbles and gravels. Tuff bedrock outcropping evident in places along vehicle track. Very occasional pieces of black chert are visible in the background stone profile. Soil is a brown gravelly silty loam.	The main disturbance is the graded and formed vehicle track with spear drains and roll overs. Other disturbances include earlier pastoral activities.	Negligible	*NCTSU10/L1* AHIMS #57-4-0429 *NCTSU10/L2* AHIMS #57-4-0428 *NCTSU10/L3* AHIMS #57-4-0427 *NCTSU10/L4* AHIMS #57-4-0426
NCTSU11	641156. 6033338	640482. 6033179	A very gently undulating broad N-S trending ridge-line crest landform. The aspect is open. Vegetation is open juvenile snow gum regrowth forest with understorey of grasses and heathland. Numerous standing dead timbers at north east end of SU. Geology is volcanic presenting as outcrops, cobbles and gravels. Very occasional bedrock exposures. Soil is gravelly silty loam of varying depths from 5 - 20 cm. Moderate level of erosion on crest proper. The SU is amorphous.	The main disturbance is the vehicle wheel track with spear drains and roll overs. Other disturbances include horses and earlier pastoral activities.	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
NCTSU12	640475. 6033176	640186. 6032988	A simple slope landform of moderate gradient with a south westerly aspect. Vegetation is juvenile snow gum regrowth forest with an understorey of heath. Soil is a brown gravelly silty loam less than 20 cm deep. The landform is eroding.	The main disturbance is the vehicle wheel track with spear drains and roll overs. Other disturbances include earlier pastoral activities.	Negligible	Nil recorded
NCTSU13	640193. 6032982	640104. 6032949	A very gently sloping drainage depression with a northerly aspect. Vegetation is bog species with occasional grasses and tussock. Some cobbles and gravels are present. Soil is deep dark brown sandy loam with a depth greater than 1 m. The landform is aggrading. The SU is low lying, boggy and damp.	The main disturbance is the vehicle wheel track with modified vehicle earthen crossing over drainage line. Other disturbances include earlier pastoral activities.	Negligible	Nil recorded
NCTSU14	640104. 6032949	639852. 6032776	A simple slope landform of gentle to moderate gradient with a north easterly aspect. Vegetation is grassland with an occasional Black Sallee Eucalypt. Geology is volcanic presenting as outcrops, cobbles and gravels. Traces of good quality quartz are visible in the background stone profile, some which is possibly artefactual. The SU is very slightly rocky with some areas of exposed	The main disturbance is the vehicle wheel track with spear drains and roll overs. Other disturbances include pig, horses and earlier pastoral activities.	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			bedrock. Soil is brown slightly gravelly silty loam of maximum depth of 20 cm.			
NCTSU15	639852. 6032776	638236. 6031580	A broad undulating plateau crest of level to very gentle gradient. The aspect is open to south easterly. Vegetation is grass/heathland fringed with juvenile snow gums. Geology is volcanic presenting as outcrops, cobbles and gravels. Traces of quartz are visible in the background stone profile, some which is possibly artefactual. The SU is very slightly rocky with some areas of exposed bedrock. Soil is brown gravelly silty loam of maximum depth of 20 cm.	The main disturbance is the vehicle wheel track with spear drains and roll overs. Other disturbances include rabbits, horses and earlier pastoral activities.	Negligible	*NCTSU15/L1* AHIMS #57-4-0425
NCTSU16	638176. 6031539	637841. 6031126	A broad valley bottom crest of very gentle gradient with an open aspect. Vegetation is grassland. Geology is metamorphic. Soil is a slightly gravelly loam to a maximum depth of 20 cm. The SU is broad, amorphous, waterless and exposed.	The main disturbance is the vehicle wheel tracks. Other disturbances include horses and earlier pastoral activities.	Negligible	Nil recorded
NCTSU17	637841. 6031126	637754. 6031041	A drainage depression landform of very gentle gradient with an open aspect. Vegetation is grasses and bog species. Geology is metasedimentary. Soil is loam/bog. The SU is periodically boggy, very exposed and subject to cold air drainage.	The main disturbance is the vehicle wheel tracks. Other disturbances include horses, rabbit burrowing and earlier pastoral activities.	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
NCTSU18	637754. 6031041	637170. 6030293	A broad low gradient hillside crest with some variation is local gradient from very gentle to gentle. The aspect is east to north easterly. Vegetation is grassland with low shrubs. Geology is metasedimentary. Traces of good quality quartz was observed in the background stone profile, some which is possibly artefactual. Soil is yellow brown loam greater than 30 cm deep. The SU is generally negligible except for one area, a micro topography within the greater unit where proximity to potential water increases.	The main disturbance is the graded and formed vehicle track with spear drains. Other disturbances include sheet erosion of edges of vehicle track and earlier pastoral activities.	Negligible	*NCTSU18/L1* AHIMS #57-4-0424
NCTSU19	637170. 6030293	636905. 6030132	A simple slope landform of gentle to moderate gradient with a north westerly aspect. Vegetation is Eucalypt forest. Geology is sedimentary. Soil is loamy to an approximate maximum depth of 20 cm. The landform is amorphous.	The main disturbance is the graded and formed vehicle track. Other disturbances include earlier pastoral activities.	Negligible	Nil recorded
NCTSU20	636905. 6030132	636833. 6030109	A drainage depression landform of very gentle gradient with a north westerly aspect. Vegetation is grasses and sedges. Soil is a boggy loam. SU is exposed, periodically boggy and/or damp.	The main disturbance is the graded and formed vehicle track. Other disturbances include earlier pastoral activities.	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
NCTSU21	636827. 6030107	636221. 6030058	A simple slope at the edge of a crest of gentle to moderate gradient and a northerly aspect. Vegetation is grassland with occasional Black Sallee Eucalypt. Some shatter and gravels. Soil is a gravelly loam to a depth of 50 cm (max.). SU is a broad amorphous slope.	The main disturbance is the graded and formed vehicle track. Other disturbances include earlier pastoral activities.	Negligible	Nil recorded
NCTSU22	636221. 6030058	635913. 6030088	A crest landform of very gentle gradient with an open to northerly aspect. Vegetation is grassland with low shrubs. Geology is sedimentary presenting as shatter and gravels. Native dark grey chert was observed in the background stone profile. Soil is a very gravelly loam to an approximate maximum depth of 20 cm.	The main disturbance is the graded and formed vehicle track. Other disturbances include earlier pastoral activities.	Negligible	Nil recorded
NCTSU23	635913. 6030088	635452. 6029828	A simple slope landform of gentle to moderate gradient with a westerly aspect. Vegetation is grasses and shrubs. Geology is metasedimentary presenting as outcrops, shatter and gravels. The SU is very slightly rocky. Soil is a loam to gravelly loam greater than 20 cm deep. The SU is a broad amorphous slope.	Previous land impacts are moderate to high within the SU. The main disturbances within the survey unit is the graded and formed vehicle track and mining. Other disturbances include rabbit burrowing and	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
				earlier pastoral activities.		
NCTSU24	635452. 6029828	635191. 6029802	An alluvial flat/riverine valley floor (Eucumbene River corridor). The SU is generally level and has an open aspect. Vegetation is grasses, shrubs and riparian sedges/grasses. Geology is metasedimentary presenting as outcrops, shatter, cobbles and gravels. Traces of quartz is present, none of which is likely to be artefactual. Soil is alluvial gravels.	Previous land impacts are high within the SU. The main disturbance is gold mining. Other disturbances include graded and formed vehicle track and earlier pastoral activities.	Negligible	Nil recorded
NCTSU25	643096. 6028177	643878. 6028164	A level to very gently sloping ridge crest with an open aspect. Vegetation is eucalypt forest with a thick understory of shrubs. Geology is metamorphic and volcanic presenting as cobbles and gravels. SU is very slightly rocky to rocky, becoming progressively rockier towards the east. Soil is very gravelly up to 20 cm (max.). SU is amorphous with no water available.	The main disturbance is the fire trail at west end. Other disturbances include wombat and horse activities and earlier pastoral activities.	Negligible	Nil recorded
NCTSU26	643878. 6028164	644080. 6028159	A simple slope landform of moderate to steep gradient with an easterly aspect. Vegetation is Eucalypt forest. Geology is volcanic presenting as tors/boulder outcrops. The SU is rocky. Soil is a lithosol/shallow gravelly loam less than	The main disturbance is the vehicle track. Other disturbances include animal actions and earlier pastoral activities.	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			20 cm deep. SU is a steep amorphous slope from crest to base.			
NCTSU27	644080. 6028159	644160. 6028165	A level to very gently sloping bench located between base of slope and boggy plain/swampy zone. The aspect is easterly. Vegetation is grassland with scattered shrubs and Eucalypt. Geology is volcanic presenting as tor/boulder outcrops. The SU is very slightly rocky. Soil is a loam deposit with slope talus at east end. SU is a bench/terrace adjacent to forest and swampy zone (ecotone). Slightly elevated and well drained. Good view over plain.	The main disturbance is the vehicle track. Other disturbances include horses and earlier pastoral activities.	Very low to low	*NCTSU27/L1* AHIMS #57-4-0423
NCTSU28	644160. 6028165	644353. 6028168	A level flat, swampy and periodically boggy plain. The aspect is open. Vegetation is shrubs, grasses, and sedges. Geology is volcanic. Soil is boggy silt. The SU is a wet boggy zone.	Main disturbance is earlier pastoral activities.	Negligible	Nil recorded
NCTSU29	644353. 6028168	644715. 6028132	A knoll on a crest landform of very gentle to gentle gradient with an open aspect. Vegetation is grasses, shrubs and snow gum. Geology is volcanic presenting as tors/boulders outcropping. The SU is varying from slightly rocky to rocky. Soil is loam possibly greater than 20 cm depth. SU is elevated, well-drained surface with shelter adjacent to boggy plain. A higher archaeological sensitivity	Main disturbance is wombat and earlier pastoral activities.	Very low	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			exists at the western and eastern end of SU where the feature directly borders wetland.			
NCTSU30	644715. 6028132	644797. 6028128	A level open drainage depression with an open aspect. Vegetation is grasses, sedges, and other wetland species. Geology is a dark grey fine grained volcanic. Soil is a bog. The SU is a swamp zone.	Main disturbance is earlier pastoral activities.	Negligible	Nil recorded
NCTSU31	644797. 6028128	644992. 6028091	A very gently sloping crest landform on the side of a ridge with a westerly aspect. Vegetation is grasses, shrubs and sedges. Geology is a grey fine grained volcanic. Occasional outcrop exposures. SU is a level surface next to swamp but very exposed and potentially periodically damp and boggy.	Main disturbance is earlier pastoral activities.	Negligible	Nil recorded
NCTSU32	644992. 6028091	645378. 6028091	A level to very gently undulating broad ridge crest with an open aspect. Vegetation is a Eucalypt forest woodland with grasses. Geology is varying from volcanic to sedimentary. Soil is a gravelly loam greater than 20 cm deep. SU is a broad amorphous feature.	Main disturbance is earlier pastoral activities.	Negligible	Nil recorded
NCTSU33	645378. 6028091	645721. 6028272	A simple slope landform of moderate gradient with an easterly aspect. Vegetation is Eucalypt forest. Geology is sedimentary presenting as shatter and gravels. Traces of quartz were observed	The main disturbances within the survey unit is the graded and formed vehicle	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			in the background stone profile, none of which is likely to be artefactual. Soil is a gravelly loam to a maximum depth of 20 cm. SU is steep and amorphous.	track. Other disturbances include earlier pastoral activities.		
NCTSU34	645721. 6028272	646053. 6028399	A basal slope crest of gentle gradient with an easterly aspect. Vegetation is Eucalypt forest with an understorey of shrubs and grasses. Geology is sedimentary presenting as shatter and gravels. Traces of quartz were observed in the background stone profile, none of which is likely to be artefactual. Soil is a gravelly loam to a maximum depth of 20 cm. SU is a broad amorphous surface.	The main disturbance is the graded and formed vehicle track. Other disturbances include earlier pastoral activities and some vegetation clearance, possibly forestry.	Negligible	Nil recorded
NCTSU35	646472. 6028391	646441. 6028673	A very gently undulating flat on the southern side of a permanent creek. The aspect is easterly. Vegetation is snow gum and grasses. Geology is meta sedimentary presenting as shatter and gravels. SU is very slightly rocky. Traces of quartz were observed in the background stone profile, none of which is likely to be artefactual. Soil is a gravelly loam/slope wash greater than 20 cm deep. Zones within SU along sides of graded road where least disturbance has higher archaeological sensitivity.	The main disturbance is the graded and formed vehicle track. Other disturbances include clearing, slope wash erosion and earlier pastoral activities.	Very low	Nil recorded
NCTSU36	646441. 6028673	646661. 6028833	An open depression landform of very gentle to gentle gradient with an open	The main disturbance is the	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			aspect. Vegetation is snow grass. Geology is metasedimentary presenting as shatter, cobbles and gravels. SU is very slightly rocky. Soil is a loam with a depth greater than 20 cm. SU is a frost hollow and subject to cold air drainage.	graded vehicle track with occasional spear drains. Other disturbances include rabbit burrows, horse and earlier pastoral activities.		

Table 100 Nungar Creek Trail: A description of Aboriginal Object Locales.

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
NCTSU1	*NCTSU1/L1* AHIMS #57-4-0434 (Plate 51)	643328	6029171	One artefact located on a level crest of a toe slope of low elevation above a valley floor. The aspect is east north easterly. Site area is 2 x 1 m along a vehicle track and there is potential for the site to extend outwards from exposure and to contain *in situ* subsurface deposit. The area of ASL extends 80 m N-S x 40 m E-W. Ground exposure within the site area was assessed at 5% with archaeological visibility of 5%. There was no ground exposure away from site. Disturbance includes clearance, vehicle track formation, maintenance/upgrades and pastoral.	Chert black flake; recent edge damage; 16x22x5 mm.	Very low
NCTSU2	*NCTSU2/L1* AHIMS #57-4-0417	643148 643178	6029681 6029687	A scatter of artefacts located along a vehicle track on a terminal spur crest. The spur crest undulates into almost	Chert, mottled white red; medial; 20x11x3 mm. Chert, mottled	Low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				level benched areas along the slope then drops down the valley/plain. The gradient is very gentle with a north easterly aspect. The scatter extends along the spur crest to the west south west. The site area is 20 x 10 m and has potential to extend to an area of 80 m (NE/SW) x 50 m. Ground exposure within the site area was assessed at 20% with archaeological visibility of 10%. Ground exposure away from site was assessed as negligible. Disturbances include horses, rabbits, vehicle track formation, maintenance/ upgrades and pastoral. A sample of artefacts were recorded.	white red; distal; step; 26x13x6 mm. Chert mottled grey distal; feather; 8x6x5 mm. Chert grey flake; focal, Hertzian, feather; 8x7x1 mm. Chert mottled grey; medial; 15x12x4 mm. Chert black proximal; broad; Hertzian; 11x12x3 mm. Silcrete grey flake; broad; Hertzian; feather; with large érraillure scar on ventral; 45x35x8 mm.	
NCTSU4	*NCTSU4/L1* AHIMS #57-4-0433	642982	6030302	Three artefacts located along vehicle track on the crest of a bench on a terminal spur. The gradient of the landform is level and has a north easterly aspect. The visible site extent is 2 x 20 m and has potential to extend outwards to an area of 50 x 50 m. Ground exposure within the site area was assessed at 20% with archaeological visibility of 20%. Ground exposure away from site was very low at less than 1%. Low levels of quartz were observed in the background stone profile, some of which is possibly artefactual.	Chert black flake; focal; Hertzian; step; 15x17x3 mm. Tuff grey proximal; broad; Hertzian; freshly broken; 23x25x8 mm. Tuff core; 10% red cortex; possibly terrestrial cortex; single platform; 6 negative scars; 24x24x11 mm.	Very low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				Disturbance includes clearance, vehicle track formation, maintenance/ upgrades and pastoral.		
NCTSU4	*NCTSU4/L2* AHIMS #57-4-0432	642853 642835	6030635 6030695	Eight artefacts located along vehicle track on a level crest of a toe slope of low elevation directly above a valley floor. The aspect is north easterly. Site area is 2 x 20 m with potential to extend outwards 80 m (NW/SE) x 30 m (NE/SW). Site condition away from vehicle track is good. Tuff and black chert are visible within the background stone profile. Ground exposure within the site area was assessed at 70% with archaeological visibility of 70%. Ground exposure away from site was no more than 5% with archaeological visibility of 10%. Soil depth c. 30 cm. Disturbances include clearance, vehicle track formation, maintenance/ upgrades and pastoral.	Chert black flake; broad; Hertzian; feather; 26x25x10 mm. Chert black flake; focal; Hertzian; step; 25x15x7 mm. tuff flake; focal; Hertzian; feather; right margin broken; 22x18x2 mm. Tuff grey flake; broad; Hertzian; step; 35x35x7 mm. Tuff grey flake; broad; Hertzian; feather; 60x33x8 mm. Tuff grey medial; 30x25x4 mm. Silcrete mottled grey flake focal; Hertzian; feather; 70x15x5 mm. Silcrete grey distal; feather; 27x18x5 mm.	Very low
NCTSU4	*NCTSU4/L3* AHIMS #57-4-0431	642702	6030981	Two artefacts located along a vehicle wheel track on a level crest of a toe slope of low elevation adjacent to a spring and drainage line. The aspect is north easterly. Site area is 20 x 5 m and	Tuff grey banded flake; snapped transversely; focal; Hertzian; feather; 47x43x12 mm. Tuff	Negligible to very low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				has potential to extend outwards 20 m x 20 m. The soils on crest are eroded and shallow. Ground exposure within the site area was assessed at 10% with archaeological visibility of 20%. Ground exposure away from site was very low at less than 1%. Disturbances include vehicle track and earlier pastoral.	grey flake; focal; Hertzian; feather; highly weathered patina; 22x30x5 mm.	
NCTSU8	*NCTSU8/L1* AHIMS #57-4-0430 (Plate 52)	641853 Centre 641857 South 641891 NE 641819 West	6032756 Centre 6032678 South 6032709 NE 6032777 West	An area of ASL c. 50 m x 50 m located on a very gently sloping bench of a spur crest with a northerly aspect. The area is directly above Boggy Plain and adjacent to fast flowing gorge like water course with a small waterfall. Ground exposure was very low due to thick grass cover with only very occasional horse pads and rabbit burrows providing bare earth for inspection. The area is sheltered by a high ridge to the south west. Soils within the site area are a gravelly light brown silty loam with a maximum depth of 20 cm. Area above ASL has higher potential however outside survey area.	Archaeologically sensitive landform	Uncertain, possibly very low
NCTSU10	*NCTSU10/L1* AHIMS #57-4-0429	641440	6033667	One artefact located along a gently sloping vehicle track with a north westerly aspect. Artefact located on a graded vehicle track downslope of a rollover. The site area is highly	Chert black flake; focal; Hertzian; feather; 20x20x2 mm.	Negligible

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				disturbed. Extent of visible site is 2 x 1 m. Ground exposure within the site area was assessed at 60% with archaeological visibility of 90%. There was no ground exposure away from site due to thick forest debris. Soil is a shallow gravelly loam less than 20 cm deep.		
NCTSU10	*NCTSU10/L2* AHIMS #57-4-0428	641453 Centre	6033618 Centre	An area of ASL measuring c. 40 x 40 m and located on a level bench of a spur crest. The aspect is northerly. The area is sheltered by a ridge to the south, directly above a flowing water course. Ground exposure away from vehicle track was negligible due to thick vegetation cover. Disturbances include vehicle track maintenance activities, horses and earlier pastoral activities.	Archaeologically sensitive landform	Very low
NCTSU10	*NCTSU10/L3* AHIMS #57-4-0427	641358	6033516	One artefact located along a vehicle track on a simple slope of gentle gradient with a north north-easterly aspect. Site extent is 2 x 1 m. Ground exposure within the site area was assessed at 30% with archaeological visibility of 80%. There was no ground exposure away from site due to thick forest debris. Disturbances include vehicle track maintenance activities, horses and earlier pastoral activities.	Quartzite, hammerstone, river cobble; concentrated pitting on one end consistent with light use-wear. Pitting area measures c. 10 x 10 mm. Some natural and/or modified negative scarring originating from a one face at opposite end of	Negligible

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
					pitting. Some fresh scrape marks on surface of stone, most likely from a grader; 130x70x50 mm.	
NCTSU10	*NCTSU10/L4* AHIMS #57-4-0426	641482 Centre 641515 NE 641438 W	6033743 Centre 6033746 NE 6033774 W	An area of ASL located on a level bench of a simple slope with a north north-easterly aspect. The area measures 80 m (NW/SE) x 50 m (NE/SW). The ASL has an elevated sensitivity as the area is located at the base of a major ridge-line Ground exposure was negligible due to thick vegetation cover. Disturbances include vehicle track maintenance activities now grassed over, horses and earlier pastoral activities.	Archaeologically sensitive landform	Low
NCTSU15	*NCTSU15/L1* AHIMS #57-4-0425	639783	6032604	Two artefacts located on a vehicle track on a crest, part of a broad plateau landform. The aspect is open to easterly. The site area is 2 x 2 m and is located on an ungraded vehicle track. Ground exposure within the site area was assessed at 70% with archaeological visibility of 30%. Ground exposure away from site was no more than 1% with archaeological visibility of 10%. The site has potential to extend outward from exposure east of the vehicle track. There is no *in situ* sub surface deposit within	Tuff grey flake fragment; 35x25x8 mm. Tuff green; proximal; 5% cortex on platform; focal; Hertzian; 19x21x4 mm.	Very low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				site area, however, there is potential for in situ deposit away from vehicle track. Traces of naturally occurring black chert was observed within the background stone profile. Disturbances include a vehicle track, horses, rabbits and pastoral.		
NCTSU18	NCTSU18/L1 AHIMS #57-4-0424 (Plate 53)	637627	6030572	Two artefacts located on the side of a crest of very gentle gradient c. 70 m for boggy terrain. The aspect in north westerly. Geology is sedimentary. Paler grey native chert occurs in area along exposure. Site area measures 3 x 1m along a graded vehicle track. Ground exposure within the site area was assessed at 30% with archaeological visibility of 60%. Ground exposure away from site was negligible. The site has potential to extend outward from exposure east of the vehicle track. There is no in situ sub surface deposit within site area, however, there is potential for in situ deposit away from vehicle track. Disturbances include a vehicle track, horses, rabbits and pastoral.	Chert black flake; 20x20x8 mm. Quartz, white flake; plunging termination; 45x35x16 mm.	Negligible to very low
NCTSU27	NCTSU27/L1 AHIMS #57-4-0423 (Plate 54)	644110	6028173	Four artefacts located on a horse pad on a bench next to a swampy plain. The gradient is very gentle to level and has an open to easterly aspect. Site area is	Tuff grey flake; 30% smooth cortex; rotation flake; 44x27x10 mm.	Very low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
				26 x 1 m. Ground exposure within the site area was has archaeological visibility of 60%. Ground exposure away from site was negligible. The site has potential to extend outward from exposure. Disturbances include a vehicle track, horses and pastoral.	Tuff grey flake; 37x55x12 mm. Tuff grey flake; 33x20x12 mm. Tuff grey distal; 17x16x4 mm.	



Plate 51 Aboriginal object locale NCTSU1/L1 looking 165°.



Plate 52 Aboriginal object locale NCTSU8/L1 looking 255°.



Plate 53 Aboriginal object locale NCTSU18/L1 looking 180°.



Plate 54 Aboriginal object locale NCTSU27/L1 looking 40° towards the upper reaches of Boggy Plain Creek.

6.2.2.28 Rock Forest

The field survey at Rock Forest survey area has been subject to a reasonably comprehensive field survey over a three day period in February 2019. This survey area is private land on the south side of the Snowy Mountains Highway, immediately east of the Kosciusko National Park boundary.

The total survey area at Rock Forest has measured 220 hectares, of which some 144.9 hectares has been physically inspected. Survey Unit CCSU20 is currently un-surveyed. This encompasses a recent addition to the project footprint. It is assessed to be of generally low/moderate archaeological potential. This survey unit is listed in Table 101 below and its location is shown on the relevant mapping. However, it is not included in the results tables below.

The Rock Forest property is comprised of gently undulating terrain drained by Camerons Creek. The geology is sandstones and shales of the Ordovician aged Adaminaby Group and Silurian aged Tantangara Formation. The property is open grassland with some woodland and is currently used for grazing sheep and cattle.

In all Rock Forest survey units, vegetation frequently posed a constraint; visibility of ground surfaces was often absent. Ground exposures were generally negligible.

A summary of the field survey results is presented in Table 101. The Rock Forest Survey Units are described in Tables 102 and 103. It is noted that no previously recorded Aboriginal sites are known to be present in the Camerons Creek survey area. Five Aboriginal object sites were recorded during the field assessment (Table 104). The Rock Forest survey area is assessed to be generally of very low archaeologically sensitivity.

Table 101 Rock Forest: Summary of Aboriginal object distribution.

SU	Previous sites	New sites	Total sites	Impacts
CCSU1	0	3	3	Yes
CCSU2	0	0	0	Yes
CCSU3	0	0	0	Yes
CCSU4	0	0	0	Yes
CCSU5	0	0	0	Yes
CCSU6	0	0	0	No
CCSU7	0	0	0	No
CCSU8	0	0	0	No
CCSU9	0	0	0	No
CCSU10	0	0	0	No
CCSU11	0	1	1	No
CCSU12	0	0	0	No
CCSU13	0	0	0	Yes
CCSU14	0	0	0	Yes
CCSU15	0	0	0	Yes

SU	Previous sites	New sites	Total sites	Impacts
CCSU16	0	0	0	Yes
CCSU17	0	1	1	No
CCSU18	0	0	0	No
CCSU19	0	0	0	No
Total	0	5	5	

Table 102 Rock Forest: Effective Survey Coverage.

SU ID	SU area (sq. m.)	Area inspected (%)	Area inspected (sq. m.)	GE (%)	GE (sq. m.)	AV (%)	NEC (sq. m.)	ESC (%)	Exposures
CCSU1	612236	70	428565	5	21428	5	1071	0.175	Very low: very thick grass cover, occasional vehicle wheel tracks, wombat burrow and bare earth.
CCSU2	170178	60	102107	5	5105	20	1021	0.6	Low: bare earth, vehicle wheel tracks and wombat burrows.
CCSU3	35169	75	26376	5	1319	20	264	0.75	Very low: bare earth and mechanical grading.
CCSU4	61707	60	37024	5	1851	20	370	0.6	Very low: bare earth and rabbit/wombat burrows.
CCSU5	79736	75	59802	5	2990	20	598	0.75	Very low: bare earth and animal tracks/burrows.
CCSU6	119597	75	89697	2	1794	25	448	0.375	Very low: bare earth and animal (stock) tracks.
CCSU7	41946	75	31460	5	1573	20	315	0.75	Low: bare earth, sheet erosion and stock tracks.
CCSU8	233094	60	139857	5	6993	10	699	0.3	Very low: bare earth, wombat burrows, stock tracks and patches of heavy digging.
CCSU9	47031	75	35273	5	1764	50	882	1.875	Low: bare earth, patches of stream cut banks, stock tracks and wombat diggings.
CCSU10	124779	75	93584	5	4679	10	468	0.375	Very low: bare earth and animal tracks/burrows.
CCSU11	31632	60	18979	2	380	10	38	0.12	Very low: bare earth.

SU ID	SU area (sq. m.)	Area inspected (%)	Area inspected (sq. m.)	GE (%)	GE (sq. m.)	AV (%)	NEC (sq. m.)	ESC (%)	Exposures
CCSU12	60510	60	36306	5	1815	20	363	0.6	Very low: bare earth and animal tracks/burrows.
CCSU13	52490	75	39368	5	1968	75	1476	2.8125	Low: bare earth, patches of stream cut banks, stock tracks and wombat diggings.
CCSU14	39905	75	29929	0	0	0	0	0	Nil
CCSU15	48540	75	36405	5	1820	20	364	0.75	Very low: bare earth and stock tracks.
CCSU16	255117	50	127558	5	6378	50	3189	1.25	Very low: bare earth, wombat diggings and stock tracks.
CCSU17	69860	75	52395	2	1048	60	629	0.9	Very low: bare earth, dam edges and stock tracks.
CCSU18	55236	60	33142	5	1657	30	497	0.9	Very low: bare earth and wombat diggings.
CCSU19	61646	50	30823	5	1541	30	462	0.75	Very low: bare earth and wombat diggings.
Total	2200409		1448650		66104		13155	0.6	

Table 103 Rock Forest: A description of Survey Units.

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
CCSU1	651155. 6021055	650249. 6020798	A very broad amorphous crest landform of very gentle gradient with an open aspect. Occasional minor drainage depression bisecting crest. Vegetation is cleared, remnant Eucalypt stands with occasional heath. Geology is sedimentary presenting as cobbles and gravels. Soil is a fine sandy	Previous impacts include original clearing, grazing and subsequent erosion.	Negligible	*CCSU1/L1* AHIMS #57-4-0418 *CCSU1/L2* AHIMS #57-4-0419 *CCSU1/L3*

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			gravelly loam. A very broad, amorphous crest. Some limited zones of exposure exhibiting very low artefact density in limited instances.			AHIMS #57-4-0420
CCSU2	650249. 6020798	650577. 6021364	A simple slope, a hillside, of gentle to moderate gradient with a westerly to north westerly aspect. Vegetation is Eucalypt forest. Geology is sedimentary presenting as cobbles. Occasional patches of loose surface cobbles. Soil is lithosol, gravelly loam with a maximum depth of 20 cm. SU is a sloping, amorphous, dry terrain.	Previous impacts include pastoral activities.	Negligible	Nil recorded
CCSU3	650577. 6021364	650821. 6021351	A spur line crest landform of very gentle gradient with a northerly aspect. Vegetation is Eucalypt forest. Geology is sedimentary presenting as cobbles. Occasional patches of loose surface cobbles. Soil is lithosol, very gravelly loam. Dry terrain.	Previous impacts include some vegetation clearance and pastoral activities.	Negligible	Nil recorded
CCSU4	650821. 6021351	650263. 6021004	A simple slope, a hillside, of gentle to moderate gradient with a south easterly aspect. Vegetation is Eucalypt forest. Geology is sedimentary presenting as gravels. Soil is a gravelly shale loam up to a maximum depth of 30 cm. SU is an amorphous slope.	Previous impacts include pastoral activities.	Negligible	Nil recorded
CCSU5	650263. 6021004	650740. 6021376	An undulating low hilltop crest with an open aspect. The gradient of the crest varies from very gentle to gentle.	Previous impacts include some vegetation clearance	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			Vegetation is Eucalypt forest. Geology is sedimentary presenting as cobbles. Occasional patches of loose surface cobbles. Soil is a very gravelly loam. SU is exposed and no water close by.	and pastoral activities.		
CCSU6	650786. 6020571	651879. 6020578	A series of very gently sloping spur toe crests paralleling creek line. The aspect is open to south easterly. Locally elevated archaeological potential. Vegetation is cleared pasture, former Eucalypt woodland [root holes evident]. Geology is sedimentary presenting as gravels. Some shale gravels at eastern end of SU. Traces of quartz observed in the background stone profile. Soil is gravelly loam with depths greater than 30 cm. SU is a low gradient, slightly elevated strip of landscape adjacent to 4th order stream with relatively intact deposit.	Previous impacts include some vegetation clearance and pastoral activities.	Very low	Nil recorded
CCSU7	651910. 6020481	651642. 6020559	A simple slope landform of gentle to moderate gradient with a northerly aspect. Occasional spring. Vegetation is cleared pasture. Geology is sedimentary presenting as outcrops and cobbles. Occasional outcropping and some surface cobbles. Becomes rockier to the west south west and broad eroded surfaces in the south west of SU. Soil is a gravelly loam	Previous impacts include vegetation clearance, erosion and pastoral activities.	Negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			up to 20 cm deep. SU is a sloping, amorphous and exposed zone.			
CCSU8	651613. 6020454	651691. 6020061	A broad, amorphous crest landform of very gentle gradient with an open to northerly aspect. Vegetation is cleared pasture and occasional Eucalypt woodland. Geology is sedimentary presenting as outcrops and cobbles. Soil is gravelly loam with a maximum depth of c. 30 cm. An elevated, broad crest with occasional soak and remnant snow gum forest on upper reaches.	Previous impacts include vegetation clearance and pastoral activities.	Negligible	Nil recorded
CCSU9	651566. 6019890	652056. 6019839	A drainage depression of very gentle to gentle gradient with an easterly aspect. Vegetation is cleared with remnant Eucalypt woodland. Geology is sedimentary. Soil is possibly a gravelly loam. SU is a low-order drainage line subject to cold air drainage.	Previous impacts include vegetation clearance, earthworks for dam construction and pastoral activities.	Negligible	Nil recorded
CCSU10	651509. 6019741	652056. 6019745	A crest landform of very gentle gradient with an easterly aspect. Vegetation is Eucalypt regrowth forest and open pasture. Geology is sedimentary. Soil is gravelly loam with a maximum depth of c. 30 cm. A broad amorphous feature with no local water.	Previous impacts include vegetation clearance and pastoral activities.	Negligible	Nil recorded
CCSU11	651482. 6019595	652048. 6019552	A linear open depression with a low order drainage line of very gentle gradient. The aspect is easterly. Vegetation is Eucalypt	Previous impacts include vegetation	Negligible	*CCSU11/L1* AHIMS #57-4-0421

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			woodland and cleared grasses with shrubs. Geology is sedimentary presenting as very occasional outcrop exposures. Soil is possibly a gravelly loam with a maximum depth of 30 cm. SU is a periodic drainage depression with amorphous sloping margins within cold air drainage zone. Ground is hummocky.	clearance and pastoral activities.		
CCSU12	651465. 6019672	651556. 6020258	A simple slope landform of moderate gradient with an easterly aspect. Vegetation is Eucalypt woodland and some cleared land. Geology is sedimentary. Soil is gravelly loam with a maximum depth of c. 30 cm. An amorphous landform.	Previous impacts include some partial vegetation clearance and pastoral activities.	Negligible	Nil recorded
CCSU13	651894. 6020518	650869. 6020520	A drainage depression [Camerons Creek drainage line unit] of very gently gradient with an open aspect. Vegetation is grassland, shrubs, riparian grasses and herbs. Geology is sedimentary and sedimentary presenting as outcrops and cobbles. SU is very slightly rocky to slightly rocky. Soil is talus, alluvium, bog. SU is subject to high to medium deposition of alluvium and colluvium as evident in eroded sections along narrow flats flanking creek. SU is boggy and situated in an area subject to cold air drainage. Some higher archaeological potential on adjacent spur toes and crests on north side.	Previous impacts include water erosion, vegetation clearance and pastoral activities.	Generally negligible	Nil recorded

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
CCSU14	650427. 6021511	650048. 6021162	A first order broad and boggy drainage depression of a gentle gradient with an open aspect. Vegetation is grasses and sedges. SU periodically boggy. Geology is sedimentary presenting as cobbles appearing on higher surfaces. Soil is infill sediments. SU is a broad linear depression, periodically damp and subject to cold air drainage.	Previous impacts include vegetation clearance and pastoral activities.	Negligible	Nil recorded
CCSU15	650048. 6021162	650018. 6021188	A very gently sloping saddle with an easterly aspect. Vegetation is Eucalypt woodland and some cleared land. Geology is sedimentary presenting as occasional surface cobbles. Soil is a gravelly loam. SU is an elevated and dry location.	Previous impacts include vegetation clearance and pastoral activities.	Negligible	Nil recorded
CCSU16	650018. 6021188	650229. 6021629	A large broad undulating crest landform of very gentle to gentle gradient. The aspect is easterly. Occasional springs on sides of crests draining into adjacent drainage depression. Vegetation is Eucalypt woodland and some cleared land. Eucalypt forest becoming dense at upslope end of crest. Geology is sedimentary presenting as occasional surface cobbles. Soil is possibly a gravelly loam. Amorphous across majority of crest.	Previous impacts include vegetation clearance and pastoral activities.	Negligible [across majority of crest] to very low - elevated archaeological potential along northern edge adjacent to 3rd order drainage line.	Nil recorded
CCSU17	650251. 6021675	649605. 6021477	A broad drainage depression landform for a 3rd order spring-fed creek. The gradient of the landform is very gentle to gentle and	Previous impacts include vegetation	Negligible [across majority of SU] to very	*CCSU17/L1* AHIMS #57-4-422

ID	Start	Finish	Description	Disturbance	Predicted/Known Artefact Density	Aboriginal Objects
			has an easterly aspect. Vegetation is cleared pasture. Geology is sedimentary. Soil is valley infill [talus] sediments, highly compacted fine silty deposits. SU is broad drainage depression c. 180 m wide at maximum point with narrow incised boggy channel and adjacent periodically boggy flats. Cold air drainage and pooling expected to be an issue within this setting.	clearance and pastoral activities.	low - elevated archaeological potential in adjoining crest surface zones.	
CCSU18	649862. 6021633	649630. 6021637	A crest landform of very gentle to gentle gradient with an open to easterly aspect. Vegetation is cleared. Geology is sedimentary presenting as occasional surface cobbles. Soil is a gravelly loam to depths greater than 30 cm. Crest unit at upper junction of two drainage lines.	Previous impacts include vegetation clearance and pastoral activities.	Negligible to very low	Nil recorded
CCSU19	649663. 6021823	650212. 6021724	A long low spur top crest landform of very gentle to gentle gradient with an open to easterly aspect. The spur trends E-W. Vegetation is ex-Eucalypt forest, now cleared. Geology is sedimentary presenting as occasional angular cobble on surface. Soil is gravelly loam to depths greater than 30 cm. Majority of SU has negligible archaeological potential. An elevated potential extends from CCSU17 ASL area into the southeastern end lower reaches of CCSU19.	Previous impacts include vegetation clearance and pastoral activities.	Negligible to very low	Nil recorded

Table 104 Rock Forest: A description of Aboriginal Object Locales.

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
CCSU1	*CCSU1/L1* AHIMS #57-4-0418 (Plate 55)	650789	6021072	Two artefacts located 5 m apart in an erosion scald on a level crest with an open aspect. The site area is 10 x 20 m with some potential for subsurface material and for site to extend outward from exposure. Soil deposit is eroded and shallow [20 cm max. depth]. Exposure is patchy bare earth scalds. Ground exposure within the site area was assessed at 40% with archaeological visibility of 60%. Ground exposure away from site was no more than 5% with archaeological visibility of 5%. Disturbances include vegetation clearing, erosion and pastoral activities.	Silcrete grey flake plunging termination 20x16x2 mm. Silcrete grey proximal 18x18x3 mm.	Negligible to very low
CCSU1	*CCSU1/L2* AHIMS #57-4-0419 (Plate 56)	650641	6020983	Four artefacts located on a very gently sloping crest landform with an open aspect. Site exposure was patchy across the landform. The site has regrowth woodland. The visible site extent measures 20 x 2 m. There is some potential for site to extend outward from exposure. Soil is eroded and shallow. Ground exposure within the site area was assessed at 40% with archaeological visibility of 40%. Ground exposure away from site was no more than 20% with archaeological visibility of 40%. Disturbances include vegetation clearing, erosion and pastoral activities.	Chert grey flake/ scraper steep edge retouch along platform margin 16x18x3 mm. Chert black medial mid dorsal ridge 16x11x4 mm. Chert black; flake fragment 9x8x2 mm. Tuff grey flake 17x9x6 mm.	Negligible to very low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
CCSU1	*CCSU1/L3* AHIMS #57-4-0420	650715	6020938	Three artefacts located on a level to very gently sloping crest landform with an open aspect. Site exposure was patchy across landscape surface. The visible site extent measures 10 x 3 m. There is some potential for site to extend outward from exposure. Soil is eroded and shallow. Ground exposure within the site area was assessed at 50% with archaeological visibility of 50%. Ground exposure away from site was no more than 30% with archaeological visibility of 50%. Disturbances include vegetation clearing, erosion and pastoral activities.	Grey quartzite flake 4 negative scars 60x42x10mm, Grey quartzite flake 35x35x12 mm, Grey quartzite flake frag. 35x10x10mm.	Very low
CCSU11	*CCSU11/L1* AHIMS #57-4-0421 (Plate 57)	651476	6019579	Two artefacts located on very gently sloping upper reaches of a drainage depression landform with an easterly aspect. Site exposure was the mouth of a wombat burrow. Visible site extent measures 2 x 1 m. There is some potential for the site to extend outward from exposure. There is not any *in situ* subsurface potential at the site. Ground exposure within the site area was assessed at 60% with archaeological visibility of 60%. There was no ground exposure away from site. Disturbances include wombat digging and pastoral activities.	Chert black proximal 10x20x3 mm. Silcrete grey proximal 20x18x4 mm.	Very low
CCSU17	*CCSU17/L1* AHIMS	650251 649622	6021675 6021468	An area within a small valley setting with elevated, well-drained bench features directly	Archaeologically sensitive landform	Low

SU	ID	Easting	Northing	Description	Artefact	Predicted Artefact Density
	#57-4-0422 (Plate 58)			overlooking a 3rd order spring-fed drainage depression. A flat of very gentle gradient with an open to easterly aspect with internal variations. A series of potential habitation zones flanking the water source. Nominal width of ASL measures 30 - 50 m at low gradient points fringing edges of the valley bottom. Surface ground visibility was very low.		



Plate 55 Aboriginal object locale CCSU1/L1 looking 65°.



Plate 56 Aboriginal object locale CCSU1/L2 looking 345°.



Plate 57 Aboriginal object locale CCSU11/L1 looking 70°.



Plate 58 Aboriginal object locale CCSU17/L1 looking 220°.

6.3 ARCHAEOLOGICAL TEST EXCAVATION

Rationale

During the field survey, the Effective Survey Coverage was generally very low because of thick vegetation cover on the ground (i.e. grasses, shrubs, leaf litter and so on). Accordingly, the surface survey was not fully adequate for the task of determining the archaeological status of the project area in certain areas.

A program of subsurface test excavation has therefore been undertaken for the purposes of clarifying the nature and significance of the archaeological resource present. The purpose of the test excavation is to provide a better-informed framework for which to develop appropriate management and mitigation strategies in regard to the Aboriginal objects within the context of the proposed impacts.

6.3.1 Test Excavation Methodology

The test excavation has been conducted in accordance with the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales*: Requirement 16 – page 26. Methodologies for the program were developed by NSW Archaeology Pty Ltd and submitted to the NSW DPIE on 7 February 2018 and 21 October 2018. They were endorsed by NSW DPIE on 23 February 2018 and 29 October 2018, respectively.

Test excavation was undertaken in the following Survey Units:

- Lobs Hole: Seven survey units were subject to the test excavation program: RSU3, RSU5, RSU6, RSU8, RSU10, RSU11 and RSU12. Test excavation was originally proposed for Survey Unit 2, however, thick undergrowth and blackberry precluded access[1];
- Gooandra Hill: One survey unit was subject to test excavation: GHSU1;
- Tantangara Dam: Nine survey units were subject to test excavation: TSU1, TSU2, TSU3, TSU4, TSU5, TSU7, TSU8, TSU14 and TSU15; and
- Tantangara Road: One survey unit was subject to test excavation: TRdSU1.

Test Transects were positioned within Survey Units in accordance with a number of selection criteria: location in a central and representative area within the survey unit; in areas devoid of obvious previous disturbance; and in reasonably accessible locations. Test Transects measured up to 25 metres in length.

[1] Given that the nature of the artefact distribution in RSU2 has not been determined, this will be taken into consideration during the development of management strategies for the project.

A total of 654 Test Squares, each measuring 0.5 x 0.5 metres, were excavated by hand using spades, mattocks, crowbars and hand trowels. Test Squares were excavated at five metre intervals along the Test Transects. Occasionally Test Squares were enlarged. This was done in order to retrieve more artefacts if an abundance was encountered to assist in providing a robust count for analysis and/or to clarify geomorphological issues.

Each Test Square was excavated in successive 10 cm spits, apart from the first spit in each Survey Unit which was excavated in 5 cm layers. The excavation was concluded when an environment of low archaeological potential was reached which was usually the decomposing regolith. All excavated sediment was transferred into colour-coded and labelled buckets. The majority of Test Squares were excavated to depths of ~40 cm. However, some were excavated to greater depths, usually for purposes of clarifying geomorphological problems. The excavation is described in detail in Annexure 4.

All deposit recovered was dry sieved through 5 mm sieves. All stone material recovered from sieves was hand sorted in the field on a sorting table by a qualified archaeologist. The stone material was rinsed prior to sorting to clean it to facilitate artefact identification and retrieval. Given the abundance of background stone (pebbles, shatter and gravels), extreme care was taken so as to retrieve all artefacts or stone suspected of being artefactual, including very small artefacts.

All stone determined or suspected to be humanly modified was bagged according to individual Survey Unit/Test Transect/Square/Spit. A representative sample of background stone has been retained for comparative purposes. All bagged stone was subsequently inspected under magnification at which time any non-artefactual material was discarded.

Test Square stratigraphy was recorded using standard sedimentological descriptive terms and criteria (McDonald *et al*. 1998). Colour was described using a Munsell Soil Colour Chart (Munsell 1992) and pH was recorded. A stratigraphic description of soil texture, coarse fragments and structure was made. Sediment descriptions noted trends down the profile. A section and base of each Test Square was photographed, and a drawing of a representative section was made for each Test Transect. Each Test Square was backfilled with spoil collected on tarpaulins during sieving.

Lithic Analysis

Stone artefacts retrieved during the excavation have been identified and analysed by Julie Dibden. The analysis has entailed inspection under low powered stereoscopic magnification, measuring and description according to technological attributes. Details of the stone artefact collection recovered during the test excavation are listed in a table in Annexure 5 of this report.

Analysis of the data resulting from this identification and recording process has been conducted to address the following issues:

- Technological and behavioural activities represented by the lithic material;
- Artefact density;
- Artefact distribution and variability across the landscape; and
- The organisation and use of stone resources in the area.

To undertake this investigation, a basic profile of the artefact assemblage has been developed from the recorded data. Assemblage content was determined by recording and/or measuring a number of variables as outlined in Annexure 5. Details of each artefact were entered into an Excel spreadsheet.

The nature of the assemblage is examined through basic descriptive statistics on artefact type, raw material, the presence and type of cortex, initiation, platform and termination attributes, size and shape and relevant relationships between these variables.

Although the excavated material is described as a total unit it should be recognized that the collection is a compilation of material which may have accumulated as a result of numerous unrelated occupational events spread over an indeterminate period of time. However, as noted previously, many artefacts are likely to be parts of related knapping events and this allows for a detailed examination of the technological and behavioural aspects relating to lithic manufacture and use.

Several attributes present on artefacts produced by flaking can be used to positively distinguish between naturally fractured stone and artefacts. These features are well defined and the presence of two or more is usually required before an artefact can be conclusively identified. Full descriptions of these fracture features are available in numerous publications (*cf*. Andrefsky 1998: 17-19). The three attributes identified in this analysis were: initiation type, platform type and termination type. Positive identification of flaked stone artefacts is dependent upon the presence of these features which are described in Annexure 5. The recognition of one or more of these features on the lithic items used in this analysis demonstrates the validity of these identifications.

These attributes can also be used to examine basic technological features of a collection. In this study these fracture characteristics are examined to determine if any patterns in the reduction strategies used to produce the artefacts are evident. Four initiation types were recorded in this analysis: bending, bipolar, Hertzian (conchoidal) and wedging. Hertzian initiations as a result of hard hammer percussion are the most common type for the flakes with intact platforms. This result is not uncommon and indicates that the collection is representative of very general

flaking technology. Conchoidal fractures are typically the most frequent initiation type in Australian artefact assemblages. Bipolar flakes initiations may also be present.

Raw material morphology can exert a strong influence on core reduction strategies. In particular quartz can present difficulties for handheld percussion (conchoidal initiation) techniques due to the hard, brittle nature of the stone and the small size of quartz nodules and pebbles. Bipolar reduction, where the core is rested on an anvil, is frequently employed to produce quartz flakes. As a result, bipolar flakes often show signs of impact on opposing ends and have compression rings moving in two directions towards each other (Andrefsky 1998: Glossary xxi).

Artefact Distribution Analysis

The approach to recording in the current study has been a 'nonsite' methodology: the elementary unit recorded is an artefact rather than a site (*cf.* Dunnell 1993; Shott 1995). Given that the test excavation framework is to excavate a sample of a Survey Unit area, the process of identifying site boundaries (if they exist at all) is clearly not possible. However, it can be expected that artefacts will be distributed across the project area, and within Survey Units, in a virtual continuum. This phenomenon is not anomalous; subsurface work conducted elsewhere in southeast Australia confirms this pattern (see for example, Dibden 2005d). Therefore, in respect of stone artefact distribution, the notion of site is itself a meaningless concept and cannot encompass or reflect the actual distribution of artefacts across the landscape. Given that artefacts are continuous in distribution and not discrete 'site' occurrences artefact distribution is better conceptualised in relational terms.

The density and nature of the artefact distribution will vary across the landscape in accordance with a number of behavioural factors which resulted in artefact discard. While cultural factors will have informed the nature of land use, and the resultant artefact discard, environmental variables are those which can be utilised archaeologically in order to analyse the variability in artefact density and nature across the landscape. Accordingly, in this study, while the artefact is the elementary unit recorded, it is the Survey Unit which is utilised as a framework of recording and analysis (Wandsnider and Camilli 1992).

The rationale for employing this definition relates to its utility in regard to predicting the archaeological potential of and between landforms. The archaeological evidence which has been located within individual Survey Units during the current study is assumed to be generally representative of the archaeological resource located within the entire Survey Unit.

Given this theoretical assumption, it is predicted that the archaeological material recovered from the individual Test Transect/s excavated in each Survey Unit is likely to be representative of that which is distributed across the entire Survey Unit. Furthermore, results obtained from one Survey Unit may be extrapolated (albeit with caution) to other similar survey units.

6.3.2 Test Excavation Results

A summary description of Test Transects is listed in Tables 105, 106 and 107. Test Transect locations are shown in the Figures in Annexure 3.

Detailed records of the excavated soil profiles were made in the field. Recording comprised examination of sections and section drawing. The logs and descriptions of the Test Squares provide an archival record of the stratigraphy observed as presented in Annexure 4.

Table 105 Summary of excavation data per Lobs Hole Ravine Survey Units.

SU ID	Test Transect #	Test Squares #	Area excavated
RSU3	4	25	6.25 square metres
RSU5	5	36	9 square metres
RSU6	2	13	3.25 square metres
RSU8	4	27	6.75 square metres
RSU10	2	12	3 square metres
RSU11	3	17	4.25 square metres
RSU12	8	50	12.5 square metres
Total	28	180	45 square metres

Table 106 Summary of excavation data per Gooandra Survey Unit.

SU ID	Test Transect #	Test Squares #	Area excavated
GHSU1	13	76	19 square metres

Table 107 Summary of excavation data per Tantangara Survey Units.

SU ID	Test Transect #	Test Squares #	Area excavated
TSU1	15	88	22 square metres
TSU2	6	36	9 square metres
TSU3	7	44	11 square metres
TSU4	6	36	9 square metres
TSU5	8	48	12 square metres
TSU7	2	12	3 square metres
TSU8	3	14	3.5 square metres
TSU14	7	42	10.5 square metres
TSU15	11	66	16.5 square metres
TRd1	2	12	3 square metres
Total	67	398	99.5 square metres

The test excavation results are presented in the following sections.

6.3.2.1 Excavation Results - Lobs Hole Ravine

Each of the 50 x 50 cm Test Squares were excavated by removing 10 cm thick spits (except for the 1st Sq in each SU, which was excavated in 5cm spits). The depth of each Test Square was dependent upon the nature of the sediments. Excavation was terminated when decomposing bedrock or an archaeologically sterile unit was reached. Soils were found to be variable across the site. Typically, flats were found to have deep soil profiles while crests have shallow and rocky soils. The pH across the valley has been found to be consistently 5½, being acidic.

Survey Units 3, 5, 8, 11 and 12 are river flats. It is assumed that the flats at Lobs Hole have been used for intensive cultivation over many decades from the mid/late 1800s until the mid-1900s when the last people (the Yan family) left the valley. In addition, the flats would have been used for general occupation and the movement of wagons, carts and animals, and the handling and haulage of copper. There are numerous water races and other site-specific disturbances such as house platforms that are still visible (see Dibden 2018b). More recent human impacts relate to contemporary recreation and camping. The flats are favoured camp sites and are littered with fire pits, toilets excavations and other. Rabbit activity and their deep burrowing has disturbed the flats since about 1912 (George Thomas pers. comm. April 2018). The Test Transects were positioned so as to avoid obvious areas of disturbance and any historic features.

Geomorphological processes are likely to have caused a series of erosional and depositional events over time, and these may have been exacerbated following European occupation and land clearance. The Yarrangobilly River is known as a system of highly dynamic water flow. While the flats were found to possess deep silty soils, lens of gravels and or river cobbles were frequently encountered in the soil profile during excavation, attesting to successive depositional events from fluvial processes. It is likely that erosional events have also occurred where topsoil has been removed during floods. Within Test Transects, it was common for Test Squares to exhibit considerable variability in whether they contained gravels or cobbles suggesting finely braided geomorphological processes, presumably associated with water.

A typical soil profile encountered on flats is described as follows:

- 0-10 cm: medium yellow brown slightly gravelly fine sandy silt;
- 10-20 cm: medium yellow brown slightly gravely to gravelly fine sandy silt with very occasional waterworn small-medium pebbles;

- 20-30 cm: medium yellow brown gravely/pebbly fine sandy silt, waterworn pebbles becoming common. Highly compacted mottled gravelly yellow brown fine sandy silt.
- 40-40 cm: highly compacted light-yellow brown slightly gravelly sandy silt. Slight increase in gravel size with depth.

Survey Units 6 and 10 are crest landforms and have likely suffered the same or similar impacts from Europeans, as described above for flats. Given their naturally shallower soil profiles, the effects of European disturbance and other geomorphological processes has resulted in shallow and very rocky soil profiles. Water worn cobbles occur on crests indicating an ancient fluvial origin. Crest landforms are generally sloping with gentle gradients and, accordingly, it is presumed that fine particles have eroded down slope leaving behind lag deposits of cobbles, shatter, gravels and stone artefacts.

The excavation of Survey Units 6 and 10 revealed a shallow rocky bedrock profile giving way to a deeper deposit with water worn cobbles.

Artefact Recovery and Distribution

A total of 2,306 stone artefacts were recovered from 27 of the 28 Test Transects. This result indicates that artefacts are widely distributed in a subsurface context across the test area. However, there is considerable variability in artefact density between individual Survey Units. Artefact densities across the project area range from very low to relatively high.

The majority of artefacts retrieved are pieces of flaked stone representing debitage (waste) from stone knapping. The collection is comprised mostly of flakes, flake fragments and flaked pieces (flaking debitage - waste). A small number of cores and retouched artefacts are also present. The collection is dominated by locally sourced tuff and quartz material, much of which retains pebble cortex. The tuff has a highly weathered chalky, brown patina. Where it possesses fresh fractures, a dark grey, fine grained siliceous interior is revealed. Tuff and quartz are locally available from the Yarrangobilly River. Foreign stone is a negligible component of the collection at Lobs Hole Ravine.

Given the small number of artefacts retrieved and the small excavation area, making inferences in regard to behavioural activities is somewhat limited. However, given the evidence of artefact discard over the majority of the Test Excavation area it is possible to infer widespread usage of the land. The variability in artefact density that is evident between different Survey Units suggests differential patterns of land use which relate at least in part to environmental parameters.

Three Survey Units (RSU6, 10 and 12) have been found to possess moderate to high artefact density. This result suggests that these landforms were utilised for relatively high intensity levels of occupation (long term or repeated occupation areas such as 'base camps'). Several Survey Units possess low/moderate artefact densities and were also focal areas of activity. Survey Units 3, 8 and 11, all flat landforms, surprisingly, have been found to possess relatively low artefact density.

The artefactual material itself reflects generalised stone flaking with some evidence of the manufacture of retouched microliths. Numerous probable knapping events have been identified some of which possess microliths and evidence of use wear. As such, it can be inferred that stone knapping and implement manufacture and use occurred contemporaneously.

The presence of *in situ* knapping events provides evidence that post-depositional factors, including European land use, has had a limited impact on the spatial integrity of at least some of the archaeological evidence.

A summary of the Lobs Hole test excavation results is listed below:

- A total area of 45 conflated square metres has been excavated.
- A total of 2,306 artefacts have been retrieved.
- The stone artefacts primarily represent flaking debitage and include flakes, flake fragments, flaked pieces and cores made from a limited range of raw materials dominated by locally acquired tuff and quartz. A small percentage of artefacts are formed by retouch (Bondi Points and geometric microliths); several retouched and unretouched artefacts possess evidence of use such as microscopic edge damage and rounding.
- Artefacts from probable individual flaking events (knapping which is undertaken at a single point time and discarded in a spatially discrete area) have been identified in numerous Test Squares. Some of the individual flaking events identified include the core and associated retouched and/or utilised artefacts.
- The retrieval of artefacts which are representative of single flaking events within single Test Squares is confirmation that generally, the subsurface archaeological material possesses a certain spatial integrity.
- Individual flaking events are generally found to be distributed through more than one spit in a Test Pit indicating post-depositional vertical movement of artefacts throughout the soil profile. This is common, not unexpected given a consideration of bioturbations and so on and is suggestive that the vertical integrity of the subsurface archaeological context appears to be low.
- Artefacts were recovered from 27 of 28 Test Transects indicating a widespread distribution of artefacts across the landscape.

- The average artefact density across the test excavation area, calculated by dividing the total number of artefacts by the total area excavated, is 51 artefacts per square metre;
- Artefact density in individual Survey Units range from as low as 11 artefacts per square metre to 82 artefacts per square metre.
- Artefact density in individual Test Squares ranges from as low as 4 artefacts square metre to 616 artefacts per square metre.
- Given an average artefact density of 51/m² and that the Survey Units in the Lobs Hole test excavation program measures approximately 60.5 hectares it is estimated that 30,871,575 artefacts may be present in that area (calculated by multiplying 60.5 hectares [605325 square meters] by 51).

In the following section, the analyses are presented.

Artefact Distribution Analysis

In this section the spatial distribution of lithic material across the proposal area is examined. The aim is to determine whether there is a consistent or variable spread of artefacts across Lobs Hole Ravine. The relative artefact density between Survey Units will be examined.

Artefact numbers retrieved from each excavated Survey Unit are listed in Table 108. Artefacts were retrieved from 27 of 28 Test Transects indicating that artefacts are widely distributed across the landscape. The average artefact density across the test excavation area, calculated by dividing the total number of artefacts by the total area excavated, is 51 artefacts per square metre.

Artefact density in individual Survey Units ranges from as low as 11 artefacts per square metre to as high as 82 artefacts square metre. On a finer scale, artefact numbers in individual Test Squares ranges from 1 (4 artefacts square metre) to 154 (616 artefacts per square metre).

Table 108 Lobs Hole: Summary of excavation data per Survey Unit.

SU	Number of Test Transects	Number of Test Squares	Area Excavated	Number of Artefacts	Artefact density per sq. m.
3	4	25	6.25 sq. m	151	23
12	8	50	12.5 sq. m	1,020	81
11	3	17	4.25 sq. m	72	17
10	2	12	3 sq. m	235	78
8	4	27	6.75 sq. m	77	11
6	2	13	3.25 sq. m	267	82
5	5	36	9 sq. m	484	54
Total	28	180	45 sq. m	2,306	51

Artefacts were recovered from most of the excavated Test Squares. This result indicates that artefact distribution is generally widespread. However, there is significant variation artefact abundance between Test Squares.

Artefact analysis

The artefact analysis has been structured to address the following issues:

- Technological and behavioural activities represented by the lithic material; and
- The organisation and use of stone resources in the Lobs Hole Ravine area.

Of the 2,306 artefacts, the majority are pieces of flaked stone. However, a small number of pebble artefacts have also been identified, including fragments of a whetstone, a grinding stone and a hammer stone. Flaked artefact classes identified in the collection include flakes, flake fragments, flaked pieces, cores and retouched artefacts.

A summary of the numbers of each artefact class made from the range of raw materials present in the collection is presented in Table 109. Flakes and flake portions are the most frequently occurring type with a total of 2,167 (93%) found in the area excavated. Twenty nine cores and core fragments were recorded representing 1% of the collection. Twenty five retouched artefacts, 15 unmodified flakes with use wear and four pebble artefacts were identified.

Table 109 Crosstabulation of artefact classes by raw material for all artefacts (abbreviations are defined in Annexure 6).

Type	ch	chal	fgv	q	qu	s	t	unc	vol	Total
Flake	55	1	10	146	8	3	526	1		750
Flake fragment	73	2	10	321	9	1	660	1		1,077
Flaked piece	8	1		33	1		41			84
Proximal	10		2	14	1	1	74			102
Medial	4			8		1	12			25
Distal	14		3	27	2		83			129
Core	2		1	4			12			19
Core fragment	1			1			8			10
Grinding stone					1			1		2
Hammerstone								1		1
Possible artefact	9		1	12	6	1	23	9	4	65
Retouched artefact	8			1			16			25
Flaked pebble							1			1

Type	ch	chal	fgv	q	qu	s	t	unc	vol	Total
Unmodified with usewear	1						14			15
Whetstone								1		1
Total	185	4	27	567	28	7	1,470	14	4	2,306

A range of raw material types were utilised to produce the artefacts, however tuff (N=1,470; 63.7%) and quartz (N=567; 24.6%) are the most abundant. Both are available as cobbles from the Yarrangobilly River. Chert is represented by 185 artefacts (8%). Small amounts of other materials including silcrete (N=7), chalcedony (N=4), quartzite (N=28) and volcanics (N=31) were identified (Table 110). The paucity of these latter materials is most likely to be related to the distance of Lobs Hole from their source.

Table 110 Crosstabulation of cortex type and lithic material.

Cortex type	ch	chal	fgv	q	qu	s	t	unc	vol	Total
pebble	10		5	59	13		325	6		418
terrestrial	1									1
Total	11	0	5	59	13	0	325	6	0	419

Cortex was identified on 419 (18%) lithic items, all of which was water worn pebble except for one. The high percentage of cortex on tuff and quartz lithics is notable. The incidence of high levels of cortex retention indicates relatively low levels of reduction and suggests that water worn cobbles were close to the study area, which indeed they are (Table 110).

The data supports the conclusion that a limited range of raw material sources were utilised to manufacture the artefacts and that tuff and quartz was the dominant material utilised at Lobs Hole Ravine. The dominance of these, and the high incidence of pebble cortex suggests that this material was acquired locally. The location of this source is almost certainly the Yarrangobilly River.

Initiation, platform and termination attributes

The dominant mode of reduction evident at Lobs Hole entailed the fracturing of large pebble cobbles. Test Squares commonly possessed a wide range of artefact sizes with large conchoidal flakes, often with cortex, diminishing to very small pieces measuring less than one centimetre.

For all raw materials, including quartz, conchoidal initiations were the dominant fracture type for flakes with a platform. However, a clear association between bipolar reduction and quartz is demonstrated and is the only raw material where this reduction strategy is employed. Naturally occurring quartz cobbles are readily available within the Yarrangobilly, so it is unlikely that bipolar reduction was used

as a material conservation strategy. It is, however, likely that handheld percussion techniques would be difficult for flaking small nodules.

A number of aspects of artefact reduction technology are indicated by a range of platform traits. Hiscock (1986: 44) has demonstrated a number of technological changes in assemblages by measuring attributes which reflected the various combinations of platform preparation and force application. Hiscock (1986: 43) lists a range of measures to examine application of force precision and platform preparation. The percentage of focalised platforms was used as an indicator of the precision of the blow. Hiscock found that changes in the relative proportions of these indicators were associated with technological changes through time. Although the current study does not investigate any temporal aspects of artefact production, it is possible to examine platform preparation aspects as a general indicator of reduction technology. Focused platforms, where the point of force application (PFA) covers more than half of the platform is common in the collection, indicating careful flaking. Likewise, platform preparation was frequently observed, further demonstrating careful preparation. Flakes are often very thin.

Knapping events

The presence of a number of apparent reduction events supports the contention that despite disturbance, the archaeological resource exhibits reasonable spatial integrity. Examples of these are listed below:

- RSU3/Test Transect 4/Sq. 2 (including adjoining Sq. 2b): – a total of 10 possible related tuff artefacts including the core, flakes, flake fragments and a broken piece of a retouched artefact. Distributed in Spits 1-2.
- RSU3/Test Transect 2/Sq. 2 (including adjoining Sq. 2b, 2c, 2d): – a total of 56 possible related tuff artefacts including flakes and flake fragments. Distributed in Spits 2-4.
- RSU3/Test Transect 2/Sq. 4: – a total of 9 possible related tuff artefacts including flakes and flake fragments.
- RSU8/Test Transect 3/Sq. 3 (including adjoining Sq. 3b): – a total of 25 related chert artefacts including the core and six retouched artefacts. It is noted that the chert used in this event is a distinctive, very beautiful (like porcelain) pale cream material and not found elsewhere in the collection.
- RSU12/Test Transect 1/Sq. 1 (including adjoining Sq. 1b, 1c, 1d): – a total of 43 possible related tuff artefacts including the core, flakes, flake fragments and a broken piece of a retouched artefact. Distributed in Spits 1-2.
- RSU12/Test Transect 3/Sq. 1: – a total of 51 possible related tuff artefacts including flakes and flake fragments. In Spit 2.
- RSU12/Test Transect 4/Sq. 2: – a total of 26 possible related tuff artefacts including a very small Bondi point. In Spit 1.

- RSU12/Test Transect 4/Sq. 3: – a total of 12 possible related quartz artefacts. In Spit 2.
- RSU12/Test Transect 5/Sq. 2: – a total of 19 possible related tuff artefacts including a pebble core. In Spit 2.
- RSU12/Test Transect 6/Sq. 2: – a total of 26 possible related tuff artefacts including a core fragment. In Spit 2.
- RSU12/Test Transect 7/Sq. 5: – a total of 67 possible related tuff artefacts including two cores. Distributed in Spits 1-2.
- RSU12/Test Transect 7/Sq. 5: – a total of 55 possible related quartz artefacts many exhibiting bipolar features. In Spits 2-4.
- RSU12/Test Transect 7/Sq. 6: – a total of 100 possible related tuff artefacts including an unmodified piece with use wear and two retouched artefacts. Distributed in Spits 1- 2.
- RSU12/Test Transect 7/Sq 3: a total of 95 possible related tuff artefacts including an unmodified piece with use wear and two retouched artefacts. Distributed in Spits - 3 (Plate 57).
- RSU12/Test Transect 8/Sq 3: a total of 85 possible related tuff artefacts. Distributed in Spits 1- 2.

Retouched artefacts

A total of 25 retouched artefacts were identified (Table 111). Retouched artefacts are backed artefacts including Bondi Point and geometric microlith types. The function of retouched microliths, including Bondi Points and geometric microliths, is debated in the literature (*cf.* Fullagar *et al.* 1994; Mulvaney and Kamminga 1999). Generally, they are believed to have been utilised in armatures of spears (Mulvaney and Kamminga 1999), although the function of Bondi Points as cutting implements has been proposed (Sokoloff 1977). Fullagar *et al.* (1994) have examined residues on Bondi Points and argue that their function is multipurpose. Kamminga (1980) has argued that most specimens in museum collections have no evidence of having been used at all. However, detailed use-wear analysis and residue studies on backed artefacts from three Upper Mangrove Creek shelters indicated that they were a general purpose and multiple use implement (Robertson *et al*. 2009: 296).

Several retouched artefacts present in this collection have been recorded as components of individual knapping events indicating that they may be produced and discarded immediately without use (*at least* that which is observable under low powered magnification), *or*, may be produced, utilised and discarded within a single event. This latter observation suggests alternative usage other than as a component of spear armature.

Table 111 Retouched artefacts.

SU	TT	Sq.	Sp	Material	Size	Comments
RSU12	1	1	1	T	2	Proximal portion of a retouched artefact
RSU3	1	4	4	T	4	Broken. Unweathered grey interior is visible. Orientation uncertain. Steeply retouched from ventral
RSU12	4	2	1	T	2	Very small Bondi point, 15 x 6 x 4mm
RSU12	5	4	2	Ch	2	Proximal, thin, retouch on 1 margin, 17 x 8 x 2mm
RSU12	7	5	1	T	3	Flake, distally retouched
RSU12	7	6	3	T	2	Bondi point, retouched from ventral, 16 x 6 x 2mm
RSU12	7	6	3	T	2	Distally retouched from the ventral, 16 x 6 x 3mm
RSU12	8	2	1	T	2	Proximal, probably Bondi point, steep backing retouch from ventral, edge damage on opposing margin from ventral consistent with use
RSU12	8	2b	1	T	2	Geometric, flake, parallel arises, retouched distally from ventral, 17 x 9 x 3mm
RSU6	1	3B	2	T	3	Broken; probably distal; bifacial retouch backing
RSU6	1	3B	2	T	2	Proximal portion; retouch along part of one margin
RSU6	1	6	1	Q	2	Broken Bondi point
RSU6	2	3B	1	T	3	Broken in two; tip missing; Bondi point
RSU8	3	3	5	Ch	3	Flake fragment; 1 ridge; retouched both ends and one margin; chord has some possible damage consistent with use
RSU8	3	3	5	Ch	3	Flake with crushed platform; 1 ridge; retouched on one margin from ventral and only on the distal portion
RSU8	3	3	5	Ch	3	Flake; 2 ridges; distally retouched on one margin from the ventral; edge damage with use on the chord
RSU8	3	3	5	Ch	2	Flake fragment; triangular in plan view; retouched from ventral on one margin
RSU8	3	3B	5	T	2	Flake fragment; retouch from ventral along one concave shaped margin

SU	TT	Sq.	Sp	Material	Size	Comments
RSU8	3	3B	5	Ch	3	Flake; 1 ridge; distally backed from the ventral; possible use wear on the chord
RSU8	3	3B	5	Ch	2	Triangular in plan view
RSU10	1	4	1	Ch	2	Fine grained; distally retouched from ventral
RSU10	1	6	1	T	3	Distally retouched only from the ventral
RSU10	1	6	1	T	2	Bondi point shape; missing tip; retouched from ventral at both ends; all of the tuff artefacts in square 6 spit 1 probably all related
RSU5	4	6	1	T	2	Bondi point, 12 x 5 x 3mm
RSU5	5	1	T	T	3	Bondi point, 2 pieces

Retouched artefacts are represented in three raw material categories including quartz (N=1), chert (N=8) and tuff (N=16). The dominance of tuff corresponds to relative abundance of this material across the entire collection. The relative abundance of chert backed artefacts is notable. However, six of these come for a single knapping event (of a highly distinctive and rare chert), which is of itself unusual.

Discussion

The subsurface test excavation at Lobs Hole Ravine has found stone artefacts to be present across all the Survey Units tested indicating a widespread spatial distribution. The average artefact density across the test excavation area, calculated by dividing the total number of artefacts by the total area excavated, is 51 artefacts per square metre.

Artefacts are however distributed in variable density between individual Survey Units. Most have been found to possess artefacts in relatively low but not insignificant density. However, several Survey Units possess relatively higher artefact densities which range from low/moderate to moderate/high. This result suggests a relatively higher level of occupation in these locales and that they were focal areas of activity. It is concluded that Lobs Hole Ravine was utilised for relatively intensive Aboriginal occupation.

Lithic material for implement manufacture was obtained almost exclusively from tuff and quartz cobbles sourced from the local river. The lithic attributes suggest that pebbles were reduced by both hard hammer percussion and bipolar techniques to make sharp edge flakes and retouched tools for immediate usage. Numerous collections of items from individual knapping events have been identified which contain both the debitage (sometimes including the core) and the retouched and or utilized items. Pebble tools including a grinding stone, whetstone (for sharpening

hatchets) and a hammerstone have been retrieved, indicating the use of a broad suite of implements.

An estimate of the likely abundance of subsurface artefacts in the landscape can be problematic when the results demonstrate a variable distribution. While the use of widely spaced transects and small pits situated five metres apart is appropriate for an investigation to determine the archaeological sensitivity of an area, this strategy is, however, not well suited to determining precise estimates of artefact abundance when the results show variability in their distribution. Nevertheless, extrapolations of the average artefact density of 51/m^2 over the Survey Units tested (60.5 hectares) indicate that 30,871,575 artefacts may be present. This is of course a hypothetical scenario but does highlight the potential for considerable numbers of additional artefacts to exist between the excavated squares. However, such a large artefact number should not be considered excessive or unusual, especially for the environmental and geographical context in question. It is also noted that artefacts would be unequally distributed throughout the study area.

In the Australian model of subsistence organisation discussed in Section 4.1, residential moves are as much to do with access to firewood and water, as for food. In the Snowy Mountains, occupation of the higher elevation environments posed a considerable risk to people becoming stranded quickly due to rapidly changed weather circumstances and, in particular, to snow events. This peril prevailed over the majority of the annual cycle as snow can fall at almost any time of the year. Occupational contexts in this environment are therefore likely to refer to these risks.

We know that Europeans moved on a seasonal basis between Kiandra and Lobs Hole Ravine (Dibden 2018b) and, given the relative proximity of Lobs Hole Ravine to places such as Kiandra and Mt Gooandra, Aboriginal people are also likely to have sought shelter there when the weather turned. In this regard, it's worth noting that Lobs Hole Ravine was a unique environment in an otherwise steep and dramatic landscape. The Lobs Hole valley would have provided protection from dangerous or unfavourable weather, an abundance of firewood, reliable potable water, the resources of a fertile valley and an abundance of readily available lithic material. The relative absence of foreign stone material in the excavated lithic collection suggests that people had occupied the valley without planning or provisioning. This lends weight to the idea that people may have moved there quickly for shelter.
The occupation models discussed in Section 4.5.1 such as those of Johnson (1992) and Knight (2009) are focused on the distribution of discrete 'sites'. The excavations at Lobs Hole Ravine present a rather different picture of artefact distribution in the landscape. Artefacts have been found to be continuous distributions rather than individual site locales. This result is comparable to the excavations conducted in the Thredbo Valley by Kamminga *et al* (1989). Kamminga (1992) proposed that the Thredbo Valley could be regarded as a '… continuous archaeological 'site' comprising

innumerable prehistoric activity areas'. The artefactual evidence at Lobs Hole Ravine is similarly distributed.

The excavations do, however, reveal considerable differences in artefact densities between landforms. The highest densities were found on the elevated crest landforms of Survey Units 6 and 10, with only one flat possessing comparable densities (SU12). Kamminga *et al.* (1989) found a similar pattern in landform preference in the Thredbo Valley where the most favoured localities were landforms elevated 15 - 20 m above the valley floor. At Lobs Hole, the lower artefact densities in flats other than Survey Unit 12 may be due to these having been boggy environments prior to European land clearance and so on. Barry Yan (pers comm) recalls his father who farmed at Lobs Hole, referring to the boggy nature of the flats and that they required preparation to be suitable for cultivation.

6.3.2.2 Excavation Results - Gooandra

The test excavation at Gooandra was undertaken within a relatively discrete area on the plateau. The excavation was relatively limited in scope because the Gooandra Hill area was taken out of the project area at the time the works were being undertaken and so the program was aborted.

Accordingly, 13 Test Transects only were excavated at Gooandra Hill. While these were in a small range of microtopographic contexts, the results are believed to be rather limited and not necessarily representative of Aboriginal occupation and use of the plateau.

Some 76 Test Squares were excavated. The total area measured 19 square metres.

A typical soil profile encountered is described as follows:

- 0-10 cm: Dark grey brown silty loam with basalt small boulders throughout; plentiful shrub and grass root penetration;
- 10-20 cm: Dark grey brown occasionally pebbly silty loam with small basalt boulders throughout;
- 20-30 cm: Dark grey brown occasionally pebbly silty loam with small basalt boulders throughout;
- 40-40 cm: Change at base to basalt regolith.

Artefact Recovery and Distribution

A total of five stone artefacts were recovered from four of the 13 Test Transects. This result reveals a very sparse and patchy distribution of subsurface artefacts across the test area.

The five artefacts are described in the table below. All are made from quartz and all are flakes or flake fragments. Three possess pebble cortex. The source of the quartz cobbles may have been the conglomerate beds that occur in the immediate local area and outcrop above ground such as at Marica (pers. observ).

All artefacts were retrieved from spits 1 or 2 indicating a shallow vertical distribution.

Table 112 List of artefacts retrieved at Gooandra.

Transect	Square	Spit	Type	Material	Weight	Size	Comments	Cortex
3	4	2	ff	q	4.7	3		p
8	6	1	ff	q	0.5	2	Translucent	p
12	1	2	f	q	0.5	2	Hertzian	p
1	1	2	f	q	2.5	3	Bipolar	
1	-2	1	f	q	1.6	3	Hertzian	

Discussion

The results of the excavation at Gooandra are considered to be less than indicative of the artefact distribution on the plateau. Further archaeological works would be required over a wider geographic area and greater number of microtopographic contexts before the nature and patterns in the artefact distribution could be defined with any confidence.

6.3.2.3 Excavation Results - Tantangara

The Test Excavation at Tantangara was conducted in Survey Units 1, 2, 3, 4, 5, 7, 8, 14 and 15. The north/south trending ridge on the west side of Tantangara Dam was tested at the northern end of the project area (SU14). The rest of the landforms tested were spur crests extending from the ridge, eastward into the valley.

A typical soil profile encountered on spur crests is described as follows:

- 0-10 cm: Medium brown slightly pellety silty loam; plentiful rootlets; bioturbation pockets frequent;
- 10-20 cm: Grey brown slightly pellety silty loam; plentiful rootlets; bioturbation pockets frequent;
- 20-30 cm: Grey brown slightly pellety silty loam; plentiful rootlets; giving onto mottled yellowing grey brown slightly gravelly loam;
- 40-40 cm: Becoming a mottled yellow brown gravelly silty loam and bedrock/saprolite rubble.

However, in some area's soils were found to be a shallow (<20 cm) humic layer overlying bedrock.

Artefact Recovery and Distribution

A total of 1,108 stone artefacts were recovered from 41 of the 67 Test Transects. This result indicates that artefacts are distributed unequally across the test area and that there is considerable variability in artefact density between individual Survey Units. Artefact densities across the project area range from very low to relatively high.

The majority of artefacts retrieved are pieces of flaked stone representing debitage (waste) from stone knapping. The collection is mostly comprised of flakes, flake fragments and flaked pieces. A small number of cores, core fragments and retouched artefacts are also present. In addition to flaked artefacts, one small hammerstone was retrieved. The collection is dominated by locally sourced dark grey/black chert material, much of which retains terrestrial cortex. The chert is locally present in the regolith and occurs across the wider Tantangara area. It is frequently difficult to distinguish chert artefacts from the background natural shatter.

Given the small number of artefacts retrieved and the small excavation area, making inferences in regard to behavioural activities is somewhat limited. However, given the evidence of artefact discard over the majority of the Test Excavation area it is possible to infer widespread usage of the land. However, the variability in artefact density that is evident between different Survey Units suggests significant patterns of land use which relate at least in part to environmental parameters.

When artefact numbers are averaged out in Survey Units, all possess low/moderate density or lower. Survey Units 4 and 15 contain the highest artefact densities: 29.4 and 29.6 artefacts per square metre. Survey Units 2, 3 and 14 possess low artefact densities: 8; 7 and 9.6 artefacts per square metre, respectively. Survey Units 1, 5, 7, 8 and TRdSU1 possess low or negligible artefact densities: 0.04; 2.7; 0; 0.3 and 0 artefacts per square metre. This variation in artefact abundance between the test areas is discussed further below.

The artefactual material itself reflects generalised stone flaking with some evidence of the manufacture of retouched microliths. Numerous probable knapping events have been identified some of which possess microliths and evidence of use wear. As such, it can be inferred that stone knapping and implement manufacture and use occurred contemporaneously.

The presence of evidence of numerous *in situ* knapping events indicates that spatial integrity in the archaeology exists across the landscape.

A summary of the Tantangara test excavation results is listed below:

- A total area of 99.5 conflated square metres has been excavated.
- A total of 1,108 artefacts have been retrieved.

- The stone artefacts primarily represent flaking debitage and include flakes, flake fragments, flaked pieces and cores made from a limited range of raw materials dominated by locally acquired chert. A small percentage of artefacts are formed by retouch (Bondi Points and geometric microliths). A possible previously unreported retouched artefact 'type' has been identified. Several retouched and unretouched artefacts possess evidence of use such as microscopic edge damage and rounding.
- Artefacts from probable individual flaking events (knapping which is undertaken at a single point time and discarded in a spatially discrete area) have been identified in many Test Squares. Some of the individual flaking events identified include the core and associated retouched and/or utilised artefacts.
- The retrieval of artefacts which are representative of single flaking events within single Test Squares is confirmation that generally, the subsurface archaeological material possesses a certain spatial integrity.
- Individual flaking events are generally found to be distributed through more than one spit in a Test Pit indicating post-depositional vertical movement of artefacts throughout the soil profile. This is common, not unexpected given a consideration of bioturbations and so on and is suggestive that the vertical integrity of the subsurface archaeological context appears to be low.
- Artefacts were recovered from 41 of 67 Test Transects indicating a patchy distribution of artefacts across the landscape.
- The average artefact density across the test excavation area, calculated by dividing the total number of artefacts by the total area excavated, is 11.1 artefacts per square metre;
- Artefact density in individual Survey Units range from as low as 0.04 artefacts per square metre to 29.6 artefacts per square metre.
- Artefact density in individual Test Squares ranges from as low as 4 artefacts square metre to 532 artefacts per square metre.
- Given an average artefact density of 11.1/m² and that the Survey Units in the Tantangara test excavation program measures approximately 262.1 hectares it is estimated that 29,093,299.8 artefacts may be present in that area (calculated by multiplying 262.1 hectares [2621018 square meters] by 11.1).

In the following section, the analyses are presented.

Artefact Distribution Analysis

In this section the spatial distribution of lithic material across the proposal area is examined. The aim is to determine whether there is an even spread of artefacts or a variable distribution. The relative artefact density between Survey Units will be examined.

Artefact numbers retrieved from each excavated Survey Unit are listed in Table 113. Artefacts were retrieved from 41 of 67 Test Transects indicating that artefacts are not evenly distributed across the landscape. The average artefact density across the test excavation area, calculated by dividing the total number of artefacts by the total area excavated, is 11.1 artefacts per square metre. Artefact density in individual Survey Units ranges from as low as 0.04 artefacts per square metre to as high as 29.6 artefacts square metre. On a finer scale, artefact numbers in individual Test Squares ranges from 1 (4 artefacts square metre) to 133 (532 artefacts per square metre).

Table 113 Tantangara: Summary of excavation data per Survey Unit.

SU	Number of Test Transects	Number of Test Squares	Area Excavated	Number of Artefacts	Artefact density per sq. m.
TSU1	15	88	22 sq m	1	0.04
TSU2	6	36	9 sq m	72	8
TSU3	7	44	11 sq m	78	7.1
TSU4	6	36	9 sq m	265	29.4
TSU5	8	48	12 sq m	32	2.7
TSU7	2	12	3 sq m	1	0.3
TSU8	3	14	3.5 sq m	0	0
TSU14	7	42	10.5 sq m	101	9.6
TSU15	11	66	16.5 sq m	481	29.6
TRd1	2	12	3 sq m	0	0
Total	67	398	99.5 sq m	1,108	11.1

Artefact recovery was variable according to Survey Units. This result indicates that artefact distribution is localised to certain areas/landforms. Survey Units 1 and 7 have been found to possess negligible or at best very low artefact occurrence. No artefacts were retrieved from Survey Units 8 and TRd1.

Artefact analysis

The artefact analysis has been structured to address the following issues:

- Technological and behavioural activities represented by the lithic material; *and*
- The organisation and use of stone resources in the Tantangara area.

Of the 1,108 artefacts, the majority are pieces of flaked stone. Other than flaked items, one small hammer stone was retrieved. Flaked artefact classes identified in the collection include flakes, flake fragments, flaked pieces, cores, core fragments and retouched artefacts.

A summary of the numbers of each artefact class made from the range of raw materials in the collection is presented in Table 114. Flakes and flake portions are

the most frequently occurring type with a total of 941 (85.2%) found in the area excavated. Twelve cores and core fragments were recorded representing 1% of the collection. Eleven retouched artefacts and nine unmodified flakes with use wear were identified.

Table 114 Crosstabulation of artefact classes by raw material for all artefacts.

Type	chert	fgv	quart	qu	s	t	unc	Total
Core	2					1		3
Core fragment	6		2		1			9
distal	46	2	11		5	3		67
flake	138	26	64	3	17	8		256
flake fragment	294	26	157	5	17	7		506
Flaked piece	36	2	20		2	1		61
hammerstone							1	1
Medial	5		3		5			13
Proximal	24	1	9		6	1		41
Pebble frag	11	3					2	16
possible	41	4	64	1		1		111
retouched	7		1		3			11
uncertain	4							4
Unmodified with use	8					1		9
Total	622	64	331	9	56	23	3	1108

A range of raw material types were utilised to produce the artefacts, however chert (N=622; 56.1%) and quartz (N=331; 29.9%) are the most abundant. As noted above, black chert is widely available across the Tantangara area and is frequently encountered exposed in the ground. The dark grey and black chert artefacts in the collection are almost certainly all made on locally acquired material. Milky quartz is also abundant in the collection. The source of the quartz is uncertain although likely to be the local riverbeds as it is not often encountered in the background regolith. Note also the incidence of pebble cortex on quartz artefacts (see below).

Small amounts of other materials including fine grained volcanics (N=64), silcrete (N=56), tuff (N=23) and quartzite (N=9) were identified (Table 115). The paucity of these latter materials is most likely to be related to the distance of Tantangara from their source.

Table 115 Crosstabulation of cortex type and lithic material.

Cortex type	ch	fgv	q	qu	s	t	unc	Total
pebble	33	14	21	2				70
terrestrial	48					1		49

uncertain			1					1
Total	622	64	331	9	56	23	3	1108

Cortex was identified on 120 (10.8%) lithic items, most of which was water worn pebble. Terrestrial cortex was identified on 49 lithics, 48 of which were chert. This result is entirely in keeping with the local presence of chert in the background bedrock. The source of the pebble materials (chert, fine grained volcanics and quartz) is uncertain and may have a riverine or terrestrial conglomerate origin. The incidence of relatively high levels of cortex retention indicates relatively low levels of reduction and suggest a local abundance of raw material without the need for rationing.

The data supports the conclusion that a limited range of raw material sources were utilised to manufacture the artefacts and that chert and quartz was the dominant material utilised at Tantangara. The dominance of chert, and the high incidence of cortex suggests that this material was acquired locally.

Initiation, platform and termination attributes

Of the 12 cores in the collection, most are fragments. The three whole cores, however, indicate that bifacial cores are the dominant 'type'. Wedging and compression flake features on several fragments indicate that bipolar flaking was undertaken to reduce cores further.

For all raw materials, including quartz, conchoidal initiations were the dominant fracture type for flakes with a platform. However, a clear association between bipolar reduction and quartz is demonstrated and is the dominant raw material where this reduction strategy is employed (one chert flake has a bipolar initiation).

Focused platforms, where the point of force application (PFA) covers more than half of the platform is common in the collection, indicating careful flaking.

Knapping events

The presence of a number of apparent reduction events supports the contention of that despite disturbance, the archaeological resource exhibits reasonable spatial integrity. The majority of these are reductions of chert cobbles, some of which retain either pebble (minimally worn) or terrestrial cortex. Unsurprisingly the majority of these related artefacts are comprised of flakes and flake fragments, however, occasionally unmodified pieces with eyewear and retouched artefacts were found. This is not unusual and compares similarly with related events from the Lobs Hole Ravine collection. Examples of these probable related knapping events are listed below:

- SU2/Test Transect 4/Sq. 5: – a total of 27 probable related fine-grained volcanic artefacts including flakes and flake fragments, seven of which possess pebble cortex. Distributed in Spits 3 - 4.
- SU3/Test Transect 5/Sq. 1: – a total of 25 probable related black chert artefacts including flakes and flake fragments, three of which possess pebble cortex. Distributed in Spit 3 and could be related to the retouched artefact in Spit 2.
- SU3/Test Transect 5/Sq. 2: – a total of 31 probable related black chert artefacts including flakes and flake fragments, two of which possess pebble cortex. Distributed in Spit 4.
- SU4/Test Transect 3/Sq. 3: – a total of 23 probable related black chert artefacts including flakes and flake fragments, 10 of which possess pebble cortex. Distributed in Spit 2.
- SU4/Test Transect 4/Sq. 4: – a total of 38 probable related black chert artefacts including core, flakes and flake fragments, one flake possesses usewear. Distributed in Spit 2.
- SU4/Test Transect 4/Sq. 5: – a total of 44 probable related black chert artefacts including flakes and flake fragments, four of which possess pebble cortex. Distributed in Spit 3.
- SU5/Test Transect 7/Sq. 5: – a total of 9 probable related tuff artefacts including flakes and flake fragments, one of which is a flake with a notch from use. Distributed in Spit 2.
- SU15/Test Transect 4/Sq. 4: – a total of 17 probable related light brown silcrete artefacts including flakes and flake fragments one with minimally worn pebble cortex. Distributed in Spits 1 & 2.
- SU15/Test Transect 4/Sq. 4: – a total of 17 probable related light brown silcrete artefacts including flakes and flake fragments one with minimally worn pebble cortex. Distributed in Spits 1 & 2.
- SU15/Test Transect 5/Sq. 5: – a total of 39 probable related black chert artefacts including flakes and flake fragments, with one retouched artefact. Distributed in Spit 3.
- SU15/Test Transect 5/Sq. 5: – a total of 14 probable related quartz artefacts including flakes and flake fragments. Distributed in Spit 3.
- SU15/Test Transect 5/Sq. 1: – a total of 28 probable related black chert artefacts including flakes and flake fragments. Probably related to those in Sq 5 (see below). Distributed in Spit 3.
- SU15/Test Transect 5/Sq. 5b: – a total of 41 probable related quartz artefacts including flakes and flake fragments (bipolar). Distributed in Spit 3 (Plate 59).
- SU15/Test Transect 5/Sq. 5b: – a total of 78 probable related chert artefacts including flakes and flake fragments (bipolar) with terrestrial cortex. Distributed in Spit 3 (Plate 60).
- SU15/Test Transect 9/Sq. 5: – a total of 35 probable related chert artefacts including flakes and flake fragments. Distributed in Spit 3 (Plate 61).
- SU15/Test Transect 10/Sq. 6: – a total of 35 probable related silcrete artefacts including a distally retouched artefact ('geometric'). Distributed in Spits 2 & 3.

- SU15/Test Transect 11/Sq. 4: – a total of 11 probable related grey quartz artefacts. Distributed in Spits & 4.
- SU15/Test Transect 14/Sq. 3: – a total of 11 probable related black chert artefacts with pebble cortex including big chunky pieces and very thin flakes. Distributed in Spit 2.
- SU14/Test Transect 15/Sq. 2: – a total of 11 probable related black chert artefacts. Distributed in Spits 3 & 4.



Plate 59 Quartz artefacts in SU15/Test Transect 5/Sq. 5b.

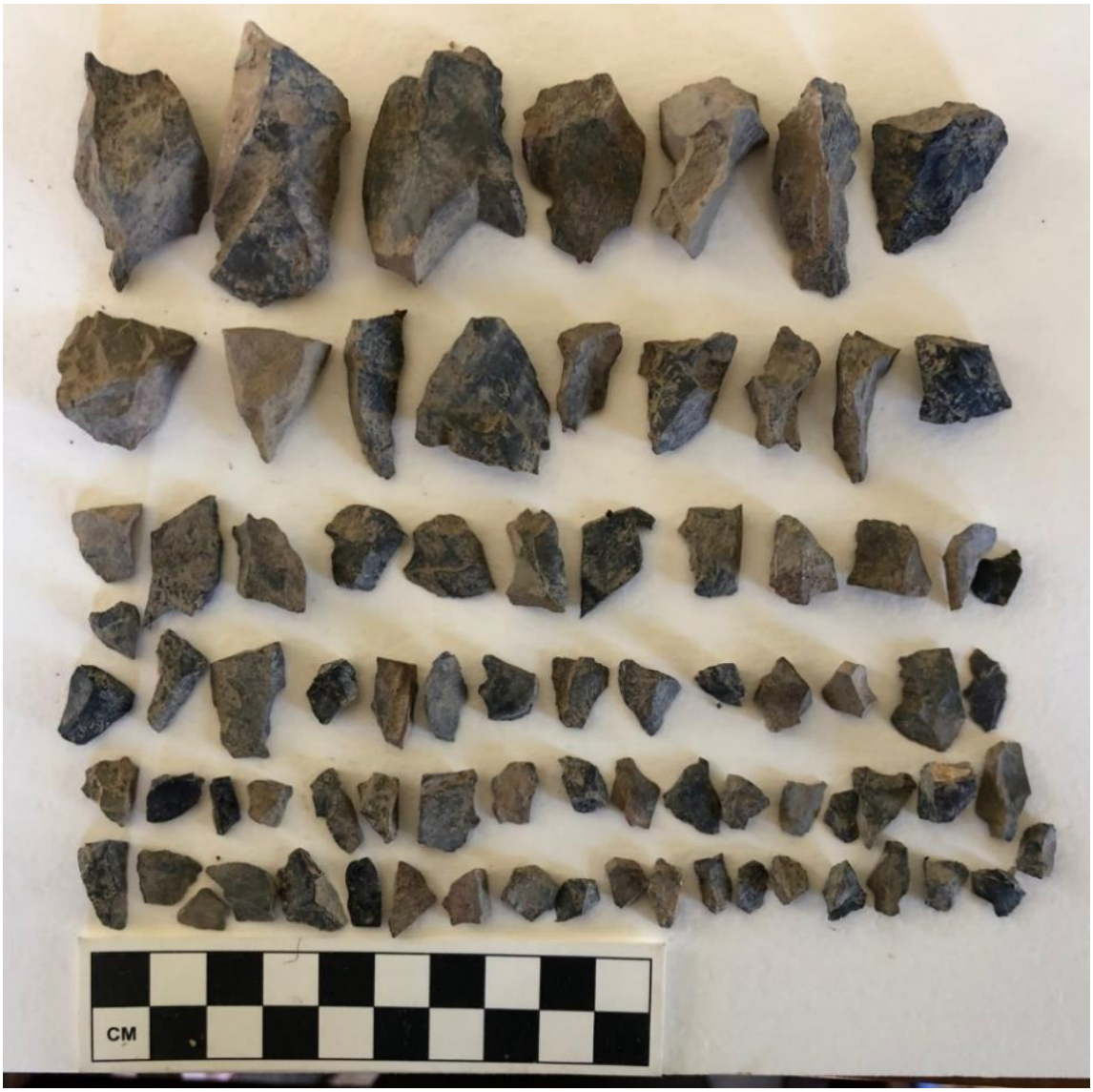


Plate 60 Chert artefacts in SU15/Test Transect 5/Sq. 5b.



Plate 61 Chert artefacts in SU15/Test Transect 9/Sq. 5

Retouched artefacts

A total of 11 retouched artefacts were identified (Table 116). In the collection, retouched artefacts are backed artefacts including Bondi Point and geometric microlith types. Three are distally retouched only. This 'type' was originally called Pejar Points by Jo Kamminga (pers. comm) when he first encountered them near Collector on the Southern Tablelands. They have since been identified as a relatively common type in far south coast and Monaro collections (see numerous subsurface reports by Dibden). Two notable retouched artefacts in this collection possess retouch only on the opposing ends of each margin.

Retouched artefacts are represented in three raw material categories including chert (N=7), silcrete (N=3) and quartz (N=1). The dominance of chert corresponds to relative abundance of this material across the entire collection. The three silcrete artefacts were retrieved in proximity albeit different test transects but are almost certainly made from the same distinctive light brown material. These artefacts are distally retouched only (Pejar Points).

The small size of the retouched artefacts is notable. All are small and two measure less than 1 cm in length.

Table 116 Retouched artefacts in the Tantangara collection.

SU	TT	Sq	Sp	Material	Weight	Size	Comments
SU3	5	1	2	ch	0.3	2	Retouched from ventral along butt and margin, micro scarring on chord perhaps consistent with use wear, white fleck inclusions, 10.4 x 7.8 x 2.5mm.
SU3	5	5	3	ch	0.4	2	Geometric, triangular shape in plan view, minimally retouched from ventral, bifacially retouched at one tip14.5 x 8.9 x 3.8mm.
SU4	2	6	2	ch	0.1	1	Retouched from the ventral on two ends, 9 x 5.8 x 1.8mm.
SU4	3	4	1	ch	0.3	2	Tip of retouched artefact, micro scarring along chord consistent with use, steep bifacial retouch.
SU4	6	6	3	ch	0.2	2	light grey, same material as two above, 12.2 x 7.4 x 2.5mm, steeply retouched on two opposing ends, same type as #20 TSU4 square 6 spit 2.
SU15	5	5	3	ch	1	3	Steep retouch backing from ventral from halfway along margin to distal; 22.9 x 14.9 x 2.6mm.
SU15	9	3	1	q	1.8	3	steep retouch backing from ventral on mid area of one margin; 25.5 x 14.8 x 4.6mm.
SU15	10	6	3	s	0.9	2	geometric, distally retouched only from halfway down margin, 19.9 x 10.2 x 5.1mm.
SU15	11	4	4	s	0.2	2	light brown, same material as in earlier squares in T11 and T10. Narrowly spaced parallel arises, steeply bifacially

SU	TT	Sq	Sp	Material	Weight	Size	Comments
							retouched on one end approximately one third down a margin; 13.3 x 6.8 x 2.7mm.
SU15	13	5	3	s	5.6	3	light brown silcrete same material as TT11 and 10; thumbnail scraper in shape (plan view); steeply retouched on one end from distal, micro flaking including systematic step flaking from ventral along the retouched margin; 24.1 x 21.1 x 9.7mm.
SU14	15	3	2	ch	0.2	1	Transversely snapped, steep retouch from ventral along one margin.

Discussion

The excavation at Tantangara has found stone artefacts across all the Survey Units tested indicating a widespread spatial distribution. Artefacts are however spread between individual Survey Units in highly variable density. Most have been found to possess artefacts in relatively low density.

Survey Units 1 and 7 possess negligible artefact occurrences. A total of 88 Test Squares was excavated in 13 Test Transects in Survey Unit 1. The retrieval of one artefact only in the Survey Unit is a dramatic result and unquestionably confirms the landform to be of negligible archaeological significance. Artefact incidence in surface exposures was also found to be incidental, except for areas at the extreme eastern end of the landform below the crest proper.

Fewer Test Squares were excavated in Survey Unit 7. Nevertheless, it is likely that the very low density is a real refection of artefact distribution in that landform also. Both Survey Units 1 and 7 are broad, very gentle gradient spur crest landforms of relatively low locale relief. There are both sparsely vegetated with low heath. In summary, they are landforms that are likely to be subject to cold air drainage and exposure to winds. The absence of woodland in these landforms is also likely to be a contributory factor to their archaeological status (discussed further below).

The higher artefact densities in Survey Units 4 and 15 is notable. These landforms share certain characteristics which are likely to provide clues to explain this result. These landforms are at the interface with the woodland that occurs at higher elevations, they are sheltered from the prevailing weather by the north/south trending ridge that they abut on their western side. The higher elevation context within the woodland is likely to have provided Aboriginal land users with shelter from the prevailing north westerly winds, an elevated context above the frost hollows

and cold air drainage, and above all, an abundance of firewood which is otherwise absent from the open grass and heath communities of the valley floors. The results suggest a relatively higher level of occupation in these locales and that they were focal areas of activity at Tantangara.

At Tantangara, lithic material for implement manufacture was obtained almost exclusively from locally sourced chert bedrock. The lithic attributes suggest a generalised flaking technology and is consistent with collections from anywhere else in south eastern Australia. However, the two retouched artefacts with retouch on opposing ends of margins may constitute a local 'type'. One pebble tool, a small hammerstone was retrieved. It is unlikely that the absence of other pebble or large tool types is a real pattern but rather due to the small area of the total excavation.

The artefact density calculation of 11.1/m² for the Tantangara test area indicates a relatively low artefact presence but it is not insignificant. As noted before, given the test excavation program covered an area measuring approximately 262.1 hectares, it is estimated that 29,093,299.8 artefacts may be present.

In summary, the test excavation at Tantangara reveals artefact densities and distributional patterns suggestive of the nature of occupation and adaptive strategies employed by people for habitation of the subalpine landscape in the highlands of south eastern Australia. The widespread incidence of stone artefacts across the landscape and the not insignificant artefact density as revealed via field survey and test excavation is notable. As found during the works at Lobs Hole, artefact incidence is continuous, albeit in variable density, across the landscape. The recognition of this clearly dismisses the category of site (discrete artefact scatters and so on) which earlier occupational models of occasional visitation to the subalpine zone were based on. Nevertheless, the behavioural interpretation of a widespread artefact occurrence from the perspective of frequency and abundance of visitation requires caution.

The patterns in artefact density vis-à-vis environmental parameters (microtopography, local relief and elevation, vegetation communities and cold air drainage) across the Tantangara test excavation area, reveal hints relating to the thermal adaptive strategy for human occupation of the subalpine zone. The relatively higher artefact densities on the spur crests close to or immediately adjacent to the north/south ridge on the west side of Tantangara are suggestive of repeated occupation. These sheltered areas in woodland avoid wind chill and cold air drainage and provide an abundant source of firewood. This possible thermal adaptive strategy mirrors somewhat the well documented Tasmanian cold climate adaptive strategies based on the use of cave and rock shelters.

While the behavioural response to the subalpine climate and landscape of Tantangara (and other comparable locales) is suggested in respect of shelter and fire,

it is likely that nuanced technologies especially related to clothing, diet and economy also played a significant role.

The archaeological investigations at Tantangara and Lobs Hole (as discussed previously), make a significant contribution to the material record and interpretive potential relating to the potential adaptive strategies which enabled people to occupy the south eastern highlands of Australia. The results strongly suggest that visitation was likely to have been much more than occasional and, instead, systematic and strategic.

7. CULTURAL HERITAGE VALUES AND STATEMENT OF SIGNIFICANCE

The information provided in this report and the assessment of significance of Aboriginal objects provides the basis for the proponent to make informed decisions regarding management and mitigation which should be undertaken in respect of proposed impacts.

The following significance assessment criteria is derived from the relevant aspects of ICOMOS Burra Charter (Australian ICOMOS 1999).

7.1 SIGNIFICANCE ASSESSMENT CRITERIA

The NPWS (1997) defines significance as relating to the meaning of sites: 'meaning is to do with the values people put on things, places, sites, land'. The following significance assessment criteria are derived from the relevant aspects of ICOMOS Burra Charter and NSW Department of Urban Affairs and Planning's 'State Heritage Inventory Evaluation Criteria and Management Guidelines'.

Aboriginal cultural heritage sites are assessed under the following categories of significance:

- Social or cultural value to contemporary Aboriginal people;
- Historical value;
- Scientific/archaeological value;
- Aesthetic value.

Aboriginal cultural significance

The Aboriginal community will value a place in accordance with a variety of factors including contemporary associations and beliefs and historical relationships. Most heritage evidence is highly valued by Aboriginal people given its symbolic embodiment and physical relationship with their ancestral past. It will almost certainly be the case that the value Aboriginal people feel for Aboriginal objects will differ to archaeological considerations.

Archaeological value

The assessment of archaeological value involves determining the potential of a place to provide information which is of value in scientific analysis and the resolution of potential archaeological research questions. Relevant research topics may be defined and addressed within the academy, the context of cultural heritage management or by Aboriginal communities. Increasingly, research issues are being constructed with reference to the broader landscape rather than focusing specifically on individual site locales. In order to assess scientific value sites are evaluated in

terms of nature of the evidence, whether or not they contain undisturbed artefactual material, occur within a context which enables the testing of certain propositions, are very old or contain significant time depth, contain large artefactual assemblages or material diversity, have unusual characteristics, are of good preservation, or are a part of a larger site complex. Increasingly, a range of site types, including low density artefact distributions, are regarded to be just as important as high density sites for providing research opportunities.

In order to assess the criteria of archaeological significance further, and also to consider the criteria of rarity, consideration can be given to the distribution of stone artefacts across the continent. There are two estimates of the quantity of accumulated stone artefacts in Australia (Wright 1983:118; Kamminga 1991:14; 2002). Wright estimated an average of 500,000 débitage items and 24,000 finished tools per square kilometre, which equates to a total of about 180 billion finished stone tools and four trillion stone débitage items in Australia. Kamminga's estimates, which were determined from a different set of variables, provide a conservative estimate of 200 billion stone tools and 40 million tonnes of flaking débitage (see Kamminga 1991:14; 2002). These two estimates are similar and suggest that the actual number of stone tools and items of flaking débitage in Australia is in the trillions. The stone artefacts distributed in the proposed activity area cannot, therefore, be considered to be rare.

The vast majority of stone artefacts found in Australia comprise flaking debris (termed débitage) from stone tool making. While it can be reasonably inferred from a range of ethnographic and archaeological evidence that discarded stone artefacts and flaking debris was not valued by the maker, in certain circumstances these objects may to varying degrees have archaeological research potential and/or Aboriginal social value. However, only in very exceptional circumstances is archaeological research potential high for particular sites (Kamminga, J. pers. comm. June 2009).

Aesthetic value

Aesthetic value relates to aspects of sensory perception. This value is culturally contingent.

7.2 Significance of the Aboriginal Object Sites in the project Area

The significance assessment is conducted within an analytical framework based on Survey Units and is presented in the tables below.

Most of the Survey Units in the project area are assessed to be of relatively low archaeological heritage value primarily because of their low artefact density and high degree of previous impacts and disturbance. However, several Survey Units are assessed to be of moderate to high significance.

It is noted that Aboriginal heritage sites often have high cultural value to the local Aboriginal community given that they provide direct physical and symbolic linkages to their ancestral past and to the landscape. The cultural values of the heritage will almost certainly differ to the archaeological significance values.

Table 117 Talbingo: Cultural heritage significance assessment of Survey Units and Aboriginal object locales.

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
SU26	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density; highly disturbed landforms
SU27	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density; highly disturbed landforms

Table 118 Lobs Hole: Cultural heritage significance assessment of Survey Units and Aboriginal object locales.

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
RSU1	Very low/negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density; highly disturbed landform
RSU2	Moderate	Nil recorded	Survey Unit generally of potentially moderate local significance	Common site type; low educational value; low aesthetic value; potentially moderate research potential: predicted moderate/high artefact density.
RSU3	Low/Moderate	AHIMS #56-6-0009 *RSU3/L1* AHIMS #56-6-0495 *RSU3/L2* AHIMS #56-6-0496 *RSU3/L3* AHIMS #56-6-0497 Test Tran 1 Test Tran 2 Test Tran 3 Test Tran 4	Survey Unit generally of low/moderate local significance	Common site type; low educational value; low aesthetic value; low/moderate research potential: low moderate artefact density, but generally disturbed.

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
RSU4	Low	AHIMS #56-6-0045 *RSU4/L1* AHIMS #56-6-0498 *RSU4/L2* AHIMS #56-6-0499	Survey Unit generally of low local significance	Common site type; low educational value; low aesthetic value; low research potential: low artefact density and highly disturbed.
RSU5	Moderate	*RSU5/L1* AHIMS #56-6-0492 *RSU5/L2* AHIMS #56-6-0493 Test Tran 1 Test Tran 2 Test Tran 3 Test Tran 4 Test Tran 5	Survey Unit generally of moderate local significance	Common site type; low educational value; low aesthetic value; moderate artefact density, but generally disturbed.
RSU6	Moderate/high	*RSU6/L1* AHIMS #56-6-0494 *RSU6/L2* AHIMS #56-6-0491 *RSU6/L3* AHIMS #56-6-0489 *RSU6/L4* AHIMS #56-6-0490 *RSU6/L5* AHIMS #56-6-0541 Test Tran 1 Test Tran 2	Survey Unit generally of moderate local significance	Common site type; low educational value; low aesthetic value; moderate research potential: moderate/high artefact density but generally disturbed.
RSU7	Moderate	Nil recorded	Survey Unit generally of potentially moderate local significance	Common site type; low educational value; low aesthetic value; potentially moderate research potential:

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
				predicted moderate or moderate/high artefact density.
RSU8	Low	AHIMS #56-6-0043 Test Tran 1 Test Tran 2 Test Tran 3 Test Tran 4	Survey Unit generally of low significance	Common site type; low educational value; low aesthetic value; low research potential: low artefact density and highly disturbed.
RSU9	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density; highly disturbed landform
RSU10	Moderate/high	*RSU10/L1* AHIMS #56-6-0484 *RSU10/L2* AHIMS #56-6-0485 *RSU10/L3* AHIMS #56-6-0486 Test Tran 1 Test Tran 2	Survey Unit generally of moderate local significance	Common site type; low educational value; low aesthetic value; moderate research potential: moderate/high artefact density.
RSU11	Low	AHIMS #56-6-0041 AHIMS #56-6-0047 *RSU11/L1* AHIMS #56-6-0487 *RSU11/L2* AHIMS #56-6-0488 Test Tran 1 Test Tran 2 Test Tran 3	Survey Unit generally of low significance	Common site type; low educational value; low aesthetic value; low research potential: low artefact density and highly disturbed.

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
RSU12	Moderate/high	AHIMS #56-6-0042 AHIMS #56-6-0046 *RSU12/L1* AHIMS #56-6-0537 Test Tran 1 Test Tran 2 Test Tran 3 Test Tran 4 Test Tran 5 Test Tran 6 Test Tran 7 Test Tran 8	Moderate local significance	Common site type; low educational value; low aesthetic value; moderate research potential: moderate/high artefact density.
RSU13	Low	*RSU13/L1* AHIMS #56-6-0483 *RSU13/L2* AHIMS #56-6-0478	Survey Unit generally of low significance	Common site type; low educational value; low aesthetic value; low research potential: low artefact density and disturbed.
RSU14	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density; highly disturbed landform
RSU15	Low	Nil recorded	Survey Unit generally of low significance	Common site type; low educational value; low aesthetic value; low research potential: low artefact density and disturbed.

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
RSU16	Low	*RSU16/L1* AHIMS #6-6-0479 *RSU16/L2* AHIMS #56-6-0480 *RSU16/L3* AHIMS #56-6-0481 *RSU16/L4* AHIMS #56-6-0482	Survey Unit generally of low significance	Common site type; low educational value; low aesthetic value; low research potential: low artefact density and disturbed.
RSU17	Low	*RSU17/L1* AHIMS #56-6-0477	Survey Unit generally of low significance	Common site type; low educational value; low aesthetic value; low research potential: low artefact density and disturbed.
RSU18	Low	*RSU18/L1* AHIMS #56-6-0476	Survey Unit generally of low significance	Common site type; low educational value; low aesthetic value; low research potential: low artefact density and disturbed.
RSU19	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density; highly disturbed landform

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
RSU20	Low	*RSU20/L1* AHIMS #56-6-0471 *RSU20/L2* AHIMS #56-6-0472 *RSU20/L3* AHIMS #56-6-0473 *RSU20/L4* AHIMS #56-6-0474 *RSU20/L5* AHIMS #56-6-0475 *RSU20/L6* AHIMS #56-6-0465 *RSU20/L7* AHIMS #56-6-0466 *RSU20/L8* AHIMS #56-6-0468 *RSU20/L9* AHIMS #56-6-0467 *RSU20/L10* AHIMS #56-6-0470 *RSU20/L11* AHIMS #56-6-0469 *RSU20/L12* AHIMS#56-6-0464	Survey Unit generally of low significance	Common site type; low educational value; low aesthetic value; low/moderate research potential: low artefact density and disturbed.
RSU21	Low	Nil recorded	Survey Unit generally of low significance	Common site type; low educational value; low aesthetic value; low research potential: negligible artefact density.

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
RSU22	Low	*RSU22/L1* AHIMS #56-6-0507 *RSU22/L2* AHIMS #56-6-0505 *RSU22/L3* AHIMS #56-6-0504	Survey Unit generally of low significance	Common site type; low educational value; low aesthetic value; low research potential: low artefact density and disturbed.
RSU23	Low	*RSU23/L1* AHIMS #56-6-0506 *RSU23/L2* AHIMS #56-6-0503 *RSU23/L3* AHIMS #56-6-0502	Survey Unit generally of low significance	Common site type; low educational value; low aesthetic value; low research potential: low artefact density and disturbed.
RSU24	Low	*RSU24/L1* AHIMS #56-6-0536	Survey Unit generally of low significance	Common site type; low educational value; low aesthetic value; low research potential: low artefact density and disturbed.
RSU25	Low	AHIMS #56-6-0038 AHIMS #56-6-0039 AHIMS #56-6-0040	Survey Unit generally of low significance	Common site type; low educational value; low aesthetic value; low/moderate research potential: low artefact density and disturbed.
RSU26	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
RSU27	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
RSU28	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
RSU29	Negligible	AHIMS #56-6-0048 RSU29/L1 AHIMS #56-6-0540	Survey Unit generally of negligible significance with the exception of certain micro topographies which may	Predicted negligible artefact density

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
			potentially be of low/moderate local significance	
RSU30	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
RSU31	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
RSU32	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
RSU33	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
RSU34	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
RSU35	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
RSU36	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
RSU37	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
RSU38	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
RSU39	Negligible	*RSU39/L1* AHIMS #56-6-0539 *RSU39/L2* AHIMS #56-6-0538	Survey Unit generally of negligible significance with the exception of certain micro topographies which may potentially be of low/moderate local significance	Predicted negligible artefact density
RSU40	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
RSU41	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density

Table 119 Marica: Cultural heritage significance assessment of Survey Units and Aboriginal object locales.

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
MSU1	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
MSU2	Very low to low	*MSU2/L1* AHIMS #56-6-0501	Generally low significance in the Survey Unit with the exception of *MSU2/L1* which may potentially be of moderate local significance	Common site type; low educational value; low aesthetic value; low research potential: very low to low artefact density
MSU3	Very low	*MSU3/L1* AHIMS #56-6-535	Generally low significance in the Survey Unit with the exception of *MSU3/L1* which may potentially be of low/moderate local significance	Common site type; low educational value; low aesthetic value; low research potential: very low artefact density
MSU4	Very low	*MSU4/L1* AHIMS #56-6-0500 *MSU4/L2* AHIMS #56-6-534	Generally low significance in the Survey Unit with the exception of *MSU4/L1 and MSU4/L2* which may potentially be of low/moderate local significance	Common site type; low educational value; low aesthetic value; low research potential: very low artefact density
MSU5	Very low	Nil recorded	Survey Unit generally of very low significance	Predicted very low artefact density
MSU6	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
MSU7	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
MSU8	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density

Table 120 Gooandra Hill: Cultural heritage significance assessment of Survey Units and Aboriginal object locales.

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
GHSU1	Very low to low generally	*Gooandra SU1/L1* AHIMS #57-4-0313 *Gooandra SU1/L2* AHIMS #57-4-0314 *Gooandra SU1/L3* AHIMS #57-4-0315 Gooandra SU1/L4 AHIMS #57-4-0316 *Gooandra SU1/L5* AHIMS #57-4-0317 *Gooandra SU1/L6* AHIMS #57-4-0326 *Gooandra SU1/L7* AHIMS #57-4-0325 *Gooandra SU1/L8* AHIMS #57-4-0323 *Gooandra SU1/L9* AHIMS #57-4-0324 *Gooandra SU1/L10* AHIMS #57-4-0405 *Gooandra SU1/L11* AHIMS #57-4-0408 *Gooandra SU1/L12* AHIMS 57-4-0404 Test Transect 1 Test Transect 2 Test Transect 3 Test Transect 4	Generally low significance in the Survey Unit with the exception of certain micro topographies which may potentially be of low/moderate local significance	Common site type; low educational value; low aesthetic value; low research potential: very low to low artefact density

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
		Test Transect 5 Test Transect 6 Test Transect 7 Test Transect 8 Test Transect 9 Test Transect 10 Test Transect 11 Test Transect 12 Test Transect 13		
GHSU2	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
GHSU3	Negligible	*Gooandra SU3/L1* AHIMS #57-4-0322 *Gooandra SU3/L2* AHIMS #57-4-0321 *Gooandra SU3/L3* AHIMS #57-4-0320 *Gooandra SU3/L4* AHIMS #57-4-0319 *Gooandra SU3/L5* AHIMS #57-4-0318	Generally low significance in the Survey Unit with the exception of certain micro topographies which may potentially be of low/moderate local significance	Predicted negligible artefact density
GHSU4	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
GHSU5	Negligible	Nil recorded	Survey Unit generally of very low significance	Predicted very low artefact density
GHSU6	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
GHSU7	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
GHSU8	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
GHSU9	Very low	Nil recorded	Survey Unit generally of very low significance	Predicted very low artefact density
GHSU10	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
GHSU11	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
GHSU12	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
GHSU13	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density

Table 121 Wallaces Creek Fire Trail: Cultural heritage significance assessment of Survey Units and Aboriginal object locales.

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
WSU1	Negligible	Nil recorded	Survey Unit generally of negligible significance	Nil recorded
WSU2	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
WSU3	Negligible	Nil recorded	Survey Unit generally of negligible significance	Nil recorded
WSU4	Very low	*WSU4/L1* AHIMS #56-6-0526	Survey Unit generally of very low significance with the exception of *WSU4/L1* which may potentially be of low/moderate local significance	Predicted very low artefact density
WSU5	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
WSU6	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
WSU7	Negligible	*WSU7/L1* AHIMS #56-6-0527 *WSU7/L2* AHIMS #56-6-0525	Survey Unit generally of negligible significance Generally low significance in the Survey Unit with the exception of certain micro topographies which may potentially be of low/moderate local significance	Predicted negligible artefact density
WSU8	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
WSU9	Negligible to very low	*WSU9/L1* AHIMS #56-6-0524 *WSU9/L2* AHIMS #56-6-0523 *WSU9/L3* AHIMS #56-6-0522 WSU9/L4 AHIMS #56-6-0521 *WSU9/L5* AHIMS #56-6-0520	Generally low significance in the Survey Unit with the exception of certain micro topographies which may potentially be of low/moderate local significance	Predicted negligible to very low artefact density
WSU10	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
WSU11	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
WSU12	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
WSU13	Very low	*WSU13/L1* AHIMS #56-6-0519 *WSU13/L2*	Survey Unit generally of very low significance the exception of certain micro topographies which may	Predicted very low artefact density

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
		AHIMS #56-6-0518	potentially be of low/moderate local significance	
WSU14	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
WSU15	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
WSU16	Very low to low	*WSU16/L1* AHIMS #56-6-0516 *WSU16/L2* AHIMS #56-6-0515 *WSU16/L3* AHIMS #56-6-0517 *WSU16/L4* AHIMS #56-6-0514 *WSU16/L5* AHIMS #56-6-0513 *WSU16/L6* AHIMS #56-6-0512 *WSU16/L7* AHIMS #56-6-0510 *WSU16/L8* AHIMS #56-6-0511 *WSU16/L9* AHIMS #56-6-0509 *WSU16/L10* AHIMS #56-6-0508	Generally low significance in the Survey Unit with the exception of certain micro topographies which may potentially be of low/moderate local significance	Predicted very low to low artefact density

Table 122 Kings Cross Road: Cultural heritage significance assessment of Survey Units.

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
KCSU1	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density and highly disturbed.
KCSU2	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density and highly disturbed.
KCSU3	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density and highly disturbed.
KCSU4	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density and highly disturbed.
KCSU5	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density and highly disturbed.
KCSU6	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density and highly disturbed.
KCSU7	Negligible	*MS-ST-1* AHIMS #56-6-0131 (not relocated)	Survey Unit generally of negligible significance	Predicted negligible artefact density and highly disturbed.

Table 123 Link Road: Cultural heritage significance assessment of Survey Units.

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
LSU1	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density and highly disturbed.
LSU2	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density and highly disturbed.
LSU3	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density and highly disturbed.

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
LSU4	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density and highly disturbed.
LSU5	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density and highly disturbed.

Table 124 Three Mile Dam: Cultural heritage significance assessment of Survey Units and Aboriginal object locales.

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
3MSU1	Negligible to very low; areas of greater AD in areas associated with springs	*3MSU1/L1* AHIMS #56-6-0533	Survey Unit generally of negligible significance	Predicted negligible artefact density
3MSU2	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
3MSU3	Very low	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
3MSU4	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
3MSU5	Negligible	*3MSU5/L1* AHIMS #56-6-0532	Survey Unit generally of negligible significance	Predicted negligible artefact density
3MSU6	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
3MSU7	Negligible to very low; areas of greater AD in areas associated with creek line.	*3MSU7/L1* AHIMS #56-6-0531	Survey Unit generally of negligible to very low significance with the exception of *3MSU7/L1* which may potentially be of low/moderate local significance	Predicted very low artefact density

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
3MSU8	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
3MSU9	Negligible to very low; areas of greater AD in areas associated with boggy drainage line.	*3MSU9/L1* AHIMS #56-6-0530	Survey Unit generally of negligible to very low significance with the exception of *3MSU9/L1* which may potentially be of low/moderate local significance	Predicted very low artefact density
3MSU10	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
3MSU11	Negligible	*3MSU11/L1* AHIMS #56-6-0529	Survey Unit generally of negligible to very low significance with the exception of *3MSU11/L1* which may potentially be of low/moderate local significance	Predicted very low artefact density
3MSU12	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
3MSU13	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
3MSU14	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
3MSU15	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
3MSU16	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
3MSU17	Negligible; area of greater AD in area associated with creek line.	*3MSU17/L1* AHIMS #56-6-0528	Survey Unit generally of negligible to very low significance with the exception of *3MSU17/L1* which may potentially be of low/moderate local significance	Predicted very low artefact density

Table 125 Gooandra Fire Trail: Cultural heritage significance assessment of Survey Units and Aboriginal object locales.

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
GSU1	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
GSU2	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
GSU3	Very low	Nil recorded	Survey Unit generally of negligible/low significance	Predicted very low artefact density
GSU4	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
GSU5	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
GSU6M	Negligible	Nil recorded	Survey Unit generally of negligible/low significance	Predicted negligible artefact density
GSU6	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
GSU7	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
GSU8	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
GSU9	Very low	Nil recorded	Survey Unit generally of very low significance	Predicted very low artefact density
GSU10	Very low	Nil recorded	Survey Unit generally of very low significance	Predicted very low artefact density
GSU11	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
GSU12	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
GSU13	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
GSU14	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
GSU15	Negligible	*GSU15/L1* AHIMS #57-4-0409	Survey Unit generally of negligible significance	Predicted negligible artefact density
GSU16	Very low	Nil recorded	Survey Unit generally of negligible to very low significance	Predicted very low artefact density
GSU17	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
GSU18	Negligible	*GSU18/L1* AHIMS #57-4-0383	Survey Unit generally of negligible significance	Predicted negligible artefact density
GSU19	Very low	Nil recorded	Survey Unit generally of negligible to low significance	Predicted very low artefact density
GSU20	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
GSU21	Very low	Nil recorded	Survey Unit generally of negligible to low significance	Predicted very low artefact density
GSU22	Low	Nil recorded	Survey Unit generally of low significance	Predicted low artefact density

Table 126 Nungar Creek Fire Trail: Cultural heritage significance assessment of Survey Units and Aboriginal object locales.

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
NSU1	Negligible in upper slopes/very low in lower slopes	*NSU1/L1* AHIMS #57-4-0344	Survey Unit generally of negligible significance	Predicted negligible artefact density
NSU2	Negligible	*NSU2/L1* AHIMS #57-4-0390	Survey Unit generally of negligible significance	Predicted negligible artefact density
NSU3	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
NSU4	Negligible	*NSU4/L1* AHIMS #57-4-0343	Survey Unit generally of negligible significance	Predicted negligible artefact density

Table 127 Tantangara Dam Creek Fire Trail: Cultural heritage significance assessment of Survey Units.

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
TFTSU1	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
TFTSU2	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
TFTSU3	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
TFTSU4	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density

Table 128 Tantangara Dam Road Transmission Line: Cultural heritage significance assessment of Survey Units.

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
TTxSU1	Negligible	*TTxSU1/L1* AHIMS #57-4-0361	Survey Unit generally of negligible significance	Predicted negligible artefact density
TTxSU2	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
TTxSU3	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
TTxSU4	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
TTxSU5	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
TTxSU6	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
TTxSU7	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
TTxSU8	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
TTxSU9	Negligible to very low	*TTxSU9/L1* AHIMS #57-4-0363	Survey Unit generally of negligible to low significance	Predicted very low artefact density
TTxSU10	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
TTxSU11	Negligible to very low	*TTxSU11/L1* AHIMS #57-4-0362	Survey Unit generally of negligible to low significance	Predicted very low artefact density
TTxSU12	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
TTxSU13	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
TTxSU14	Very low	*TTxSU14/L1* AHIMS #57-4-0360	Survey Unit generally of low significance	Predicted low artefact density
TTxSU15	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
TTxSU16	Negligible	*TTxSU16/L1* AHIMS #57-4-0359	Survey Unit generally of negligible significance	Predicted negligible artefact density
TTxSU17	Negligible	*TTxSU17/L1* AHIMS #57-4-0364	Survey Unit generally of negligible significance	Predicted negligible artefact density
TTxSU18	Negligible	*TTxSU18/L1* AHIMS #57-4-0358	Survey Unit generally of negligible significance	Predicted negligible artefact density
TTxSU19	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
TTxSU20	Negligible to very low	Nil recorded	Survey Unit generally of negligible to low significance	Predicted very low artefact density
TTxSU21	Negligible	*TTxSU21/L1* AHIMS #57-4-0356	Survey Unit generally of negligible significance	Predicted negligible artefact density
TTxSU22	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
TTxSU23	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
TTxSU24	Very low	*TTxSU24/L1* AHIMS #57-4-0357	Survey Unit generally very low significance	Predicted very low artefact density
TTxSU25	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
TTxSU26	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
TTxSU27	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
TTxSU28	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
TTxSU29	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
TTxSU30	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
TTxSU31	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
TTxSU32	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
TTxSU33	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
TTxSU34	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
TTxSU35	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
TTxSU36	Negligible-very low	*TTxSU36/L1* AHIMS #57-4-0355	Survey Unit generally negligible to very low significance	Predicted very low artefact density
TTxSU37	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
TTxSU38	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
TTxSU39	Very low	*TTxSU39/L1* AHIMS #57-4-0354	Survey Unit generally very low significance	Predicted very low artefact density
TTxSU40	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
TTxSU41	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density

Table 129 Schofields Fire Trail: Cultural heritage significance assessment of Survey Units and Aboriginal object locales.

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
SSU1	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
SSU2	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
SSU3	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
SSU4	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
SSU5	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
SSU6	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
SSU7	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
SSU8	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
SSU9	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
SSU10	Very low to low	*SSU10/L1* AHIMS #57-4-0382 *SSU10/L2* AHIMS #57-4-0381 *SSU10/L3* AHIMS #57-4-0380 *SSU10/L4* AHIMS #57-4-379	Survey Unit generally of low significance	Predicted Very low to low artefact density
SSU11	Negligible	*Nungar Creek* AHIMS #57-4-0160	Survey Unit generally of negligible significance	Predicted negligible artefact density
SSU12	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
SSU13	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
SSU14	Very low to low	*SSU14/L1* AHIMS #57-4-0378 *SSU14/L2* AHIMS #57-4-0377 *SSU14/L3*	Survey Unit generally of low significance	Predicted low artefact density

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
		AHIMS #57-4-0376		
SSU15	Negligible to very low	*SSU15/L1* AHIMS #57-4-0375 SSU15/L2 AHIMS #57-4-0374	Survey Unit generally of low significance	Predicted negligible to low artefact density
SSU16	Negligible	*SSU16/L1* AHIMS #57-4-0373 *SSU16/L2* AHIMS #57-4-0372	Survey Unit generally of negligible significance	Predicted negligible artefact density
SSU17	Negligible to very low	*SSU17/L1* AHIMS #57-4-0371 *SSU17/L2* AHIMS #57-4-0370 *SSU17/L3* AHIMS #57-4-0369	Survey Unit generally of low significance	Predicted negligible to low artefact density
SSU18	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
SSU19	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
SSU20	Negligible	*SSU20/L1* AHIMS #57-4-0368	Survey Unit generally of negligible to low significance	Predicted very low artefact density
SSU21	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
SSU22	Negligible	*SSU22/L1* AHIMS #57-4-0367	Survey Unit generally of negligible significance	Predicted negligible artefact density
SSU23	Negligible	*SSU23/L1* AHIMS #57-4-0366 *SSU23/L2* AHIMS #57-4-0365	Survey Unit generally of negligible significance	Predicted negligible artefact density

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
SSU24	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
SSU25	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
SSU26	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
SSU27	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
SSU28	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density

Table 130 Circuits Hut Fire Trail: Cultural heritage significance assessment of Survey Units and Aboriginal object locales.

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
CHSU1	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
CHSU2	Very low to low	*KNP91-12* AHIMS #57-4-0060 *CHSU2/L1* AHIMS #57-4-0342	Survey Unit generally of low significance	Predicted very low to low artefact density
CHSU3	Negligible to very low	*CHSU3/L1* AHIMS #57-4-0341 *CHSU3/L2* AHIMS #57-4-0340	Survey Unit generally of low significance	Predicted very low to low artefact density
CHSU4	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
CHSU5	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
CHSU6	Very low to low	*CHSU6/L1* AHIMS #57-4-0339	Survey Unit generally of low significance	Predicted very low to low artefact density
CHSU7	Negligible	*CHSU7/L1* AHIMS #57-4-0393	Survey Unit generally of negligible significance	Predicted negligible artefact density
CHSU8	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
CHSU9	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
CHSU10	Negligible to very low	*CHSU10/L1* AHIMS #57-4-0392	Survey Unit generally of low significance	Predicted very low to low artefact density
CHSU11	Negligible	*CHSU11/L1* AHIMS #57-4-0391	Survey Unit generally of negligible significance	Predicted negligible artefact density
CHSU12	Uncertain - ?Very low to low	*CHSU12/L1* AHIMS #57-4-0389	Survey Unit generally of negligible significance	Predicted negligible artefact density
CHSU13	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
CHSU14	Very low	*CHSU14/L1* AHIMS #57-4-0388 *CHSU14/L2* AHIMS #57-4-0387	Survey Unit generally of low significance	Predicted low artefact density
CHSU15	Negligible	Nil recorded	Survey Unit generally of low significance	Predicted negligible to low artefact density
CHSU16	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
CHSU17	Negligible	Nil recorded	Survey Unit generally of low significance	Predicted negligible to low artefact density
CHSU18	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
CHSU19	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
CHSU20	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
CHSU21	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
CHSU22	Negligible	*CHSU22/L1* AHIMS #57-4-0385	Survey Unit generally of negligible significance	Predicted negligible artefact density
CHSU23	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
CHSU24	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
CHSU25	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
CHSU26	Negligible	*CHSU26/L1* AHIMS #57-4-0386	Survey Unit generally of negligible significance	Predicted negligible artefact density
CHSU27	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
CHSU28	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
CHSU29	Negligible	*CHSU29/L1* AHIMS #57-4-0384	Survey Unit generally of negligible significance	Predicted negligible artefact density
CHSU30	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density

Table 131 Pockets Saddle Road: Cultural heritage significance assessment of Survey Units and Aboriginal object locales.

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
PSSU1	Low	Nil recorded	Survey Unit generally of low significance	Predicted low artefact density
PSSU2	Low	Nil recorded	Survey Unit generally of low significance	Predicted low artefact density
PSSU3	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
PSSU4	Negligible to very low	*Port Phillip FT Mt* AHIMS #57-4-0217 *KNP91-41* AHIMS #57-4-0076	Survey Unit generally of low significance	Predicted very low to low artefact density
PSSU5	Negligible to very low	Nil recorded	Survey Unit generally of negligible/low significance	Predicted negligible to very low artefact density
PSSU6	Very low	Nil recorded	Survey Unit generally of low significance	Predicted very low artefact density
PSSU7	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
PSSU8	Negligible to very low	Nil recorded	Survey Unit generally of negligible/low significance	Predicted negligible to very low artefact density

Table 132 Port Phillip Trail: Cultural heritage significance assessment of Survey Units and Aboriginal object locales.

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
PPSU1	Very low	Nil recorded	Survey Unit generally of low significance	Predicted low artefact density
PPSU2	Very low	Nil recorded	Survey Unit generally of low significance	Predicted low artefact density

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
PPSU3	Very low	Nil recorded	Survey Unit generally of low significance	Predicted very low artefact density
PPSU4	Very low	*PPSU4/L1* AHIMS #57-4-0247 *PPSU4/L2* AHIMS #57-4-0246 *PPSU4/L3* AHIMS #57-4-0245	Survey Unit generally of low significance	Predicted very low artefact density
PPSU5	Very low	*PPSU5/L1* AHIMS #57-4-0243 *PPSU5/L2* AHIMS #57-4-0244	Survey Unit generally of low significance	Predicted very low artefact density
PPSU6	Very low	*PPSU6/L1* AHIMS #57-4-0238 *PPSU6/L2* AHIMS #57-4-0239	Survey Unit generally of low significance	Predicted very low artefact density
PPSU7	Low	*PPSU7/L1* AHIMS #57-4-0240 *PPSU7/L2* AHIMS #57-4-0403	Survey Unit generally of low significance	Predicted low artefact density
PPSU8	Negligible	*PPSU8/L1* AHIMS #57-4-0402 *PPSU8/L2* AHIMS #57-4-0401	Survey Unit generally of negligible significance	Predicted negligible artefact density
PPSU9	Very low	*PPSU9/L1* AHIMS #57-4-0400 *PPSU9/L2* AHIMS #57-4-0399	Survey Unit generally of low significance	Predicted very low artefact density

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
PPSU10	Very low	*PPSU10/L1* AHIMS #57-4-0398	Survey Unit generally of low significance	Predicted very low artefact density
PPSU11	Very low	Nil recorded	Survey Unit generally of low significance	Predicted very low artefact density
PPSU12	Very low	Nil recorded	Survey Unit generally of low significance	Predicted very low artefact density
PPSU13	Very low	Nil recorded	Survey Unit generally of low significance	Predicted very low artefact density
PPSU14	Very low	Nil recorded	Survey Unit generally of low significance	Predicted very low artefact density
PPSU15	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
PPSU16	Negligible	*PPSU15/L1* AHIMS #57-4-0397	Survey Unit generally of negligible significance	Predicted negligible artefact density
PPSU17	Very low	*PPSU16/L1* AHIMS #57-4-0406 *PPSU16/L2* AHIMS #57-4-0396 *PPSU16/L3* AHIMS #57-4-0395	Survey Unit generally of low significance	Predicted very low artefact density
PPSU18	Negligible/ very low	Nil recorded	Survey Unit generally of low significance	Predicted negligible/very low artefact density
PPSU19	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
PPSU20	Very low	*PPSU19/L1* AHIMS #57-4-0407	Survey Unit generally of low significance	Predicted very low artefact density
PPSU21	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
PPSU22	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
PPSU23	Very low	*PPSU22/L1* AHIMS #57-4-0394	Survey Unit generally of low significance	Predicted very low artefact density
PPSU24	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density

Table 133 Tantangara Dam North: Cultural heritage significance assessment of Survey Units and Aboriginal object locales.

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
TNSU1	Very low	Nil recorded	Survey Unit generally of low significance	Predicted very low artefact density
TNSU2	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
TNSU3	Very low to negligible	*TNSU3/L1* AHIMS #57-4-0242 *TNSU3/L2* AHIMS #57-4-0241 *TNSU3/L3* AHIMS #57-4-0248	Survey Unit generally of low significance	Predicted very low to negligible artefact density
TNSU4	Low to moderate	*TNSU4/L1* AHIMS #57-4-0249	Survey Unit generally of low/moderate significance	Predicted very low to moderate artefact density
TNSU5	Very low	Nil recorded	Survey Unit generally of low significance	Predicted very low artefact density

Table 134 Bullocks Hill Fire Trail: Cultural heritage significance assessment of Survey Units and Aboriginal object locales.

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
BHSU1	Generally, very low	*BHSU1/L1* AHIMS #57-4-0250	Survey Unit generally of low significance	Predicted very low artefact density
BHSU2	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
BHSU3	Generally, very low	Nil recorded	Survey Unit generally of low significance	Predicted very low artefact density

Table 135 Bullocks Hill Fire Trail Portal: Cultural heritage significance assessment of Survey Units and Aboriginal object locales.

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
BPSU1	Very low	Nil recorded	Survey Unit generally of low significance	Predicted very low artefact density
BPSU2	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
BPSU3	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density

Table 136 Hains Hut Trail: Cultural heritage significance assessment of Survey Units and Aboriginal object locales.

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
HSU1	Negligible to very low	Nil recorded	Survey Unit generally of low significance	Predicted negligible to very low artefact density
HSU2	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
HSU3	Generally, very low	Nil recorded	Survey Unit generally of low significance	Predicted negligible to very low artefact density

Table 137 Tantangara Dam: Cultural heritage significance assessment of Survey Units and Aboriginal object locales.

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
TSU1	Negligible	*Quarry Rd 1* AHIMS #57-4-0127 *TSU1/L2* AHIMS #57-4-0310 *TSU1/L3* AHIMS #57-4-0311 *TSU1/L4* AHIMS #57-4-0287 *TSU1/L5* AHIMS #57-4-0290 *TSU1/L6* AHIMS #57-4-0289 *TSU1/L7* AHIMS #57-4-0288 Test Transect 1 Test Transect 2 Test Transect 3 Test Transect 4 Test Transect 5 Test Transect 6 Test Transect 7 Test Transect 8 Test Transect 9 Test Transect 10 Test Transect 11 Test Transect 12 Test Transect 13 Test Transect 14	Survey Unit very low significance	Negligible artefact density

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
		Test Transect 15		
TSU2	Low/moderate	*Quarry Road 3* AHIMS #57-4-0126 *Quarry Road 4* AHIMS #57-4-0224 *Quarry Road 5* AHIMS #57-4-0125 *TSU2/L2* AHIMS #57-4-0265 *TSU2/L3* AHIMS #57-4-0266 *TSU2/L5* AHIMS #57-4-0267 *TSU2/L6* AHIMS #57-4-0263 *TSU2/L8* AHIMS #57-4-0264 *TSU2/L9* AHIMS #57-4-0255 Test Transect 1 Test Transect 2 Test Transect 3 Test Transect 4 Test Transect 5 Test Transect 6	Survey Unit generally of low/moderate significance	Low artefact density
TSU3	Low/moderate	*Quarry road -1* AHIMS #57-4-0143 *Quarry Road 2* AHIMS #57-4-0128	Survey Unit generally of low/moderate significance	Low artefact density

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
		TSU3/L1 AHIMS #57-4-0293 *TSU3/L2* AHIMS #57-4-0292 *TSU3/L3* AHIMS #57-4-253 *TSU3/L4* AHIMS #57-4-0254 *TSU3/L5* AHIMS #57-4-0270 *TSU3/L6* AHIMS #57-4-0269 *TSU3/L7* AHIMS #57-4-0268 *TSU3/L8* AHIMS #57-4-0271 *TSU3/L11* AHIMS #57-4-0273 *TSU3/L12* AHIMS #57-4-0272 *TSU3/L13* AHIMS #57-4-0274 TSU3/L14 AHIMS #57-4-0275 *TSU3/L15* AHIMS #57-4-0262 Test Transect 1 Test Transect 2 Test Transect 3 Test Transect 4		

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
		Test Transect 5 Test Transect 6 Test Transect 7		
TSU4	Low/moderate	*Quarry Road 2* AHIMS #57-4-0123 *Quarry Road 6* AHIMS #57-4-0124 *TSU4/L1* AHIMS #57-4-0252 *TSU4/L2* AHIMS #57-4-0260 *TSU4/L3* AHIMS #57-4-0257 *TSU4/L4* AHIMS #57-4-0258 *TSU4/L6* AHIMS #57-4-0261 Test Transect 1 Test Transect 2 Test Transect 3 Test Transect 4 Test Transect 5 Test Transect 6	Survey Unit generally of moderate significance	Low/moderate artefact density
TSU5	Very low	*Quarry Road 7* AHIMS #57-4-122 *Quarry Road 8* AHIMS #57-4-121 *TSU5/L3* AHIMS #57-4-0259	Survey Unit generally of low significance	Very low artefact density

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
		TSU5/L4 AHIMS #57-4-0294 *TSU5/L5* AHIMS #57-4-0251 Test Transect 1 Test Transect 2 Test Transect 3 Test Transect 4 Test Transect 5 Test Transect 6 Test Transect 7 Test Transect 8		
TSU6	Negligible	*Tantangara Dam West* AHIMS #57-4-80 *TSU6/L1* AHIMS #57-4-0308	Survey Unit generally of negligible significance	Predicted negligible artefact density
TSU7	Low	*TSU7/L1* AHIMS #57-4-0291 *TSU7/L2* AHIMS #57-4-0286 *TSU7/L3* AHIMS #57-4-0282 *TSU7/L4* AHIMS #57-4-0283 *TSU7/L5* AHIMS #57-4-0285 *TSU7/L6* AHIMS #57-4-0284	Survey Unit generally of low significance	Negligible artefact density

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
		TSU7/L7 AHIMS #57-4-0307 Test Transect 1 Test Transect 2		
TSU8	Negligible generally	*TSU8/L1* AHIMS #57-4-0256 Test Transect 1 Test Transect 2	Survey Unit generally of low significance	Negligible artefact density
TSU9	Negligible	Nil recorded	Survey Unit generally of low significance	Predicted negligible artefact density
TSU10	Negligible	Nil recorded	Survey Unit generally of low significance	Predicted negligible artefact density
TSU11	Low	*TSU11/L1* AHIMS #57-4-0309 *TSU11/L2* AHIMS #57-4-0306 *TSU11/L3* AHIMS #57-4-0312 *TSU11/L4* AHIMS #57-4-0295 *TSU11/L5* AHIMS #57-4-0296 AHIMS *TSU11/L6* #57-4-0299 TSU11/L7 AHIMS #57-4-0298 *TSU11/L8* AHIMS #57-4-0297 *TSU11/L9*	Survey Unit generally of low significance	Low artefact density

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
		AHIMS #57-4-0300 *TSU11/L10* AHIMS #57-4-0303 *SH218* AHIMS #57-4-237 *TSU11/L11* This is duplicate of AHIMS #57-4-0301 *SH227* AHIMS #57-4-235 *TSU11/L12* This is duplicate of AHIMS #57-4-0281 *SH219* AHIMS # 57-4-236 This is duplicate of *TSU11/L13* AHIMS #57-4-0302 *TSU11/L14* AHIMS #57-4-304 *TSU11/L15* AHIMS #57-4-0305 *TSU11/L16* AHIMS #57-4-0276 *TSU11/L17* AHIMS #57-4-0277		
TSU12	Very low	*TSU12/L1* AHIMS #57-4-0278 *TSU12/L2* AHIMS #57-4-0279	Survey Unit generally of low significance	Predicted very low artefact density

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
		TSU112/L3 AHIMS #57-4-0280		
TSU13	Negligible to very low	Nil recorded	Survey Unit generally of low significance	Predicted negligible artefact density
TSU14	Negligible on higher elevations and western part of SU of crest proper. AD potential increasing from negligible up to low/moderate on low relief benches/ shoulders east of main ridge crest within SU.	*TSU14/L1* AHIMS #57-4-416 *TSU14/L2* AHIMS #57-4-415 Test Transect 14 Test Transect 15 Test Transect 16 Test Transect 17 Test Transect 18 Test Transect 19 Test Transect 20	Survey Unit generally of low significance with low/moderate densities in sheltered position on east side of ridge	Negligible to very low artefact density generally with low/moderate artefact density in certain locales
TSU15	Low/moderate trending to moderate	*TSU15/L1* AHIMS #57-4-414 *TSU15/L2* AHIMS #57-4-413 *TSU15/L3* AHIMS #57-4-412 *TSU15/L4* AHIMS #57-4-411 *TSU15/L5* AHIMS #57-4-410 Test Transect 3 Test Transect 4 Test Transect 5 Test Transect 6	Survey Unit generally of moderate significance	Low/moderate artefact density

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
		Test Transect 7 Test Transect 8 Test Transect 9 Test Transect 10 Test Transect 11 Test Transect 12 Test Transect 13		
TSU16	Very low	Nil recorded	Survey Unit generally of low significance	Predicted very low artefact density
TSU17	Very low	Nil recorded	Survey Unit generally of low significance	Predicted very low artefact density
TSU18	Very low	*TSU18/L1* *AHIMS* #57-4-0436	Survey Unit generally of low significance	Predicted very low artefact density

Table 138 Tantangara Road: Cultural heritage significance assessment of Survey Units and Aboriginal object locales.

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
TRd1	Generally, very low	*Tantangara 1* AHIMS #57-4-0161 *Gang Gang Creek* AHIMS #57-4-0038 *TRdSU1/L1* AHIMS #57-4-0327 *TRdSU1/L2* AHIMS #57-4-0328 *TRdSU1/L3* AHIMS #57-4-0329 TRdSU1/L4 AHIMS #57-4-0332	Survey Unit very low significance	Negligible to very low artefact density

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
		TRdSU1/L5 AHIMS #57-4-0330 *TRdSU1/L6* AHIMS #57-4-0331 Tantangara Road SU1/L7 AHIMS #57-4-332 Tantangara Road SU1/L8 AHIMS #57-4-334 Tantangara Road SU1/L9 AHIMS #57-4-333 Tantangara Road SU1/L10 AHIMS #57-4-336 Tantangara Road SU1/L11 AHIMS #57-4-337 Road SU1/L12 AHIMS #57-4-338		

Table 139 Denison: Cultural heritage significance assessment of Survey Units and Aboriginal object locales.

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
DSU1	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
DSU2	Negligible	*DSU2/L1* AHIMS #57-4-0352 *DSU2/L2* AHIMS #57-4-0351	Survey Unit generally of negligible significance	Predicted negligible artefact density
DSU3	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
DSU4	Negligible	*DSU4/L1* AHIMS #57-4-0350	Survey Unit generally of negligible significance	Predicted negligible artefact density
DSU5	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
DSU6	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density

Table 140 Rocky Plains Transmission Line: Cultural heritage significance assessment of Survey Units and Aboriginal object locales.

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
RPTxSU1	Very low	Nil recorded	Survey Unit generally of very low significance	Predicted very low artefact density
RPTxSU2	Negligible to very low	*Alpine Hill 3* AHIMS # 57-4-0163 *RPTxSU2/L1* AHIMS #57-4-0349	Survey Unit generally of negligible to low significance	Predicted negligible to very low artefact density
RPTxSU3	Very low	*Alpine Hill 2* AHIMS #57-4-0165	Survey Unit generally of low significance	Predicted very low artefact density

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
		RPTxSU3/L1 AHIMS #57-4-0348 *RPTxSU3/L2* AHIMS #57-4-0347 *RPTxSU3/L3* AHIMS #57-4-0346 *RPTxSU3/L4* AHIMS #57-4-0345		
RPTxSU4	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
RPTxSU5	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
RPTxSU6	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
RPTxSU7	Very low	*RPTxSU7/L1* AHIMS #57-4-0353	Survey Unit generally of low significance	Predicted very low artefact density
RPTxSU8	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density

Table 141 Rocky Plains: Cultural heritage significance assessment of Survey Units and Aboriginal object locales.

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
RPSU1	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
RPSU2	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
RPSU3	Negligible	Nil recorded	Survey Unit generally of low significance	Predicted very low artefact density

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
RPSU4	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
RPSU5	Negligible to very low	RPSU5/L1 AHIMS #57-4-0435	Survey Unit generally of low significance	Predicted negligible to very low artefact density

Table 142 Kiandra: Cultural heritage significance assessment of Survey Units.

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
KSU1	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density; highly disturbed
KSU2	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density; highly disturbed
KSU3	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density; highly disturbed
KSU4	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density; highly disturbed

Table 143 Nungar Creek Trail: Cultural heritage significance assessment of Survey Units and Aboriginal object locales.

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
NCTSU1	Negligible	*NCTSU1/L1* AHIMS #57-4-0434	Survey Unit generally of negligible significance	Predicted negligible artefact density
NCTSU2	Very low	*NCTSU2/L1* AHIMS #57-4-0417	Survey Unit generally of low significance	Predicted very low artefact density
NCTSU3	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
NCTSU4	Very low	*NCTSU4/L1* AHIMS #57-4-0433	Survey Unit generally of low significance	Predicted very low artefact density

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
		NCTSU4/L2 AHIMS #57-4-0432 *NCTSU4/L3* AHIMS #57-4-0431		
NCTSU5	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
NCTSU6	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
NCTSU7	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
NCTSU8	Negligible	*NCTSU8/L1* AHIMS #57-4-0430	Survey Unit generally of negligible significance	Predicted negligible artefact density
NCTSU9	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
NCTSU10	Negligible	*NCTSU10/L1* AHIMS #57-4-0429 *NCTSU10/L2* AHIMS #57-4-0428 *NCTSU10/L3* AHIMS #57-4-0427 *NCTSU10/L4* AHIMS #57-4-0426	Survey Unit generally of negligible significance	Predicted negligible artefact density
NCTSU11	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
NCTSU12	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
NCTSU13	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
NCTSU14	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
NCTSU15	Negligible	*NCTSU15/L1* AHIMS #57-4-0425	Survey Unit generally of negligible significance	Predicted negligible artefact density
NCTSU16	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
NCTSU17	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
NCTSU18	Negligible	*NCTSU18/L1* AHIMS #57-4-0424	Survey Unit generally of negligible significance	Predicted negligible artefact density
NCTSU19	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
NCTSU20	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
NCTSU21	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
NCTSU22	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
NCTSU23	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
NCTSU24	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
NCTSU25	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
NCTSU26	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
NCTSU27	Very low to low	*NCTSU27/L1* AHIMS #57-4-0423	Survey Unit generally of low significance	Predicted very low to low artefact density; highly disturbed

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
NCTSU28	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
NCTSU29	Very low	Nil recorded	Survey Unit generally of low significance	Predicted low artefact density
NCTSU30	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
NCTSU31	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
NCTSU32	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
NCTSU33	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
NCTSU34	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
NCTSU35	Very low	Nil recorded	Survey Unit generally of low significance	Predicted very low artefact density; highly disturbed
NCTSU36	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density; highly disturbed

Table 144 Rock Forest: Cultural heritage significance assessment of Survey Units and Aboriginal object locales.

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
CCSU1	Negligible to very low	*CCSU1/L1* AHIMS #57-4-0418 *CCSU1/L2* AHIMS #57-4-0419 *CCSU1/L3* AHIMS #57-4-0420	Survey Unit generally of low significance	Predicted negligible to very low artefact density

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
CCSU2	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
CCSU3	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
CCSU4	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
CCSU5	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
CCSU6	Very low	Nil recorded	Survey Unit generally of low significance	Predicted very low artefact density
CCSU7	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
CCSU8	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
CCSU9	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
CCSU10	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
CCSU11	Negligible	*CCSU11/L1* AHIMS #57-4-0421	Survey Unit generally of negligible significance	Predicted negligible artefact density
CCSU12	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
CCSU13	Generally negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
CCSU14	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
CCSU15	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
CCSU16	Negligible [across majority of crest] to very low - elevated archaeological potential along northern edge adjacent to 3rd order drainage line.	Nil recorded	Survey Unit generally of low significance	Predicted negligible to low artefact density
CCSU17	Negligible [across majority of SU] to very low - elevated archaeological potential in adjoining crest surface zones.	*CCSU17/L1* AHIMS #57-4-422	Survey Unit generally of low significance	Predicted negligible to low artefact density
CCSU18	Negligible to very low	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density
CCSU19	Negligible to very low	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density

8. IMPACT ASSESSMENT

In this section, the nature and extent of the proposed activity and any potential harm to Aboriginal object locales is identified. The assessment takes into consideration the extent to which the development or activity will change the surrounding landscape (NSW OEH 2011).

Direct harm would occur as a result of an activity which disturbs the ground such as road works or excavations for construction, as listed previously in Section 2. Indirect harm may occur to places situated adjacent and beyond areas in which direct impacts happen, for example, via exacerbated erosional processes.

When assessing harm, a consideration of Ecologically Sustainable Development (ESD) is required. ESD is defined in the Protection of the Environment Administration Act 1991. Section 6(2) of that Act states that ESD requires the effective integration of economic and environmental considerations in decision-making processes and that ESD can be achieved through the implementation of:

(a) the precautionary principle,

(b) inter-generational equity,

(c) conservation of biological diversity and ecological integrity,

(d) improved valuation, pricing and incentive mechanisms.

The principles of ecological sustainable development and the matter of cumulative harm have been considered for this project, noting consideration of the proposed Transgrid component of the broader project. Given the generally low levels of prior, existing and potential future impacts in the local and regional context in which the proposed activity area is situated (the area is a national park with a conservation charter), most of cultural values, including archaeological, which attach to the local area and the broader landscape would remain largely intact.

The Exploratory Works for Snowy 2.0 has resulted in impacts to a considerable area at Lobs Hole. The Snowy 2.0 Mains Works would contribute additional harm to the archaeological resource. The Exploratory Works impacts have been mitigated by an extensive program of salvage excavation.

In regard to the Transgrid proposal, it is noted that the transmission line footprint traverses a rugged and steep suite of landforms of very low to negligible archaeological potential. It is also acknowledged that the Transgrid footprint is a discrete, linear and relatively small area. Accordingly, in terms of cumulative impacts, the Transgrid proposal is assessed to have little bearing on the Main Works as described and assessed in this report.

The consideration of ESD and cumulative harm has concluded that avoidance of impacts is not warranted.

However, the proposed activities will take place across an extensive area, although not all areas would be impacted in significant ways. For example, much of the project footprint is discrete, narrow and linear areas in which impacts can be considered to be minimal. The archaeological values vary across the project area and the impacts would occur within landforms of varying significance and value.

The assessment of harm is conducted within an analytical framework based on Survey Units as presented in the tables in Section 9. The location of impacts in respect of Survey Units and Aboriginal object locales in shown in Annexure 3. It is noted that not all areas within Survey Units would be impacted during the activity, and accordingly impacts will be partial rather than comprehensive.

Most Aboriginal object locales have suffered prior disturbance and impacts will not be new. The Aboriginal object locales are not in any case considered to be of sufficient significance as to warrant avoidance measures. However, a number of management strategies are possible, and these are each given consideration in Section 9.

9. MANAGEMENT AND MITIGATION

9.1 MANAGEMENT AND MITIGATION STRATEGIES

Further Investigation

Depending on the scale of impacts in certain Survey Units, some further field inspection may be required after vegetation clearance in order to get access and conduct some investigative works which were not able to be satisfactorily undertaken at this time due to thick undergrowth, blackberry thickets etc.

These further investigations would be developed during the construction of an Aboriginal Cultural Heritage Management Plan.

Conservation

Avoidance of impacts (conservation) is a suitable management option in any situation, however, it is not always feasible to achieve. Such a strategy is generally adopted in relation to sites which are assessed to be of high cultural and scientific significance but can be adopted in relation to any site type.

In the case at hand, the development of a conservation strategy is not relevant or warranted in respect of the Aboriginal object locales. However, impacts to ground surfaces should be kept to an absolute minimum.

Mitigated Impacts

Mitigated impact usually takes the form of partial impacts only (i.e. conservation of part of an Aboriginal site or Survey Unit) and/or salvage in the form of further research and archaeological analysis prior to impacts. Such a management strategy is generally appropriate when Aboriginal objects are assessed to be of moderate or high significance to the scientific and/or Aboriginal community and when avoidance of impacts and hence full conservation is not feasible. Salvage can include the surface collection or subsurface excavation of Aboriginal objects and subsequent research and analysis.

In the case at hand, mitigated impact in the form of salvage excavations is considered warranted in respect of some Survey Units at Lobs Hole Ravine and Tantangara which are assessed to be of higher significance values.

A program of salvage excavation is proposed in landforms of higher archaeological value where impacts are proposed. The scale and nature of the salvage program would be determined in consultation with the proponent, Aboriginal community and NSW DPIE during the development of the Aboriginal Cultural Heritage Management Plan.

Unmitigated Impacts

Unmitigated impact (harm without salvage) to Aboriginal objects can be given consideration when they are assessed to be of low archaeological and cultural significance and otherwise in situations where conservation or limiting the extent of impacts is simply not feasible.

Most Aboriginal object sites identified in the subject area have been assessed to be of low or low/moderate archaeological significance. Given the nature of these, and the proposed impacts, unmitigated impacts would be appropriate. However, see above (Conservation).

Monitoring

Monitoring during construction for the purposes of identifying cultural material that may be uncovered during earth disturbance can be implemented as a management strategy. However, monitoring is a reactive rather than proactive strategy, and as such, is not an ideal management tool in cultural heritage management. Monitoring for artefacts is not a widely accepted method of management because sites of significance can be destroyed as monitoring is taking place and because it can result in lengthy and costly delays to development works if significant cultural material is uncovered. In the case at hand, the development of a monitoring strategy may be warranted for some areas which have been unable to be adequately assessed at this time due to thick vegetation prohibiting access to certain areas. A program for these works would be addressed within the Aboriginal Cultural Heritage Management Plan and would need to be undertaken well is advance of the constructions. The monitoring and any required salvaged would be conducted after the Construction Environmental Management Plan approval process.

In the tables below, management and mitigation measures are discussed in respect of each Survey Unit inclusive of those which are as yet un-surveyed.

In regard to the un-surveyed Survey Units, it is proposed that where warranted, the completion of the survey would occur during the public exhibition and Response to Submissions (RTS) phase. At this time, the proposed impact and management measures of such areas would be finalised.

Table 145 Talbingo: Impact assessment and management and mitigation measures.

ID	Predicted/Known Artefact Density in SU	Aboriginal Objects	Significance	Criteria
SU26	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density; highly disturbed landforms
SU27	Negligible	Nil recorded	Survey Unit generally of negligible significance	Predicted negligible artefact density; highly disturbed landforms

Table 146 Lobs Hole Ravine: Impact assessment and management and mitigation measures.

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
RSU1	Nil recorded	Low local significance	Exploratory Works - direct Main Works - direct	Partial	Unmitigated impact
RSU2	Nil recorded	Potentially moderate local significance	Exploratory Works - direct Main Works - direct	Partial	Salvage excavation
RSU3	AHIMS #56-6-0009 RSU3/L1 RSU3/L2 RSU3/L3 Test Transect 1 Test Transect 2 Test Transect 3 Test Transect 4	Low/moderate local significance	Exploratory Works - direct	Partial	Unmitigated impact
RSU4	AHIMS #56-6-0045 RSU4/L1 RSU4/L2	Low local significance	Exploratory Works - direct Main Works - direct	Partial	Unmitigated impact
RSU5	RSU5/L1 RSU5/L2	Moderate local significance	Exploratory Works - direct	Partial	Salvage excavation

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
	Test Transect 1 Test Transect 2 Test Transect 3 Test Transect 4 Test Transect 5		Main Works - direct		
RSU6	RSU6/L1 RSU6/L2 RSU6/L3 RSU6/L4 Test Transect 1 Test Transect 2	Moderate local significance	Exploratory Works - direct Main Works - direct	Partial	Salvage excavation
RSU7	Nil recorded	Potentially moderate local significance	Exploratory Works - direct Main Works - direct	Partial	Salvage excavation
RSU8	AHIMS #56-6-0043 Test Transect 1 Test Transect 2 Test Transect 3 Test Transect 4	Low local significance	Exploratory Works - direct Main Works - direct	Partial	Unmitigated impact
RSU9	Nil recorded	Low local significance	Exploratory Works - direct Main Works - direct	Partial	Unmitigated impact
RSU10	RSU10/L1 RSU10/L2 RSU10/L3 Test Transect 1 Test Transect 2	Moderate local significance	Exploratory Works - direct Main Works - direct	Partial	Salvage excavation

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
RSU11	AHIMS #56-6-0041 AHIMS #56-6-0047 RSU11/L1 RSU11/L2 RSU11/L3 Test Transect 1 Test Transect 2 Test Transect 3	Low local significance	Exploratory Works - direct Main Works - direct	Partial	Unmitigated impact
RSU12	AHIMS #56-6-0042 AHIMS #56-6-0046 Test Transect 1 Test Transect 2 Test Transect 3 Test Transect 4 Test Transect 5 Test Transect 6 Test Transect 7 Test Transect 8	Moderate local significance	Exploratory Works - direct Main Works - direct	Partial	Salvage excavation
RSU13	RSU13/L1 RSU13/L2	Low local significance	Exploratory Works - direct Main Works - direct	Partial	Unmitigated impact
RSU14	Nil recorded	Low local significance	Main Works - direct	Partial	Unmitigated impact
RSU15	Nil recorded	Low local significance	Exploratory Works - direct Main Works - direct	Partial	Unmitigated impact

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
RSU16	RSU16/L1 RSU16/L2 RSU16/L3 RSU16/L4	Low local significance	Exploratory Works - direct Main Works - direct	Partial	Unmitigated impact
RSU17	RSU17/L1	Low local significance	Main Works - direct	Partial	Unmitigated impact
RSU18	RSU18/L1	Low local significance	Main Works - direct	Partial	Unmitigated impact
RSU19	Nil recorded	Low local significance	Exploratory Works - direct Main Works - direct	Partial	Unmitigated impact
RSU20	RSU20/L1 RSU20/L2 RSU20/L3 RSU20/L4 RSU20/L5 RSU20/L6 RSU20/L7 RSU20/L8 RSU20/L9 RSU20/L10 RSU20/L12 RSU20/L12	Low local significance	Nil	Nil	N/A
RSU21	Nil recorded	Low local significance	Exploratory Works - direct Main Works - direct	Partial	Unmitigated impact
RSU22	RSU22/L1 RSU22/L2 RSU22/L3	Low local significance	Exploratory Works - direct Main Works - direct	Partial	Unmitigated impact

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
RSU23	RSU23/L1 RSU23/L2 RSU23/L3	Low local significance	Exploratory Works - direct Main Works - direct	Partial	Unmitigated impact
RSU24	RSU24/L1	Low local significance	Exploratory Works - direct Main Works - direct	Partial	Unmitigated impact
RSU25	AHIMS #56-6-0038 AHIMS #56-6-0039 AHIMS #56-6-0040	Low local significance	Exploratory Works - direct Main Works - direct	Partial	Unmitigated impact
RSU26	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	Nil
RSU27	Nil recorded	Survey Unit generally of negligible significance	Main Works - direct	Partial	Unmitigated impact
RSU28	Nil recorded	Survey Unit generally of negligible significance	Main Works - direct	Partial	Unmitigated impact
RSU29	RSU29/L1	Survey Unit generally of negligible significance	Main Works - direct	Not all of SU would be impacted	Mitigated Impact: salvage hatchet head
RSU30	Nil recorded	Survey Unit generally of negligible significance	Main Works - direct	Partial	Unmitigated impact
RSU31	Nil recorded	Survey Unit generally of negligible significance	Main Works - direct	Partial	Unmitigated impact
RSU32	Nil recorded	Survey Unit generally of negligible significance	Main Works - direct	Partial	Unmitigated impact
RSU33	Nil recorded	Survey Unit generally of negligible significance	Main Works - direct	Partial	Unmitigated impact
RSU34	Nil recorded	Survey Unit generally of negligible significance	Main Works - direct	Partial	Unmitigated impact

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
RSU35	Nil recorded	Survey Unit generally of negligible significance	Main Works - direct	Partial	Unmitigated impact
RSU36	Nil recorded	Survey Unit generally of negligible significance	Main Works - direct	Partial	Unmitigated impact
RSU37	Nil recorded	Survey Unit generally of negligible significance	Main Works - direct	Partial	Unmitigated impact
RSU38	Nil recorded	Survey Unit generally of negligible significance	Main Works - direct	Partial	Unmitigated impact
RSU39	RSU39/L2 RSU39/L1	Survey Unit generally of negligible significance with the exception of certain micro topographies which may potentially be of low/moderate local significance	Main Works - direct	Partial	Unmitigated impact
RSU40	Nil recorded	Survey Unit generally of negligible significance	Main Works - direct	Partial	Unmitigated impact
RSU41	Nil recorded	Survey Unit generally of negligible significance	Main Works - direct	Partial	Unmitigated impact
RSU42	Un-surveyed	Survey Unit generally of negligible potential	Main Works - direct	Partial	Unmitigated impact
RSU43	Un-surveyed	Survey Unit generally of negligible potential	Main Works - direct	Partial	Unmitigated impact
RSU44	Un-surveyed: Talbingo Dam	Survey Unit generally of negligible potential	Main Works - direct	Partial	Unmitigated impact
RSU45	Un-surveyed	Survey Unit generally of negligible potential	Main Works - direct	Partial	Unmitigated impact
RSU46	Un-surveyed	Survey Unit generally of negligible potential	Main Works - direct	Partial	Unmitigated impact

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
RSU47	Un-surveyed	Survey Unit generally of negligible potential	Main Works - direct	Partial	Unmitigated impact

Table 147 Marica: Recommended management and mitigation measures.

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
MSU1	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
MSU2	*MSU2/L1* AHIMS #56-6-0501	Generally low significance in the Survey Unit with the exception of *MSU2/L1* which may potentially be of moderate local significance	Direct	Partial	Salvage excavation
MSU3	*MSU3/L1* AHIMS #56-6-535	Generally low significance in the Survey Unit with the exception of *MSU3/L1* which may potentially be of low/moderate local significance	Direct	Partial	Unmitigated impact
MSU4	*MSU4/L1* AHIMS #56-6-0500 *MSU4/L2* AHIMS #56-6-534	Generally low significance in the Survey Unit with the exception of *MSU4/L1 and MSU4/L2* which may potentially be of low/moderate local significance	Direct	Partial	Salvage excavation
MSU5	Nil recorded	Survey Unit generally of very low significance	Direct	Partial	Unmitigated impact
MSU6	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
MSU7	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
MSU8	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
MSU9	Un-surveyed	Survey Unit generally of negligible potential	Direct	Partial	Unmitigated impact
MSU10	Un-surveyed	Survey Unit generally of low potential	Direct	Partial	Unmitigated impact

Table 148 Gooandra Hill: Recommended management and mitigation measures.

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
GHSU1	*Gooandra SU1/L1* AHIMS #57-4-0313 *Gooandra SU1/L2* AHIMS #57-4-0314 *Gooandra SU1/L3* AHIMS #57-4-0315 Gooandra SU1/L4 AHIMS #57-4-0316 *Gooandra SU1/L5* AHIMS #57-4-0317 *Gooandra SU1/L6* AHIMS #57-4-0326 *Gooandra SU1/L7* AHIMS #57-4-0325 *Gooandra SU1/L8* AHIMS #57-4-0323 *Gooandra SU1/L9* AHIMS #57-4-0324 *Gooandra SU1/L10*	Generally low significance in the Survey Unit with the exception of certain micro topographies which may potentially be of low/moderate local significance	Nil	Nil	N/A

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
	AHIMS #57-4-0405 *Gooandra SU1/L11* AHIMS #57-4-0408 *Gooandra SU1/L12* AHIMS #57-4-0404 Test Transect 1 Test Transect 2 Test Transect 3 Test Transect 4 Test Transect 5 Test Transect 6 Test Transect 7 Test Transect 8 Test Transect 9 Test Transect 10 Test Transect 11 Test Transect 12 Test Transect 13				
GHSU2	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
GHSU3	*Gooandra SU3/L1* AHIMS #57-4-0322 *Gooandra SU3/L2* AHIMS #57-4-0321 *Gooandra SU3/L3* AHIMS #57-4-0320 *Gooandra SU3/L4* AHIMS #57-4-0319 *Gooandra SU3/L5* AHIMS #57-4-0318	Generally low significance in the Survey Unit with the exception of certain micro topographies which may potentially be of low/moderate local significance	Nil	Nil	N/A

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
GHSU4	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
GHSU5	Nil recorded	Survey Unit generally of very low significance	Direct	Partial	Unmitigated impact
GHSU6	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
GHSU7	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
GHSU8	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
GHSU9	Nil recorded	Survey Unit generally of very low significance	Direct	Partial	Unmitigated impact
GHSU10	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
GHSU11	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
GHSU12	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
GHSU13	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
GHSU14	Un-surveyed	Survey Unit generally of negligible potential	Direct	Partial	Unmitigated impact
GHSU15	Un-surveyed	Survey Unit generally of negligible potential	Direct	Partial	Unmitigated impact

Table 149 Wallaces Creek Fire Trail: Recommended management and mitigation measures.

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
WSU1	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
WSU2	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
WSU3	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
WSU4	*WSU4/L1* AHIMS #56-6-0526	Survey Unit generally of very low significance with the exception of *WSU4/L1* which may potentially be of low/moderate local significance	Nil	Nil	N/A
WSU5	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
WSU6	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
WSU7	*WSU7/L1* AHIMS #56-6-0527 *WSU7/L2* AHIMS #56-6-0525	Survey Unit generally of negligible significance Generally low significance in the Survey Unit with the exception of certain micro topographies which may potentially be of low/moderate local significance	Nil	Nil	N/A
WSU8	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
WSU9	*WSU9/L1* AHIMS #56-6-0524 *WSU9/L2* AHIMS #56-6-0523 *WSU9/L3*	Generally low significance in the Survey Unit with the exception of certain micro topographies which may potentially be of	Nil	Nil	N/A

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
	AHIMS #56-6-0522 WSU9/L4 AHIMS #56-6-0521 *WSU9/L5* AHIMS #56-6-0520	low/moderate local significance			
WSU10	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
WSU11	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
WSU12	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
WSU13	*WSU13/L1* AHIMS #56-6-0519 *WSU13/L2* AHIMS #56-6-0518	Survey Unit generally of very low significance the exception of certain micro topographies which may potentially be of low/moderate local significance	Nil	Nil	N/A
WSU14	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
WSU15	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
WSU16	*WSU16/L1* AHIMS #56-6-0516 *WSU16/L2* AHIMS #56-6-0515 *WSU16/L3* AHIMS #56-6-0517 *WSU16/L4* AHIMS #56-6-0514	Generally low significance in the Survey Unit with the exception of certain micro topographies which may potentially be of low/moderate local significance	Nil	Nil	N/A

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
	WSU16/L5 AHIMS #56-6-0513 *WSU16/L6* AHIMS #56-6-0512 *WSU16/L7* AHIMS #56-6-0510 *WSU16/L8* AHIMS #56-6-0511 *WSU16/L9* AHIMS #56-6-0509 *WSU16/L10* AHIMS #56-6-0508				

Table 150 Kings Cross Road: Recommended management and mitigation measures.

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
KCSU1	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
KCSU2	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
KCSU3	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
KCSU4	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
KCSU5	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
KCSU6	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
KCSU7	*MS-ST-1* AHIMS #56-6-0131 (not in SU)	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact

Table 151 Link Road: Recommended management and mitigation measures.

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
LSU1	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
LSU2	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
LSU3	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
LSU4	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
LSU5	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact

Table 152 Three Mile Dam: Recommended management and mitigation measures.

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
3MSU1	*3MSU1/L1* AHIMS #56-6-0533	Survey Unit generally of negligible significance	Nil	Nil	N/A
3MSU2	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
3MSU3	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
3MSU4	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
3MSU5	*3MSU5/L1* AHIMS #56-6-0532	Survey Unit generally of negligible significance	Nil	Nil	N/A
3MSU6	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
3MSU7	*3MSU7/L1* AHIMS #56-6-0531	Survey Unit generally of negligible to very low	Nil	Nil	N/A

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
		significance with the exception of *3MSU7/L1* which may potentially be of low/moderate local significance			
3MSU8	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
3MSU9	*3MSU9/L1* AHIMS #56-6-0530	Survey Unit generally of negligible to very low significance with the exception of *3MSU9/L1* which may potentially be of low/moderate local significance	Nil	Nil	N/A
3MSU10	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
3MSU11	*3MSU11/L1* AHIMS #56-6-0529	Survey Unit generally of negligible to very low significance with the exception of *3MSU11/L1* which may potentially be of low/moderate local significance	Nil	Nil	N/A
3MSU12	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
3MSU13	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
3MSU14	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
3MSU15	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
3MSU16	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
3MSU17	*3MSU17/L1* AHIMS #56-6-0528	Survey Unit generally of negligible to very low significance with the exception of *3MSU17/L1* which may potentially be of low/moderate local significance	Nil	Nil	N/A

Table 153 Gooandra Fire Trail: Recommended management and mitigation measures.

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
GSU1	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
GSU2	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
GSU3	Nil recorded	Survey Unit generally of negligible/low significance	Direct	Partial	Unmitigated impact
GSU4	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
GSU5	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
GSU6M	Nil recorded	Survey Unit generally of negligible/low significance	Nil	Nil	N/A
GSU6	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
GSU7	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
GSU8	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
GSU9	Nil recorded	Survey Unit generally of very low significance	Direct	Partial	Unmitigated impact
GSU10	Nil recorded	Survey Unit generally of very low significance	Direct	Partial	Unmitigated impact
GSU11	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
GSU12	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
GSU13	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
GSU14	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
GSU15	*GSU15/L1* AHIMS #57-4-0409	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
GSU16	Nil recorded	Survey Unit generally of negligible to very low significance	Direct	Partial	Unmitigated impact
GSU17	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
GSU18	*GSU18/L1* AHIMS #57-4-0383	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
GSU19	Nil recorded	Survey Unit generally of negligible to low significance	Direct	Partial	Unmitigated impact
GSU20	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
GSU21	Nil recorded	Survey Unit generally of negligible to low significance	Direct	Partial	Unmitigated impact
GSU22	Nil recorded	Survey Unit generally of low significance	Direct	Partial	Unmitigated impact
GSU23	Un-surveyed	Survey Unit generally of negligible potential	Direct	Partial	Unmitigated impact

Table 154 Nungar Creek Fire Trail: Recommended management and mitigation measures.

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
NSU1	*NSU1/L1* AHIMS #57-4-0344	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
NSU2	*NSU2/L1* AHIMS #57-4-0390	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
NSU3	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
NSU4	*NSU4/L1* AHIMS #57-4-0343	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
NSU5	Un-surveyed	Survey Unit generally of low potential	Direct	Partial	Unmitigated impact
NSU6	Un-surveyed	Survey Unit generally of low potential	Direct	Partial	Unmitigated impact

Table 155 Tantangara Dam Fire Trail: Recommended management and mitigation measures.

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
TFTSU1	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
TFTSU2	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
TFTSU3	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
TFTSU4	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
TFTSU5	Un-surveyed	Survey Unit generally of low potential	Direct	Partial	Unmitigated impact
TFTSU6	Un-surveyed	Survey Unit generally of low potential	Direct	Partial	Unmitigated impact

Table 156 Tantangara Dam Road Transmission Line: Recommended management and mitigation measures.

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
TTxSU1	*TTxSU1/L1* AHIMS #57-4-0361	Survey Unit generally of negligible significance	Nil	Nil	N/A
TTxSU2	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
TTxSU3	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
TTxSU4	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
TTxSU5	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
TTxSU6	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
TTxSU7	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
TTxSU8	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
TTxSU9	*TTxSU9/L1* AHIMS #57-4-0363	Survey Unit generally of negligible to low significance	Nil	Nil	N/A

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
TTxSU10	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
TTxSU11	*TTxSU11/L1* AHIMS #57-4-0362	Survey Unit generally of negligible to low significance	Nil	Nil	N/A
TTxSU12	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
TTxSU13	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
TTxSU14	*TTxSU14/L1* AHIMS #57-4-0360	Survey Unit generally of low significance	Nil	Nil	N/A
TTxSU15	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
TTxSU16	*TTxSU16/L1* AHIMS #57-4-0359	Survey Unit generally of negligible significance	Nil	Nil	N/A
TTxSU17	*TTxSU17/L1* AHIMS #57-4-0364	Survey Unit generally of negligible significance	Nil	Nil	N/A
TTxSU18	*TTxSU18/L1* AHIMS #57-4-0358	Survey Unit generally of negligible significance	Nil	Nil	N/A
TTxSU19	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
TTxSU20	Nil recorded	Survey Unit generally of negligible to low significance	Nil	Nil	N/A
TTxSU21	*TTxSU21/L1* AHIMS #57-4-0356	Survey Unit generally of negligible significance	Nil	Nil	N/A
TTxSU22	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
TTxSU23	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
TTxSU24	*TTxSU24/L1* AHIMS #57-4-0357	Survey Unit generally very low significance	Nil	Nil	N/A
TTxSU25	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
TTxSU26	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
TTxSU27	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
TTxSU28	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
TTxSU29	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
TTxSU30	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
TTxSU31	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
TTxSU32	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
TTxSU33	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
TTxSU34	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
TTxSU35	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
TTxSU36	*TTxSU36/L1* AHIMS #57-4-0355	Survey Unit generally negligible to very low significance	Nil	Nil	N/A
TTxSU37	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
TTxSU38	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
TTxSU39	*TTxSU39/L1* AHIMS #57-4-0354	Survey Unit generally very low significance	Nil	Nil	N/A
TTxSU40	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
TTxSU41	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A

Table 157 Schofields Fire Trail: Recommended management and mitigation measures.

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
SSU1	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
SSU2	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
SSU3	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
SSU4	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
SSU5	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
SSU6	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
SSU7	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
SSU8	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
SSU9	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
SSU10	*SSU10/L1* AHIMS #57-4-0382 *SSU10/L2* AHIMS #57-4-0381 *SSU10/L3* AHIMS #57-4-0380 *SSU10/L4* AHIMS #57-4-379	Survey Unit generally of low significance	Nil	Nil	N/A
SSU11	*Nungar Creek* AHIMS #57-4-0160	Survey Unit generally of negligible significance	Nil	Nil	N/A
SSU12	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
SSU13	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
SSU14	*SSU14/L1* AHIMS #57-4-0378 *SSU14/L2* AHIMS #57-4-0377 *SSU14/L3* AHIMS #57-4-0376	Survey Unit generally of low significance	Nil	Nil	N/A
SSU15	*SSU15/L1* AHIMS #57-4-0375 SSU15/L2 AHIMS #57-4-0374	Survey Unit generally of low significance	Nil	Nil	N/A
SSU16	*SSU16/L1* AHIMS #57-4-0373 *SSU16/L2* AHIMS #57-4-0372	Survey Unit generally of negligible significance	Nil	Nil	N/A
SSU17	*SSU17/L1* AHIMS #57-4-0371	Survey Unit generally of low significance	Nil	Nil	N/A

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
	SSU17/L2 AHIMS #57-4-0370 *SSU17/L3* AHIMS #57-4-0369				
SSU18	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
SSU19	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
SSU20	*SSU20/L1* AHIMS #57-4-0368	Survey Unit generally of negligible to low significance	Nil	Nil	N/A
SSU21	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
SSU22	*SSU22/L1* AHIMS #57-4-0367	Survey Unit generally of negligible significance	Nil	Nil	N/A
SSU23	*SSU23/L1* AHIMS #57-4-0366 *SSU23/L2* AHIMS #57-4-0365	Survey Unit generally of negligible significance	Nil	Nil	N/A
SSU24	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
SSU25	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
SSU26	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
SSU27	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
SSU28	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A

Table 158 Circuits Hut Fire Trail: Recommended management and mitigation measures.

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
CHSU1	Negligible	Nil recorded	Nil	Nil	N/A
CHSU2	Very low to low	*KNP91-12* AHIMS #57-4-0060 *CHSU2/L1* AHIMS #57-4-0342	Nil	Nil	N/A
CHSU3	Negligible to very low	*CHSU3/L1* AHIMS #57-4-0341 *CHSU3/L2* AHIMS #57-4-0340	Nil	Nil	N/A
CHSU4	Negligible	Nil recorded	Nil	Nil	N/A
CHSU5	Negligible	Nil recorded	Nil	Nil	N/A
CHSU6	Very low to low	*CHSU6/L1* AHIMS #57-4-0339	Nil	Nil	N/A
CHSU7	Negligible	*CHSU7/L1* AHIMS #57-4-0393	Nil	Nil	N/A
CHSU8	Negligible	Nil recorded	Nil	Nil	N/A
CHSU9	Negligible	Nil recorded	Nil	Nil	N/A
CHSU10	Negligible to very low	*CHSU10/L1* AHIMS #57-4-0392	Nil	Nil	N/A
CHSU11	Negligible	*CHSU11/L1* AHIMS #57-4-0391	Nil	Nil	N/A
CHSU12	Very low to low	*CHSU12/L1* AHIMS #57-4-0389	Nil	Nil	N/A
CHSU13	Negligible	Nil recorded	Nil	Nil	N/A

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
CHSU14	Very low	*CHSU14/L1* AHIMS #57-4-0388 *CHSU14/L2* AHIMS #57-4-0387	Nil	Nil	N/A
CHSU15	Negligible	Nil recorded	Nil	Nil	N/A
CHSU16	Negligible	Nil recorded	Nil	Nil	N/A
CHSU17	Negligible	Nil recorded	Nil	Nil	N/A
CHSU18	Negligible	Nil recorded	Nil	Nil	N/A
CHSU19	Negligible	Nil recorded	Nil	Nil	N/A
CHSU20	Negligible	Nil recorded	Nil	Nil	N/A
CHSU21	Negligible	Nil recorded	Nil	Nil	N/A
CHSU22	Negligible	*CHSU22/L1* AHIMS #57-4-0385	Nil	Nil	N/A
CHSU23	Negligible	Nil recorded	Nil	Nil	N/A
CHSU24	Negligible	Nil recorded	Nil	Nil	N/A
CHSU25	Negligible	Nil recorded	Nil	Nil	N/A
CHSU26	Negligible	*CHSU26/L1* AHIMS #57-4-0386	Nil	Nil	N/A
CHSU27	Negligible	Nil recorded	Nil	Nil	N/A

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
CHSU1	Negligible	Nil recorded	Nil	Nil	N/A
CHSU2	Negligible	*CHSU29/L1* AHIMS #57-4-0384	Nil	Nil	N/A
CHSU3	Negligible	Nil recorded	Nil	Nil	N/A

Table 159 Pockets Saddle Road: Recommended management and mitigation measures.

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
PSSU1	Nil recorded	Survey Unit generally of low significance	Nil	Nil	N/A
PSSU2	Nil recorded	Survey Unit generally of low significance	Nil	Nil	N/A
PSSU3	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
PSSU4	*Port Phillip FT Mt* AHIMS #57-4-0217 *KNP91-41* AHIMS #57-4-0076	Survey Unit generally of low significance	Nil	Nil	N/A
PSSU5	Nil recorded	Survey Unit generally of negligible/low significance	Nil	Nil	N/A
PSSU6	Nil recorded	Survey Unit generally of low significance	Nil	Nil	N/A
PSSU7	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
PSSU8	Nil recorded	Survey Unit generally of negligible/low significance	Nil	Nil	N/A

Table 160 Port Phillip Fire Trail: Recommended management and mitigation measures.

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
PPSU1	Nil recorded	Survey Unit generally of low significance	Nil	Nil	N/A
PPSU2	Nil recorded	Survey Unit generally of low significance	Nil	Nil	N/A
PPSU3	Nil recorded	Survey Unit generally of low significance	Nil	Nil	N/A
PPSU4	*PPSU4/L1* AHIMS #57-4-0247 *PPSU4/L2* AHIMS #57-4-0246 *PPSU4/L3* AHIMS #57-4-0245	Survey Unit generally of low significance	Nil	Nil	N/A
PPSU5	*PPSU5/L1* AHIMS #57-4-0243 *PPSU5/L2* AHIMS #57-4-0244	Survey Unit generally of low significance	Nil	Nil	N/A
PPSU6	*PPSU6/L1* AHIMS #57-4-0238 *PPSU6/L2* AHIMS #57-4-0239	Survey Unit generally of low significance	Nil	Nil	N/A
PPSU7	*PPSU7/L1* AHIMS #57-4-0240 *PPSU7/L2* AHIMS #57-4-0403	Survey Unit generally of low significance	Nil	Nil	N/A
PPSU8	*PPSU8/L1* AHIMS #57-4-0402 *PPSU8/L2* AHIMS #57-4-0401	Survey Unit generally of negligible significance	Nil	Nil	N/A

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
PPSU9	*PPSU9/L1* AHIMS #57-4-0400 *PPSU9/L2* AHIMS #57-4-0399	Survey Unit generally of low significance	Nil	Nil	N/A
PPSU10	*PPSU10/L1* AHIMS #57-4-0398	Survey Unit generally of low significance	Nil	Nil	N/A
PPSU11	Nil recorded	Survey Unit generally of low significance	Nil	Nil	N/A
PPSU12	Nil recorded	Survey Unit generally of low significance	Nil	Nil	N/A
PPSU13	Nil recorded	Survey Unit generally of low significance	Nil	Nil	N/A
PPSU14	Nil recorded	Survey Unit generally of low significance	Nil	Nil	N/A
PPSU15	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
PPSU16	*PPSU15/L1* AHIMS #57-4-0397	Survey Unit generally of negligible significance	Nil	Nil	N/A
PPSU17	*PPSU16/L1* AHIMS #57-4-0406 *PPSU16/L2* AHIMS #57-4-0396 *PPSU16/L3* AHIMS #57-4-0395	Survey Unit generally of low significance	Nil	Nil	N/A
PPSU18	Nil recorded	Survey Unit generally of low significance	Nil	Nil	N/A
PPSU19	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
PPSU20	*PPSU19/L1* AHIMS #57-4-0407	Survey Unit generally of low significance	Nil	Nil	N/A

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
PPSU21	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
PPSU22	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
PPSU23	*PPSU22/L1* AHIMS #57-4-0394	Survey Unit generally of low significance	Nil	Nil	N/A
PPSU24	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A

Table 161 Tantangara Dam North: Recommended management and mitigation measures.

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
TNSU1	Nil recorded	Survey Unit generally of low significance	Nil	Nil	N/A
TNSU2	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
TNSU3	*TNSU3/L1* AHIMS #57-4-0242 *TNSU3/L2* AHIMS #57-4-0241 *TNSU3/L3* AHIMS #57-4-0248	Survey Unit generally of low significance	Nil	Nil	N/A
TNSU4	*TNSU4/L1* AHIMS #57-4-0249	Survey Unit generally of low/moderate significance	Nil	Nil	N/A
TNSU5	Nil recorded	Survey Unit generally of low significance	Nil	Nil	N/A

Table 162 Bullocks Hill Fire Trail: Recommended management and mitigation measures.

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
BHSU1	*BHSU1/L1* AHIMS #57-4-0250	Survey Unit generally of low significance	Nil	Nil	N/A
BHSU2	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
BHSU3	Nil recorded	Survey Unit generally of low significance	Nil	Nil	N/A

Table 163 Bullocks Hill Fire Trail Portal: Recommended management and mitigation measures.

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
BPSU1	Nil recorded	Survey Unit generally of low significance	Nil	Nil	N/A
BPSU2	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
BPSU3	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A

Table 164 Hains Hut Trail: Recommended management and mitigation measures.

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
HSU1	Negligible to very low	Nil recorded	Nil	Nil	N/A
HSU2	Negligible	Nil recorded	Nil	Nil	N/A
HSU3	Generally, very low	Nil recorded	Nil	Nil	N/A

Table 165 Tantangara Dam: Recommended management and mitigation measures.

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
TSU1	*Quarry Rd 1* AHIMS #57-4-0127	Survey Unit very low significance	Direct	Partial	Unmitigated impact

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
	TSU1/L2 AHIMS #57-4-0310 *TSU1/L3* AHIMS #57-4-0311 *TSU1/L4* AHIMS #57-4-0287 *TSU1/L5* AHIMS #57-4-0290 *TSU1/L6* AHIMS #57-4-0289 *TSU1/L7* AHIMS #57-4-0288 Test Transect 1 Test Transect 2 Test Transect 3 Test Transect 4 Test Transect 5 Test Transect 6 Test Transect 7 Test Transect 8 Test Transect 9 Test Transect 10 Test Transect 11 Test Transect 12 Test Transect 13 Test Transect 14 Test Transect 15				
TSU2	*Quarry Road 3* AHIMS #57-4-0126 *Quarry Road 4* AHIMS #57-4-0224	Survey Unit generally of low/moderate significance	Direct	Partial	Salvage excavation

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
	Quarry Road 5 AHIMS #57-4-0125 *TSU2/L2* AHIMS #57-4-0265 *TSU2/L3* AHIMS #57-4-0266 *TSU2/L5* AHIMS #57-4-0267 *TSU2/L6* AHIMS #57-4-0263 *TSU2/L8* AHIMS #57-4-0264 *TSU2/L9* AHIMS #57-4-0255 Test Transect 1 Test Transect 2 Test Transect 3 Test Transect 4 Test Transect 5 Test Transect 6				
TSU3	*Quarry road -1* AHIMS #57-4-0143 *Quarry Road 2* AHIMS #57-4-0128 *TSU3/L1* AHIMS #57-4-0293 *TSU3/L2* AHIMS #57-4-0292 *TSU3/L3* AHIMS #57-4-253 *TSU3/L4*	Survey Unit generally of low/moderate significance	Direct	Partial	Salvage excavation

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
	AHIMS #57-4-0254 *TSU3/L5* AHIMS #57-4-0270 *TSU3/L6* AHIMS #57-4-0269 *TSU3/L7* AHIMS #57-4-0268 *TSU3/L8* AHIMS #57-4-0271 *TSU3/L11* AHIMS #57-4-0273 *TSU3/L12* AHIMS #57-4-0272 *TSU3/L13* AHIMS #57-4-0274 TSU3/L14 AHIMS #57-4-0275 *TSU3/L15* AHIMS #57-4-0262 Test Transect 1 Test Transect 2 Test Transect 3 Test Transect 4 Test Transect 5 Test Transect 6 Test Transect 7				
TSU4	*Quarry Road 2* AHIMS #57-4-0123 *Quarry Road 6* AHIMS #57-4-0124 *TSU4/L1*	Survey Unit generally of moderate significance	Direct	Partial	Salvage excavation

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
	AHIMS #57-4-0252 *TSU4/L2* AHIMS #57-4-0260 *TSU4/L3* AHIMS #57-4-0257 *TSU4/L4* AHIMS #57-4-0258 *TSU4/L6* AHIMS #57-4-0261 Test Transect 1 Test Transect 2 Test Transect 3 Test Transect 4 Test Transect 5 Test Transect 6				
TSU5	*Quarry Road 7* AHIMS #57-4-122 *Quarry Road 8* AHIMS #57-4-121 *TSU5/L3* AHIMS #57-4-0259 *TSU5/L4* AHIMS #57-4-0294 *TSU5/L5* AHIMS #57-4-0251 Test Transect 1 Test Transect 2 Test Transect 3 Test Transect 4 Test Transect 5 Test Transect 6	Survey Unit generally of low significance	Direct	Partial	Unmitigated impact

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
	Test Transect 7 Test Transect 8				
TSU6	*Tantangara Dam West* AHIMS #57-4-80 *TSU6/L1* AHIMS #57-4-0308	Survey Unit generally of low significance	Direct	Partial	Unmitigated impact
TSU7	*TSU7/L1* AHIMS #57-4-0291 *TSU7/L2* AHIMS #57-4-0286 *TSU7/L3* AHIMS #57-4-0282 *TSU7/L4* AHIMS #57-4-0283 *TSU7/L5* AHIMS #57-4-0285 *TSU7/L6* AHIMS #57-4-0284 *TSU7/L7* AHIMS #57-4-0307 Test Transect 1 Test Transect 2	Survey Unit generally of low significance	Direct	Partial	Unmitigated impact
TSU8	*TSU8/L1* AHIMS #57-4-0256 Test Transect 1 Test Transect 2	Survey Unit generally of low significance	Direct	Partial	Unmitigated impact
TSU9	Nil recorded	Survey Unit generally of low significance	Direct	Partial	Unmitigated impact

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
TSU10	Nil recorded	Survey Unit generally of low significance	Direct	Partial	Unmitigated impact
TSU11	*TSU11/L1* AHIMS #57-4-0309 *TSU11/L2* AHIMS #57-4-0306 *TSU11/L3* AHIMS #57-4-0312 *TSU11/L4* AHIMS #57-4-0295 *TSU11/L5* AHIMS #57-4-0296 AHIMS *TSU11/L6* #57-4-0299 TSU11/L7 AHIMS #57-4-0298 *TSU11/L8* AHIMS #57-4-0297 *TSU11/L9* AHIMS #57-4-0300 *TSU11/L10* AHIMS #57-4-0303 *SH218* AHIMS #57-4-237 *TSU11/L11* This is duplicate of AHIMS #57-4-0301 *SH227* AHIMS #57-4-235 *TSU11/L12* This is duplicate of	Survey Unit generally of low significance	Direct	Partial	Salvage excavation

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
	AHIMS #57-4-0281 *SH219* AHIMS # 57-4-236 This is duplicate of *TSU11/L13* AHIMS #57-4-0302 *TSU11/L14* AHIMS #57-4-304 *TSU11/L15* AHIMS #57-4-0305 *TSU11/L16* AHIMS #57-4-0276 *TSU11/L17* AHIMS #57-4-0277				
TSU12	*TSU12/L1* AHIMS #57-4-0278 *TSU12/L2* AHIMS #57-4-0279 *TSU112/L3* AHIMS #57-4-0280	Survey Unit generally of low significance	Direct	Partial	Unmitigated impact
TSU13	Nil recorded	Survey Unit generally of low significance	Direct	Partial	Unmitigated impact
TSU14	*TSU14/L1* AHIMS #57-4-416 *TSU14/L2* AHIMS #57-4-415 Test Transect 14 Test Transect 15 Test Transect 16 Test Transect 17	Survey Unit generally of low significance with low/moderate densities in sheltered position on east side of crest	Direct	Partial	Salvage excavation

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
	Test Transect 18 Test Transect 19 Test Transect 20				
TSU15	*TSU15/L1* AHIMS #57-4-414 *TSU15/L2* AHIMS #57-4-413 *TSU15/L3* AHIMS #57-4-412 *TSU15/L4* AHIMS #57-4-411 *TSU15/L5* AHIMS #57-4-410 Test Transect 3 Test Transect 4 Test Transect 5 Test Transect 6 Test Transect 7 Test Transect 8 Test Transect 9 Test Transect 10 Test Transect 11 Test Transect 12 Test Transect 13	Survey Unit generally of moderate significance	Direct	Partial	Salvage excavation
TSU16	Nil recorded	Survey Unit generally of low significance	Direct	Partial	Unmitigated impact
TSU17	Nil recorded	Survey Unit generally of low significance	Direct	Partial	Unmitigated impact
TSU18	*TSU18/L1* *AHIMS* #57-4-0436	Survey Unit generally of low significance	Direct	Partial	Unmitigated impact

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
TSU19	Un-surveyed	Survey Unit generally of low potential	Direct	Partial	Unmitigated impact
TSU20	Un-surveyed	Survey Unit generally of low potential	Direct	Partial	Unmitigated impact
TSU21	Un-surveyed	Survey Unit generally of low potential	Direct	Partial	Unmitigated impact
TSU22	Un-surveyed	Survey Unit generally of low potential	Direct	Partial	Unmitigated impact
TSU23	Un-surveyed	Survey Unit generally of low potential	Direct	Partial	Unmitigated impact
TSU24	Un-surveyed	Survey Unit generally of low potential	Direct	Partial	Unmitigated impact

Table 166: Tantangara Road Recommended management and mitigation measures.

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
TRdSU1	*Tantangara 1* AHIMS #57-4-0161 *Gang Gang Creek* AHIMS #57-4-0038 *TRdSU1/L1* AHIMS #57-4-0327 *TRdSU1/L2* AHIMS #57-4-0328 *TRdSU1/L3* AHIMS #57-4-0329 TRdSU1/L4 AHIMS #57-4-0332 *TRdSU1/L5* AHIMS #57-4-0330 *TRdSU1/L6*	Survey Unit very low significance	Direct	Partial	Unmitigated impact

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
	AHIMS #57-4-0331				

Table 167: Denison Recommended management and mitigation measures.

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
DSU1	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
DSU2	*DSU2/L1* AHIMS #57-4-0352 *DSU2/L2* AHIMS #57-4-0351	Survey Unit generally of negligible significance	Nil	Nil	N/A
DSU3	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
DSU4	*DSU4/L1* AHIMS #57-4-0350	Survey Unit generally of negligible significance	Nil	Nil	N/A
DSU5	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
DSU6	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact

Table 168: Rocky Plains Transmission Line: Recommended management and mitigation measures.

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
RPTxSU1	Nil recorded	Survey Unit generally of very low significance	Nil	Nil	N/A
RPTxSU2	*Alpine Hill 3* AHIMS # 57-4-0163 *RPTxSU2/L1* AHIMS #57-4-0349	Survey Unit generally of negligible to low significance	Nil	Nil	N/A
RPTxSU3	*Alpine Hill 2* AHIMS #57-4-0165	Survey Unit generally of low significance	Nil	Nil	N/A

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
	RPTxSU3/L1 AHIMS #57-4-0348 *RPTxSU3/L2* AHIMS #57-4-0347 *RPTxSU3/L3* AHIMS #57-4-0346 *RPTxSU3/L4* AHIMS #57-4-0345				
RPTxSU4	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
RPTxSU5	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
RPTxSU6	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
RPTxSU7	*RPTxSU7/L1* AHIMS #57-4-0353	Survey Unit generally of low significance	Nil	Nil	N/A
RPTxSU8	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A

Table 169 Rocky Plains: Recommended management and mitigation measures.

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
RPSU1	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
RPSU2	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
RPSU3	Nil recorded	Survey Unit generally of low significance	Nil	Nil	N/A
RPSU4	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
RPSU5	RPSU5/L1 AHIMS #57-4-0435	Survey Unit generally of low significance	Nil	Nil	N/A

Table 170 Kiandra: Recommended management and mitigation measures.

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
KSU1	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
KSU2	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
KSU3	Nil recorded	Survey Unit generally of low significance	Nil	Nil	N/A
KSU4	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A

Table 171 Nungar Creek Trail: Recommended management and mitigation measures.

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
NCTSU1	*NCTSU1/L1* AHIMS #57-4-0434	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
NCTSU2	*NCTSU2/L1* AHIMS #57-4-0417	Survey Unit generally of low significance	Direct	Partial	Unmitigated impact
NCTSU3	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
NCTSU4	*NCTSU4/L1* AHIMS #57-4-0433 *NCTSU4/L2* AHIMS #57-4-0432 *NCTSU4/L3* AHIMS #57-4-0431	Survey Unit generally of low significance	Direct	Partial	Unmitigated impact

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
NCTSU5	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
NCTSU6	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
NCTSU7	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
NCTSU8	*NCTSU8/L1* AHIMS #57-4-0430	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
NCTSU9	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
NCTSU10	*NCTSU10/L1* AHIMS #57-4-0429 *NCTSU10/L2* AHIMS #57-4-0428 *NCTSU10/L3* AHIMS #57-4-0427 *NCTSU10/L4* AHIMS #57-4-0426	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
NCTSU11	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
NCTSU12	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
NCTSU13	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
NCTSU14	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
NCTSU15	*NCTSU15/L1* AHIMS #57-4-0425	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
NCTSU16	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
NCTSU17	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
NCTSU18	*NCTSU18/L1* AHIMS #57-4-0424	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
NCTSU19	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
NCTSU20	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
NCTSU21	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
NCTSU22	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
NCTSU23	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
NCTSU24	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
NCTSU25	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
NCTSU26	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
NCTSU27	*NCTSU27/L1* AHIMS #57-4-0423	Survey Unit generally of low significance	Direct	Partial	Unmitigated impact
NCTSU28	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
NCTSU29	Nil recorded	Survey Unit generally of low significance	Direct	Partial	Unmitigated impact
NCTSU30	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
NCTSU31	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
NCTSU32	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
NCTSU33	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
NCTSU34	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
NCTSU35	Nil recorded	Survey Unit generally of low significance	Direct	Partial	Unmitigated impact
NCTSU36	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
NCTSU37	Un-surveyed	Survey Unit generally of negligible potential	Direct	Partial	Field assessment and implementation of mitigation measures if required

Table 172 Rock Forest: Recommended management and mitigation measures.

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
CCSU1	*CCSU1/L1* AHIMS #57-4-0418 *CCSU1/L2* AHIMS #57-4-0419 *CCSU1/L3* AHIMS #57-4-0420	Survey Unit generally of low significance	Direct	Partial	Unmitigated impact
CCSU2	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
CCSU3	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
CCSU4	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
CCSU5	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
CCSU6	Nil recorded	Survey Unit generally of low significance	Direct	Partial	Unmitigated impact
CCSU7	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
CCSU8	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
CCSU9	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
CCSU10	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
CCSU11	*CCSU11/L1* AHIMS #57-4-0421	Survey Unit generally of negligible significance	Nil	Nil	N/A
CCSU12	Nil recorded	Survey Unit generally of negligible significance	Nil	Nil	N/A
CCSU13	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
CCSU14	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
CCSU15	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
CCSU16	Nil recorded	Survey Unit generally of low significance	Direct	Partial	Unmitigated impact
CCSU17	*CCSU17/L1* AHIMS #57-4-422	Survey Unit generally of low significance with areas of greater potential	Direct	Partial	Salvage excavation
CCSU18	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact
CCSU19	Nil recorded	Survey Unit generally of negligible significance	Direct	Partial	Unmitigated impact

ID	Aboriginal Objects	Significance	Type of harm	Degree of harm	Management and mitigation
CCSU20	Un-surveyed	Survey Unit generally of negligible potential	Direct	Partial	Field assessment and implementation of mitigation measures if required

10. CONCLUSIONS AND RECOMMENDATIONS

The recommendations are made on the basis of:

- A consideration of the relevant legislation.
- The results of the investigation as documented in this report.
- Consideration of the type and scale of impacts proposed.

The following conclusions and recommendations are made:

- The Aboriginal artefact distribution in the project area does not surpass significance thresholds which would act to preclude the proposed impacts.
- Most of the artefact distribution is assessed to be representative of a negligible, very low or low density stone artefacts in their respective Survey Units. However, several Survey Units have been found to contain relatively higher densities. These are correspondingly of higher significance and value. Accordingly, management and mitigation of impacts comprises a tiered approach appropriate for each Survey Unit and includes measures such as conservation and salvage.
- In regard to the un-surveyed Survey Units, it is proposed that where warranted, the completion of the survey would occur during the public exhibition and Response to Submissions (RTS) phase. At that time the proposed impact and management measures of such areas would be finalised.

  The approach would be to survey outstanding areas requiring survey and update the survey results for new objects and areas of potential. This approach would provide better informed impact assessment and management measures that will be provided in the Main Works RTS reporting phase.

- Management and mitigation strategies are outlined and discussed in Section 9 of this report and should be given consideration by all stakeholders. These would form the basis for the development of an Aboriginal Cultural Heritage Management Plan.

- It is recommended that salvage excavations are conducted in some Survey Units in order to mitigate impacts to the archaeological resource in the project area.

- The proponent should develop an Aboriginal Heritage Management Plan (AHMP) for the appropriate management and mitigation of development impacts during any further planning and project construction for Main Works. The development of an AHMP should be undertaken in consultation with the project archaeologist, the Registered Aboriginal Parties and the NSW DPIE.

The AHMP would be prepared to guide the process for management and mitigation of impacts to Aboriginal cultural heritage and to set out procedures relating to the conduct of additional archaeological assessment, if required, and the management of any further Aboriginal cultural heritage values which may be identified.

A summary of the heritage management and mitigation measures for the project is provided in the table below.

Table 173 Summary of mitigation measures.

Impacts/risks	Reference #	Measures
Impact to known and unknown Aboriginal objects	HER01	An Aboriginal Heritage Management Plan (AHMP) will be prepared and implemented to guide the process for management and mitigation of impacts to Aboriginal objects. The AHMP will: o be prepared in consultation with RAPs and DPIE; o describe Survey Units in which impacts are allowable; o include procedures relating to the conduct of additional archaeological assessment, if required.
Loss of Aboriginal objects	HER02	Specific management and mitigation measures are listed for each individual Survey Unit and Aboriginal object locale in Section 9 of this report and will be included in the AHMP. Management measures to be included in the AHMP are: o impacts to ground surfaces should be kept to an absolute minimum; o for Survey Units which are assessed to be of higher significance values, impact mitigation measures will be implemented. These would comprise salvage in the form of archaeological excavation and archaeological analysis prior to impacts; and o the AHMP is to include measures for the management of any Aboriginal objects that may be found during construction.

11. REFERENCES

Australian Town and Country Journal 2 March 1877.

Adamson, C. L. and A. G. Loudon 1966 Wagga Wagga 1:250 000 Geological Sheet SI/55-15, 1st edition. Sydney: Geological Survey of New South Wales.

Aplin, K., F. D. Ford, P. Hiscock et al. 2010 Early Holocene human occupation and environment of the southeast Australian Alps: New evidence from the Yarrangobilly Plateau, New South Wales. In: Altered Ecologies: Fire, climate and human influence on terrestrial landscapes (Terra Australis 32). ANU ePress.

Allen, J., Cosgrove, R., Garvey, J. 2016 Optimality models and the food quest in Pleistocene Tasmania. Journal of Anthropological Archaeology 44, 206–215. https://doi.org/10.1016/j.jaa.2016.07.009.

Aplin, K., Ford, F., Hiscock, P. 2013 Early Holocene human occupation and environment of the southeast Australian Alps: New evidence from the Yarrangobilly Plateau, New South Wales.

Argue, D., 1995. Aboriginal occupation of the Southern Highlands: Was it really seasonal? Australian Archaeology 41, 30–36.

Australian Bureau of Meteorology, 2019. Climate statistics for Cabramurra SMHEA AWS [WWW Document]. URL http://www.bom.gov.au/climate/averages/tables/cw_072161.shtml (accessed 2.13.19).

Barber, M. 2003 An Aboriginal heritage survey of selected areas near Tantangara Reservoir Snowy Mountains, NSW. Report to Snowy Hydro Limited.

Barrows, T.T., Stone, J.O., Fifield, L.K. 2004 Exposure ages for Pleistocene periglacial deposits in Australia. Quaternary Science Reviews 23, 697–708.

Barrows, T.T., Stone, J.O., Fifield, L.K., Cresswell, R.G. 2001 Late Pleistocene Glaciation of the Kosciuszko Massif, Snowy Mountains, Australia. Quaternary Research 55, 179–189. https://doi.org/10.1006/qres.2001.2216

Beveridge, P. 1889 The Aborigines of Victoria and Riverina. Hutchinson, Melbourne.

Bishop, P. 1988 The eastern highlands of Australia: the evolution of an intraplate highland belt. In: *Progress in Physical Geography* 12.2, pp. 159–182.

Black, M.P., Mooney, S.D. 2006 Holocene fire history from the Greater Blue Mountains World Heritage area, New South Wales, Australia: the climate, humans and fire nexus. Regional Environmental Change 6, 41–51.

Bluett, W. 1954 Aborigines of the Canberra District at the Arrival of the White Man. Paper presented to the Canberra Historical Society.

Boot, P. 1994 Recent Research into the Prehistory of the Hinterland of the South Coast of New South Wales. In Sullivan, M, Brockwell, S. and Webb, A. (eds) *Archaeology in the North: Proceedings of the 1993 Australian Archaeological Association Conference.* NARU: Darwin.

Boot, P. 1996 Pleistocene Sites in the South Coast Hinterland of New South Wales. *Tempus* 6: 275-288

Boot, P. 1999 Quarry Road Tantangara Dam, Inspection of Proposed Road Improvements for Aboriginal Sites. Internal NPWS Memorandum.

Boot, P. 2000a Archival Research. Kosciuszko National Park Plan of Management.

Boot, P. 2000b An archaeological assessment of proposed track upgrade, pit toilet construction and camping area construction at Denison, Lake Eucumbene, Kosciuszko National Park. A report to South West Slopes Region, NSW National Parks and Wildlife Service, Tumut.

Boot, P. 2002 Didthul, Gulaga and Wadbilliga: An archaeological study of the Aboriginals of the New South Wales South Coast hinterland. Unpublished PhD thesis: The Australian National University.

Bostock, H.C., Opdyke, B.N., Williams, M.J.M. 2010 Characterising the intermediate depth waters of the Pacific Ocean using δ13C and other geochemical tracers. Deep Sea Research Part I: Oceanographic Research Papers 57, 847–859. https://doi.org/10.1016/j.dsr.2010.04.005

Bowdler, S. 1981 Hunters in the Highlands: Aboriginal Adaptations in the Eastern Australian Uplands. *Archaeology in Oceania* 16, 99–111.

Bowler, J.M., Johnston, H., Olley J.M., Prescott J.R., Roberts R.G., Shawcross, W. & Spooner, N.A. 2003 New ages for human occupation and climatic change at Lake Mungo, Australia. Nature Vol. 421, No. 30, pp. 837-840.

Clarkson, C., Jacobs, Z., Marwick, B., Fullagar, R., Wallis, L., Smith, M., Roberts, R.G., Hayes, E., Lowe, K., Carah, X., Florin, S.A., McNeil, J., Cox, D., Arnold, L.J., Hua, Q., Huntley, J., Brand, H.E.A., Manne, T., Fairbairn, A., Shulmeister, J., Lyle, L., Salinas, M., Page, M., Connell, K., Park, G., Norman, K., Murphy, T., Pardoe, C. 2017 Human occupation of northern Australia by 65,000 years ago. Nature 547, 306–310. https://doi.org/10.1038/nature22968

Colhoun, E.A., Pola, J.S., Barton, C.E., Heijnis, H. 1999 Late Pleistocene vegetation and climate history of Lake Selina, western Tasmania. Quaternary International 57, 5–23.

Comber, J. 1988 Ngarigo Quarries: A Lithics Survey and Analysis on the Monaro Tablelands, NSW. Unpublished Litt. B Thesis, Department of Prehistory and Anthropology, ANU, Canberra.

Cooke, H. 1988 An Investigation into the Prehistory of Blue Waterholes and Cooleman Plains, NSW. Unpublished BA Honours Thesis, ANU, Canberra.

Cosgrove, R., Allen, J., 2001 Prey choice and hunting strategies in the late Pleistocene: evidence from south west Tasmania, in: Anderson, A., Lilley, I., O'Connor, S. (Eds.), Histories of Old Ages: Essays in Honour of Rhys Jones. Pandanus Books, Research School of Pacific and Asian Studies, the Australian National University, Canberra, pp. 397–429.

Cosgrove, R., Allen, J., Marshall, B. 1990 Palaeo-ecology and Pleistocene human occupation in south central Tasmania. *Antiquity* 64, 59–78.

Cosgrove, R., Field, J., Garvey, J., Brenner-Coltrain, J., Goede, A., Charles, B., Wroe, S., Pike-Tay, A., Grün, R., Aubert, M., Lees, W., O'Connell, J. 2010 Overdone overkill – the archaeological perspective on Tasmanian megafaunal extinctions. *Journal of Archaeological Science* 37, 2486–2503. https://doi.org/10.1016/j.jas.2010.05.009.

Cosgrove, R., Garvey, J.M., 2017 Behavioural inferences from late Pleistocene Australia: seasonality, butchery and nutrition in south west Tasmania, in: Albarella, U., Russ, H., Vickers, K., Viner-Daniels, S. (Eds.), *The Oxford Handbook of Zooarchaeology*. Oxford University Press, pp. 703–721.

Costin, A.B., 1972 Carbon-14 dates from the Snowy Mountains area, southeastern Australia, and their interpretation. *Quaternary Research* 2, 579–590. https://doi.org/10.1016/0033-5894(72)90092-0

Dawson, J., 1881 Australian Aborigines, Reprinted 1981. ed. Griffin Press Ltd., Netley, South Australia.

Dibden, J. 1996 Hatchet Hatchment: A study of style in a collection of ground-edge hatchet heads from South Eastern NSW. ANU Honours thesis.

Dibden, J. 2003 Proposed Telstra Underground Power Supply Mount Selwyn Telecommunications Facility Aboriginal Archaeological Assessment. Report to nghenvironmental.

Dibden, J. 2004a Snowy Precipitation Enhancement Research Project, Kosciuszko National Park, NSW Aboriginal and Non-Indigenous Archaeological Assessment. A Report to Andrew Nolan, Snowy Hydro Limited.

Dibden, J. 2004b Snowy Mountains Highway RTA Proposed Snow Chain Bays Archaeological Assessment. Report to nghenvironmental.

Dibden, J. 2004c Eucumbene Portal Substation Access Track Relocation Aboriginal Archaeological Assessment. A Report to Tracy Drew-Crawford Snowy Hydro Limited.

Dibden, J. 2005a Proposed Wind Farm – Snowy Plains. A report to Taurus Energy.

Dibden, J. 2005b Proposed Wind Farm – Snowy Plains Subsurface Test Excavation s87 Permit # 2199. A report to Taurus Energy.

Dibden, J. 2006 Selwyn Snowfields Ski Resort – Three Mile Dam Pipeline Aboriginal Archaeological Assessment. Report to Mark Fountain, Selwyn Snowfields.

Dibden, J. 2011 Drawing in the Land: Rock-art in the Upper Nepean, Sydney Basin. Unpublished PhD thesis; Australian National University.

Dibden, J. 2018a Snowy 2.0 Aboriginal Cultural Heritage Assessment Report. Report to Snowy Hydro Limited.

Dibden, J. 2018b Snowy 2.0 Exploratory Works Historic Cultural Heritage Assessment Report. Report to Snowy Hydro Limited.

Feary, S. 1995 Kiandra Precinct Plan. Internal Report, NPWS.

Feary, S. 1996 An Aboriginal Burial with Grave Goods near Cooma, NSW, *Australian Archaeology* 43:40-42.

Feary, S. & Pardoe, C. 1992 Seminar 5/6/1992 Department of Prehistory, Research School of Pacific Studies, Australian National University.

Feary, S. & J. Vincent 2007 Kiandra Precinct Plan Kosciuszko National Park. Internal Report, NPWS.

Fletcher, M.-S., Thomas, I. 2010 A quantitative Late Quaternary temperature reconstruction from western Tasmania, Australia. *Quaternary Science Reviews* 29, 2351–2361. https://doi.org/10.1016/j.quascirev.2010.06.012

Flood, J. 1974 Pleistocene Man at Cloggs Cave: his Tool Kit and Environment. Mankind; Sydney 9, 175–188.

Flood, J. 1980 *The Moth Hunters. Aboriginal Prehistory of the Alps*. Canberra: Australian Institute of Aboriginal Studies.

Flood, J. 1982 Katungal, Paiendra and Bemeringal. In S. Bowdler (ed) *Coastal Archaeology in Eastern Australia. Proceedings of the 1980 Valla Conference on Australian Prehistory*. Pp 29-31: Canberra: Department of Prehistory, Research School of Pacific Studies ANU.

Flood, J. 2010 *Moth Hunters of the Australian Capital Territory: Aboriginal Traditional Life in the Canberra Region*. Marleston South Australia: Gecko Books.

Flood, J., David, B., Magee, J., English, B. 1987 Birrigai: a Pleistocene site in the south-eastern highlands. *Archaeology in Oceania* 22, 9–26.

Gale, S. J. & R. J. Haworth 2002 Beyond the limits of location: human environmental disturbance prior to official European contact in early colonial Australia. In: *Archaeology in Oceania* 37, pp. 123–136.

Garvey, J. 2011 Bennett's wallaby (Macropus rufogriseus) marrow quality vs quantity: evaluating human decision-making and seasonal occupation in late Pleistocene Tasmania. *Journal of Archaeological Science* 38, 763–783. https://doi.org/10.1016/j.jas.2010.10.023

Garvey, J. 2010 Economic anatomy of the Bennett's wallaby (Macropus rufogriseus): Implications for understanding human hunting strategies in late Pleistocene Tasmania. *Quaternary International* 211, 144–156. https://doi.org/10.1016/j.quaint.2009.07.006

Garvey, J., Roberts, G., Cosgrove, R. 2016 Economic utility and nutritional value of the Common wombat (*Vombatus ursinus*): Evaluating Australian Aboriginal hunting and butchery patterns. *Journal of Archaeological Science: Reports* 7, 751–763. https://doi.org/10.1016/j.jasrep.2015.10.037

Garvey, J.M. 2006 Preliminary zooarchaeological interpretations from Kutikina Cave, south-west Tasmania. Australian Aboriginal Studies 2006, 57.

Gilligan, I., 2010 Prehistoric clothing and ice age climates : cold stress, Neanderthal extinction and the emergence of modern human behaviour (PhD). Australian National University, Canberra, A.C.T.

Gilligan, I., 2007 Resisting the cold in ice age Tasmania: thermal environment and settlement strategies. *Antiquity* 81, 555–568.

Gingele, F., De Deckker, P., Norman, M. 2007 Late Pleistocene and Holocene climate of SE Australia reconstructed from dust and river loads deposited offshore the River Murray Mouth. Earth and Planetary Science Letters 255, 257–272.

Gliganic, L.A., Cohen, T.J., May, J.-H., Jansen, J.D., Nanson, G.C., Dosseto, A., Larsen, J.R., Aubert, M. 2014 Late-Holocene climatic variability indicated by three natural archives in arid southern Australia. The Holocene 24, 104–117. https://doi.org/10.1177/0959683613515732

Gott, B., 1982 Ecology of Root Use by the Aborigines of Southern Australia. *Archaeology in Oceania* 17, 59–67.

Gouramanis, C., De Deckker, P., Switzer, A.D., Wilkins, D. 2013 Cross-continent comparison of high-resolution Holocene climate records from southern Australia — Deciphering the impacts of far-field teleconnections. Earth-Science Reviews 121, 55–72. https://doi.org/10.1016/j.earscirev.2013.02.006

Hiscock, P. 2008 *Archaeology of Ancient Australia.* Routledge, London.

Hiscock, P. & V. Attenbrow 1998 Early Holocene backed artefacts from Australia. *Archaeology in Oceania*. Vol. 33; No. 2; pp. 49 – 62.

Hiscock, P. & Mitchell, S. 1993 *Stone Artefact Quarries and Reduction Sites in Australia: Towards a Type Profile*. AGPS: Canberra.

Helms, R. 1895 Anthropological notes. *Proceedings of the Linnaean Society of New South Wales* 20, 387–407.

Hope, G.S., Nanson, R., Flett, I. 2009 The peat-forming mires of the Australian Capital Territory. Territory and Municipal Services Canberra.

Hope, J.H. 1973 Analysis of the bone from Clogg's Cave, northeast Victoria, in: The Moth-Hunters. Investigations Towards a Prehistory of the South-Eastern Highlands of Australia. Unpublished PhD Thesis, Australian National University, Canberra, ACT, p. XIV:1-18.

Hopf, F.V.L., Colhoun, E.A., Barton, C.E., 2000 Late-glacial and Holocene record of vegetation and climate from Cynthia Bay, Lake St Clair, Tasmania. Journal of Quaternary Science 15, 725–732.

Howitt, A. 1904 *The Native Tribes of South East Australia*. London: Macmillan & Co Limited.

Isbell, R. F. 1996 *The Australian Soil Classification*. Collingwood: CSIRO Publishing.

Jarvis, A., H. I. Reuter, A. Nelson and E. Guevara 2008 Hole-filled seamless SRTM data V4. International Centre for Tropical Agriculture (CIAT), available from http:srtm.csi.cgiar.org.

Johnson, I. 1992 Kosciuszko National Park Baseline Heritage Study 1991 (Aboriginal Sites). Report to the NSW NPWS.

Johnson, I. & A. Jones 1991 Kosciuszko National Park Baseline Heritage Study 1991 (Draft). Report to NSW NPWS.

Kamminga, J. 1991 Report on the Archaeological Collection, National Museum of Australia. Report to the National Museum of Australia, Canberra. April 1991. (3 vols).

Kamminga, Jo. Personal communication Oct 2007.

Kamminga, Jo. Personal communication 19th June 2009.

Kamminga, J, C. Kenyon, B. Gott, J. Dibden, A. Milares & N. Perera 2008 Lake Hume Aboriginal Heritage Study. National Heritage Consultants, Canberra.

Kohn, B., A. Gleadow and S. Cox (1999). "Denudation history of the Snowy Mountains: constraints from apatite fission track thermochronology". In: Australian Journal of Earth Sciences 46.2, pp. 181–198.

Knight, T. 2001 *Stepping Stones to the Sky Archaeological Perspectives on the Cultural Significance of the Weddin Mountains in Recent Prehistory*. Unpublished Master of Arts by Research Thesis. School of Archaeology and Anthropology Australian National University, Canberra.

Knight, T. 2004 Yaouk and Scabby Range Nature Reserves, South West Slopes Region, NSW; Preliminary Aboriginal Heritage Survey. Report to the NSW National Parks and Wildlife Service, Tumut by Navin Officer Heritage Consultants.

Knight, T. 2008 Blowering Foreshores Revegetation Project Review Of Environmental Factors: Aboriginal Archaeological Assessment. Report prepared for DECC, Tumut.

Knight, T. 2009a Cultural Heritage Survey and Inventory, Mt Selwyn Ski Field. Report prepared by Alistair Grinbergs Heritage Solutions for ENFAC Pty Ltd.

Knight, T. 2009b Kiandra Heritage Precinct. Aboriginal Cultural Heritage Study. A Report to the NSW National Parks and Wildlife Service (Department of Environment and Climate Change), Tumut.

Kamminga, J., Paton, R., Macfarlane, I. 1989 Archaeological investigations in the Thredbo Valley, Snowy Mountains.

Kershaw, A., Strickland, K. 1989 The development of alpine vegetation on the Australian mainland. The scientific significance of the Australian Alps. Australian Alps National Parks Liaison Committee, Canberra, Australia 113–126.

Markgraf, V., Bradbury, J.P., Busby, J.R. 1986 Paleoclimates in South western Tasmania during the Last 13,000 Years. PALAIOS 1, 368. https://doi.org/10.2307/3514474

Martin, A.R.H. 1999 Pollen Analysis of Digger's Creek Bog, Kosciuszko National Park: Vegetation History and Tree-line Change. Aust. J. Bot. 47, 725–744. https://doi.org/10.1071/bt98002

Marx, S.K., Kamber, B.S., McGowan, H.A., Zawadzki, A. 2010 Atmospheric pollutants in alpine peat bogs record a detailed chronology of industrial and agricultural development on the Australian continent. Environmental Pollution 158, 1615–1628. https://doi.org/10.1016/j.envpol.2009.12.009

Murphy, C., P. Fogarty and R. P.J. 1998 Soil Regolith Stability Classification for State Forests in Eastern New South Wales, Technical Report No. 41. Department of Land and Water Conservation.

Mitchell, T.L. 1839 Journal of three expeditions into the interior of Eastern Australia. Boone, London.

Morgan, J. 1852 The Life and Adventures of William Buckley: Thirty-two years a wanderer amongst the Aborigines of the then unexplored country around Port Phillip, now the Province of Victoria, 1st ed. Archibald MacDougall, Hobart.

McDonald, R. Isbell, R, Speight, J. Walker, J. and M. Hopkins 1998 *Australian Soil and Land Survey Field Handbook*. CSIRO Australia.

Mulvaney, J. & J. Kamminga 1999 Prehistory of Australia. Allen and Unwin: St Leonards.

Navin, K. 1989 An archaeological survey of six proposed Radio-Communication Installation Sites in the Snowy Mountains, NSW. Report to David Hogg Pty Ltd.

Navin, K. 1990 Archaeological survey of four proposed radio-communication Installation sites in the Snowy Mountains region of NSW. Report to David Hogg Pty Ltd.

Navin, K. 1991 Archaeological survey of sections of two transmission line easements – Kosciuszko National Park, NSW. Tooma River to Yellow Bog 330kV, Scammels Ridge to Dargals Fire Trail 132kV. Report to David Hogg Pty Ltd.

New South Wales Department of Environment, Climate Change and Water 2010a *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales 2010.*

New South Wales Department of Environment, Climate Change and Water 2010b *Aboriginal cultural heritage consultation requirements for proponents 2010.*

New South Wales Office of Environment and Heritage 2011 *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW.*

Ossa, P. Marshall, B. & C. Webb 1995 New Guinea 2 Cave: A Pleistocene site on the Snowy River, Victoria. *Archaeology in Oceania* 30 (1): 22: pp. 22-35.

O'Dea, K. 1988 Kangaroo meat-polyunsaturated and low in fat: ideal for cholesterol-lowering diets. [Conference paper]. *Australian Zoologist* (Australia).

Office of Environment and Heritage 2017 Data Confidence Classes for Soil Thematic Maps of NSW. Version 3. Office of Environment and Heritage.

Oilier, C. 1982 The Great Escarpment of eastern Australia: tectonic and geomorphic significance. In: *Journal of the Geological Society of Australia* 29.1-2, pp. 13–23.

Pain, C., L. Gregory, P. L. Wilson and N. McKenzie 2011 The physiographic regions of Australia: Explanatory notes. Australian Collaborative Land Evaluation Program, National Committee on Soil and Terrain.

Petherick, L., Bostock, H., Cohen, T.J., Fitzsimmons, K., Tibby, J., Fletcher, M.-S., Moss, P., Reeves, J., Mooney, S., Barrows, T., Kemp, J., Jansen, J., Nanson, G., Dosseto, A. 2013 Climatic records over the past 30 ka from temperate Australia – a synthesis from the Oz-INTIMATE workgroup. Quaternary Science Reviews 74, 58–77. https://doi.org/10.1016/j.quascirev.2012.12.012

Peterson, N. 1972 Totemism Yesterday: Sentiment and Local Organisation Among the Australian Aborigines. Man. Vol. 7; No, 1; pp. 12 – 32.

Pike-Tay, A., Cosgrove, R., Garvey, J. 2008 Systematic seasonal land use by late Pleistocene Tasmanian Aborigines. Journal of Archaeological Science 35, 2532–2544.

Porter, S.C. 2000 Onset of Neoglaciation in the Southern Hemisphere. Journal of Quaternary Science 15, 395–408. https://doi.org/10.1002/1099-1417(200005)15:4<395::AID-JQS535>3.0.CO;2-H

Raine, J. I. 1974 Pollen sedimentation in relation to the Quaternary vegetation history of the Snowy Mountains of New South Wales.

Reeves, J.M., Bostock, H.C., Ayliffe, L.K., Barrows, T.T., De Deckker, P., Devriendt, L.S., Dunbar, G.B., Drysdale, R.N., Fitzsimmons, K.E., Gagan, M.K., Griffiths, M.L., Haberle, S.G., Jansen, J.D., Krause, C., Lewis, S., McGregor, H.V., Mooney, S.D., Moss, P., Nanson, G.C., Purcell, A., van der Kaars, S. 2013 Palaeoenvironmental change in tropical Australasia over the last 30,000 years – a synthesis by the OZ-INTIMATE group. Quaternary Science Reviews 74, 97–114. https://doi.org/10.1016/j.quascirev.2012.11.027

Roberts, G.L. 2017 Seasonal Places: A revised model of human adaptation, economy and movement within Pleistocene south west Tasmania (PhD). La Trobe University, Melbourne, Australia.

Rumsey, A. 1989 Language Groups in Australian Aboriginal Land Claims. *Anthropological Forum*. Vol. VI No 1 pp 69-79.

Saunders, T. 1995 Archaeological Assessment of Four Mile Hill Fire Trail, Kosciuszko National Park. Report to NSW NPWS Snowy Mountains Region Civil Works Section.

Saunders, T., D. Buckle, G. Hope & N. Spooner 1996 Namadgi National Park Mountain Occupation Project A Multi-Disciplinary Investigation of an Aboriginal Site Complex in the mount Scabby Range, ACT. A report to Namadgi National Park.

Spate, A. 2004 An Assessment of the Values of Kosciuszko National Park. In: ed. by Independent Scientific Committee. New South Wales National Parks and Wildlife Service. Chap. Karst Values, pp. 33–46.

Speth, J.D., Spielmann, K.A. 1983 Energy source, protein metabolism, and hunter-gatherer subsistence strategies. Journal of Anthropological Archaeology 2, 1–31.

Stanley, S., Deckker, P.D., 2002. A Holocene record of allochthonous, aeolian mineral grains in an Australian alpine lake; implications for the history of climate change in southeastern Australia. Journal of Paleolimnology 27, 207–2019.

Stanner, W. E. H. 1977 The History of Indifference Thus Begins. *Aboriginal History*. Vol. 1; No. 1; pp. 3 – 26.

Strusz, D. 1971 Canberra 1:250 000 Geological Sheet SH5516: Explanatory Notes. Bureau of Mineral Resources.

Sutton, P. & B. Rigsby 1979 Linguistic communities and social networks on Cape York Peninsula. In S. Wurm (ed) *Australian Linguistic Studies*. pp 713-732. Canberra: ANU.

Swain, T. 1993 *A Place for Strangers Towards a History of Australian Aboriginal Being*. Cambridge University Press, Cambridge.

Taylor, J. 2000 An Archaeological Assessment of Quarry Road, Tantangara Reservoir, Kosciuszko National Park. Report to NSW NPWS.

Theden-Ringl, F. 2018 Common cores in the high country: The archaeology and environmental history of the Namadgi Ranges (PhD). Australian National University, Canberra, A.C.T.

Theden-Ringl, F. 2016 Aboriginal presence in the high country: new dates from the Namadgi Ranges in the Australian Capital Territory. Australian Archaeology 82, 25–42. https://doi.org/10.1080/03122417.2016.1163955

Theden-Ringl, F., Hislop, K.P., Aplin, K., Grün, R., Schurr, M.R., 2018. The chronology and environmental context of a cave deposit and associated faunal assemblage including megafauna teeth near Wee Jasper, southeastern Australia. The Holocene 0959683618777073. https://doi.org/10.1177/0959683618777073

Tindale, N. 1974 *Aboriginal Tribes of Australia*. ANU Press, Canberra.

Wandsnider, L and E. Camilli 1992 The Character of Surface Archaeological Deposits and its Influence on Survey Accuracy. *Journal of Field Archaeology*. Vol. 19 pgs 169 - 188.

Wesson, S. 2000 *An Historical Atlas of the Aborigines of Eastern Victoria and Far South-eastern New South Wales.* Monash Publications in Geography and Environmental Science Number 53. School of Geography and Environmental Science Monash University: Melbourne.

Wright, R. 1983 Stone implements. In G. Connah (ed.), *Australian field archaeology: a guide to techniques*. Australian Institute of Aboriginal Studies, Canberra, pp. 110-25.

Wyborn, D., M. Owen and L. Wyborn 1990 Geology of the Kosciusko National Park (1: 250000 scale map). In: Bureau of Mineral Resources, Canberra.

Wyborn, L. A. I. 1994 SGTSG field excursion guide: Kosciusko summit walks. Australian Geological Survey Organisation Record 1994/6.

Wyborn, L. A. I. 1977. "Aspects of the geology of the Snowy Mountains region and their implications for the tectonic evolution of the Lachlan Fold Belt". In:

Young, M. (ed.) 2000 The Aboriginal People of the Monaro, NSW NPWS.

ANNEXURE 1 GLOSSARY

Aboriginal object - A statutory term, meaning: '… any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises NSW, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains' (s.5 NPW Act).

Declared Aboriginal place - A statutory term, meaning any place declared to be an Aboriginal place (under s.84 of the NPW Act) by the Minister administering the NPW Act, by order published in the NSW Government Gazette, because the Minister is of the opinion that the place is or was of special significance with respect to Aboriginal culture. It may or may not contain Aboriginal objects.

Development area - Area proposed to be impacted as part of a specified activity or development proposal.

Harm - A statutory term meaning '… any act or omission that destroys, defaces, damages an object or place or, in relation to an object – moves the object from the land on which it had been situated' (s.5 NPW Act).

Place - An area of cultural value to Aboriginal people in the area (whether or not it is an Aboriginal place declared under s.84 of the Act).

Proponent - A person proposing an activity that may harm Aboriginal objects or declared Aboriginal places and who may apply for an AHIP under the NPW Act.

Proposed activity - The activity or works being proposed.

Subject area - The area that is the subject of archaeological investigation. Ordinarily this would include the area that is being considered for development approval, inclusive of the proposed development footprint and all associated land parcels. To avoid doubt, the subject area should be determined and presented on a project-by-project basis. In this instance, the subject area refers to all areas in which impacts are proposed.

ANNEXURE 2 AHIMS SITE SEARCHES

ANNEXURE 2 AHIMS SITE SEARCHES

Office of Environment & Heritage

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : SH 2.0 #1
Client Service ID : 411042

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
56-6-0033	Yarrangobilly tree (Middle Creek Fire Trail)	AGD	55	626600	6047500	Open site	Valid	Modified Tree (Carved or Scarred) : 1	Scarred Tree	
	Contact	Recorders	A Heath,Mr.Adam Henderson					Permits		
56-6-0538	Ravine SU39/L2	GDA	55	624466	6041750	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0539	Ravine SU39/L1	GDA	55	624377	6041639	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0502	Ravine SU23/L3	GDA	55	624911	6040455	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0503	Ravine SU23/L2	GDA	55	624656	6040472	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0504	Ravine SU22/L3	GDA	55	624955	6039963	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0506	Ravine SU23/L1	GDA	55	625083	6040240	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		

Report generated by AHIMS Web Service on 29/03/2019 for Julie Dibden for the following area at Datum :GDA, Zone : 55, Eastings : 620000 - 630000, Northings : 6040000 - 6050000 with a Buffer of 50 meters. Additional Info : Archaeological assessment. Number of Aboriginal sites and Aboriginal objects found is 7

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Page 1 of 1

Office of Environment & Heritage

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : SH 2.0 #2
Client Service ID : 411052

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
56-6-0030	Thermal Pool;Kosciusko National Park;Yarrangobilly Caves;	AGD	55	634250	6044700	Open site	Valid	Artefact : -	Open Camp Site	97580
	Contact	**Recorders**	Mr.S.J Reilly					**Permits**		
56-6-0044	KNP91-35;	AGD	55	631300	6049100	Open site	Valid	Artefact : -	Open Camp Site	1962
	Contact	**Recorders**	F Hook					**Permits**		
56-6-0054	KNP91-73;	AGD	55	634400	6045800	Open site	Valid	Artefact : -	Open Camp Site	1962
	Contact	**Recorders**	Ian Johnson					**Permits**		
57-4-0151	Long Plain Hut	AGD	55	639000	6048370	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Mr.Stephen Reilly					**Permits**		
56-6-0095	YC 15 Thermal Pool	AGD	55	634162	6044802	Open site	Valid	Potential Archaeological Deposit (PAD) : -, Artefact : 2		97580,98345
	Contact	**Recorders**	South East Archaeology					**Permits**	1292	
57-4-0044	Yarrangobilly Helipad;Little Plain;	AGD	55	636500	6044000	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	**Recorders**	A.P Spate					**Permits**		
57-6-0318	Yarrangobilly Caves House;	AGD	55	634750	6045300	Open site	Valid	Artefact : -	Open Camp Site	97580,98493
	Contact	**Recorders**	Mr.S.J Reilly					**Permits**	1643	
57-6-0321	Yarrangobilly Caves	AGD	55	635200	6045350	Open site	Valid	Burial : 1, Artefact : -	Open Camp Site	98493
	Contact	**Recorders**	Mr.S.J Reilly,Richard Wright					**Permits**		
56-6-0013	Yarrangobilly Caves;Yarrangobilly Caves Picnic Area;KNP91-82;	AGD	55	635100	6045400	Open site	Valid	Artefact : -	Open Camp Site	1962
	Contact	**Recorders**	Ian Johnson,Mr.S.J Reilly					**Permits**		
56-6-0462	Yarrangobilly pool trail	GDA	55	634657	6045296	Open site	Valid	Modified Tree (Carved or Scarred) : 1		
	Contact	**Recorders**	Mr.Paul House					**Permits**		
57-4-0250	Bullocks Hill Trail Test Area 1	GDA	55	638785	6040286	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	**Recorders**	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					**Permits**		
56-6-0124	YC13	AGD	55	634700	6045120	Open site	Valid	Artefact : -		97580
	Contact	**Recorders**	Mr.Peter Kuskie,Veronica Webster					**Permits**	1643	
56-6-0065	YC15	AGD	55	634200	6044750	Open site	Valid	Artefact : -		97580
	Contact	**Recorders**	Mr.Peter Kuskie					**Permits**		

Report generated by AHIMS Web Service on 29/03/2019 for Julie Dibden for the following area at Datum :GDA, Zone : 55, Eastings : 630000 - 640000, Northings : 6040000 - 6050000 with a Buffer of 50 meters. Additional Info : Archaeological Assessment. Number of Aboriginal sites and Aboriginal objects found is 13

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Page 1 of 1

Office of Environment & Heritage

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : SH 2.0 #3
Client Service ID : 411056

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
57-4-0092	Black Hill;KNP91-58;	AGD	55	643650	6049100	Open site	Valid	Artefact : -	Open Camp Site	1962
	Contact	Recorders	Alison Jones					Permits		
57-4-0218	Port Phillip Ft Mt 1	GDA	55	645021	6048117	Open site	Valid	Modified Tree (Carved or Scarred) : 1		
	Contact	Recorders	Mr.Dean Freeman					Permits		
57-4-0081	Black Hill;KNP91-47;	AGD	55	642000	6049000	Open site	Valid	Artefact : -	Open Camp Site	1962
	Contact	Recorders	Alison Jones					Permits		
57-4-0082	Black Hill;KNP91-48;	AGD	55	643250	6049000	Open site	Valid	Artefact : -	Open Camp Site	1962
	Contact	Recorders	Alison Jones					Permits		
57-4-0088	Black Hill;KNP91-54;	AGD	55	644200	6049850	Open site	Valid	Artefact : -	Open Camp Site	1962
	Contact	Recorders	Alison Jones					Permits		
57-4-0089	Black Hill;KNP91-55;	AGD	55	643980	6049680	Open site	Valid	Artefact : -	Open Camp Site	1962
	Contact	Recorders	Alison Jones					Permits		
57-4-0091	Black Hill;KNP91-57;	AGD	55	643650	6049150	Open site	Valid	Artefact : -	Open Camp Site	1962
	Contact	Recorders	Alison Jones					Permits		
57-4-0090	Black Hill;KNP91-56;	AGD	55	643800	6049450	Open site	Valid	Artefact : -	Open Camp Site	1962
	Contact	Recorders	Alison Jones					Permits		
57-4-0238	Port Phillip Fire Trail SU6/L1	GDA	55	644862	6048609	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0239	Port Phillip Fire Trail SU6/L2	GDA	55	644809	6048686	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0240	Port Phillip Fire Trail SU7/L1	GDA	55	645084	6048520	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0241	Tantangara North SU3/L2	GDA	55	648446	6042924	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0242	Tantangara North SU3/L1	GDA	55	648605	6042969	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0243	Port Phillip Fire Trail SU5/L1	GDA	55	642467	6048652	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0244	Port Phillip Fire Trail SU5/L2	GDA	55	643909	6048988	Open site	Valid	Artefact : -		

Report generated by AHIMS Web Service on 29/03/2019 for Julie Dibden for the following area at Datum :GDA, Zone : 55, Eastings : 640000 - 650000, Northings : 6040000 - 6050000 with a Buffer of 50 meters. Additional Info : Archaeological Assessment. Number of Aboriginal sites and Aboriginal objects found is 39

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Page 1 of 4

Office of Environment & Heritage

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : SH 2.0 #3
Client Service ID : 411056

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0245	Port Phillip Fire Trail SU4/L3	GDA	55	641808	6048355	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0246	Port Phillip Fire Trail SU4/L2	GDA	55	641646	6048366	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0247	Port Phillip Fire Trail SU4/L1	GDA	55	640751	6048523	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0248	Tantangara North SU3/L3	GDA	55	648610	6043693	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0249	Tantangara North SU4/L1	GDA	55	648775	6043420	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0394	Port Phillip Fire Trail SU22/L1	GDA	55	650001	6045786	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0395	Port Phillip Fire Trail SU16/L3	GDA	55	649649	6045219	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0396	Port Phillip Fire Trail SU16/L2	GDA	55	649850	6045186	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0397	Port Phillip Fire Trail SU15/L1	GDA	55	649486	6045435	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0398	Port Phillip Fire Trail SU10/L1	GDA	55	647565	6046414	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		

Report generated by AHIMS Web Service on 29/03/2019 for Julie Dibden for the following area at Datum :GDA, Zone : 55, Eastings : 640000 - 650000, Northings : 6040000 - 6050000 with a Buffer of 50 meters. Additional Info : Archaeological Assessment. Number of Aboriginal sites and Aboriginal objects found is 39

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Page 2 of 4

Office of Environment & Heritage NSW

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : SH 2.0 #3
Client Service ID : 411056

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
57-4-0399	Port Phillip Fire Trail SU9/L2	GDA	55	646826	6047160	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0400	Port Phillip Fire Trail SU9/L1	GDA	55	646455	6047557	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0401	Port Phillip Fire Trail SU8/L2	GDA	55	646247	6047954	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0402	Port Phillip Fire Trail SU8/L1	GDA	55	645636	6048237	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0403	Port Phillip Fire Trail SU7/L2	GDA	55	645344	6048365	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0406	Port Phillip Fire Trail SU16/L1	GDA	55	649935	6045400	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0437	Port Phillip Fire Trail SU13/L1	GDA	55	648894	6045442	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0436	TSU18/L1	GDA	55	648723	6041338	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0410	Tantangara SU15/L5	GDA	55	648582	6040152	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0411	Tantangara SU15/L4	GDA	55	648948	6040538	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0412	Tantangara SU15/L3	GDA	55	648796	6040070	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0413	Tantangara SU15/L2	GDA	55	648759	6039968	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0415	Tantangara SU14/L2	GDA	55	648473	6040501	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0416	Tantangara SU14/L1	GDA	55	648788	6040612	Open site	Valid	Artefact : -		

Report generated by AHIMS Web Service on 29/03/2019 for Julie Dibden for the following area at Datum :GDA, Zone : 55, Eastings : 640000 - 650000, Northings : 6040000 - 6050000 with a Buffer of 50 meters. Additional Info : Archaeological Assessment. Number of Aboriginal sites and Aboriginal objects found is 39

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Page 3 of 4

Office of Environment & Heritage

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : SH 2.0 #3
Client Service ID : 411056

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
Contact		Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		

ctangular Snip

Report generated by AHIMS Web Service on 29/03/2019 for Julie Dibden for the following area at Datum :GDA, Zone : 55, Eastings : 640000 - 650000, Northings : 6040000 - 6050000 with a Buffer of 50 meters. Additional Info : Archaeological Assessment. Number of Aboriginal sites and Aboriginal objects found is 39

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Page 4 of 4

Office of Environment & Heritage

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : SH 2.0 #4
Client Service ID : 411068

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
57-4-0215	Pocket Saddle scar tree A5	AGD	55	655200	6044350	Open site	Valid	Modified Tree (Carved or Scarred) : 1		
	Contact	Recorders	Jill Sheppard					Permits		
57-4-0216	Spring Creek A2	AGD	55	653260	6044900	Open site	Valid	Artefact : 3		
	Contact T Russell	Recorders	Jill Sheppard					Permits		
57-4-0217	Port Phillip Ft Mt	GDA	55	653491	6042528	Open site	Valid	Modified Tree (Carved or Scarred) : -		
	Contact	Recorders	Mr.Dean Freeman					Permits		
57-4-0219	Spring Creek Tanks A3	GDA	55	653680	6044550	Open site	Valid	Modified Tree (Carved or Scarred) : 1, Artefact : 4		
	Contact	Recorders	Ms.Mary Dallas					Permits		
57-4-0220	Currango Northern Yards A1	GDA	55	653580	6045320	Open site	Valid	Artefact : 5		
	Contact	Recorders	Ms.Mary Dallas					Permits		
57-4-0072	Currango H5;	AGD	55	652500	6043600	Open site	Valid	Artefact : -	Open Camp Site	1962
	Contact	Recorders	Alison Jones					Permits		
57-4-0074	KNP91-39;	AGD	55	653580	6042250	Open site	Valid	Artefact : -	Open Camp Site	1962
	Contact	Recorders	Alison Jones					Permits		
57-4-0075	KNP91-40;	AGD	55	653600	6042170	Open site	Valid	Artefact : -	Open Camp Site	1962
	Contact	Recorders	A Waghorn					Permits		
57-4-0076	KNP91-41;	AGD	55	653500	6042300	Open site	Valid	Artefact : -	Open Camp Site	1962
	Contact	Recorders	Alison Jones					Permits		
57-4-0229	Currango scar tree 1	AGD	55	653702	6045605	Open site	Valid	Modified Tree (Carved or Scarred) : 1		
	Contact	Recorders	Mr.Paul House					Permits		
57-4-0230	Currango scar tree 2	AGD	55	653667	6045639	Open site	Valid	Modified Tree (Carved or Scarred) : 1		
	Contact	Recorders	Mr.Paul House					Permits		
57-4-0394	Port Phillip Fire Trail SU22/L1	GDA	55	650001	6045786	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0407	Port Phillip Fire Trail SU19/L1	GDA	55	650388	6045369	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		

Report generated by AHIMS Web Service on 29/03/2019 for Julie Dibden for the following area at Datum :GDA, Zone : 55, Eastings : 650000 - 660000, Northings : 6040000 - 6050000 with a Buffer of 50 meters. Additional Info : Archaeological Assessment. Number of Aboriginal sites and Aboriginal objects found is 14

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Page 1 of 2

Office of Environment & Heritage

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : SH 2.0 #4
Client Service ID : 411068

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
57-4-0142	Currango-1	AGD	55	653280	6044760	Open site	Valid	Artefact : 2		
	Contact Mr.Dean Freeman	**Recorders** Ms.Sarah Carr						**Permits**		

Report generated by AHIMS Web Service on 29/03/2019 for Julie Dibden for the following area at Datum :GDA, Zone : 55, Eastings : 650000 - 660000, Northings : 6040000 - 6050000 with a Buffer of 50 meters. Additional Info : Archaeological Assessment. Number of Aboriginal sites and Aboriginal objects found is 14

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Page 2 of 2

Office of Environment & Heritage

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : SH 2.0 #5
Client Service ID : 411069

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
56-6-0039	KNP91-19;Ravine;	AGD	55	626900	6031800	Open site	Valid	Artefact : -	Open Camp Site	1962
	Contact	Recorders	L Brass					Permits		
56-6-0040	KNP91-20;Ravine;	AGD	55	627100	6031800	Open site	Valid	Artefact : -	Open Camp Site	1962
	Contact	Recorders	L Brass					Permits		
56-6-0041	KNP91-21;Ravine;	AGD	55	625700	6038650	Open site	Valid	Artefact : -	Open Camp Site	1962
	Contact	Recorders	L Brass					Permits		
56-6-0042	KNP91-22;Ravine;	AGD	55	625700	6038750	Open site	Valid	Artefact : -	Open Camp Site	1962
	Contact	Recorders	L Brass					Permits		
56-6-0043	KNP91-23;Ravine;	AGD	55	626400	6038500	Open site	Valid	Artefact : -	Open Camp Site	1962
	Contact	Recorders	L Brass					Permits		
56-6-0045	KNP91-60;	AGD	55	626600	6038000	Open site	Valid	Artefact : -	Open Camp Site	1962
	Contact	Recorders	N Baczocha,J Johnson					Permits	4241	
56-6-0046	KNP91-61;	AGD	55	625670	6038700	Open site	Valid	Artefact : -	Open Camp Site	1962
	Contact	Recorders	Trish Thams					Permits		
56-6-0048	KNP91-63;	AGD	55	625900	6038400	Open site	Valid	Artefact : -	Open Camp Site	1962
	Contact	Recorders	N Baczocha					Permits		
56-6-0060	BF-OS-1;Yorkers Creek on Tumbarumba;	AGD	55	619950	6039100	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		
56-6-0038	KNP91-18;Ravine;	AGD	55	627100	6031700	Open site	Valid	Artefact : -	Open Camp Site	1962
	Contact	Recorders	L Brass					Permits		
56-6-0009	Ravine;Lob's Hole;KNP91-59;	AGD	55	627600	6037900	Open site	Valid	Artefact : -	Open Camp Site	1962
	Contact	Recorders	M Collins,A Waghorn,T Campbell					Permits	4241	
56-6-0536	Ravine SU24/L1	GDA	55	625432	6039689	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0537	Ravine SU12/L1	GDA	55	625829	6038992	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0540	Ravine SU29/L1	GDA	55	625867	6038625	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0541	Ravine SU6/L5	GDA	55	626378	6038367	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0464	Ravine SU20/L12	GDA	55	627049	6031129	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0465	Ravine SU20/L6	GDA	55	627086	6030289	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		

Report generated by AHIMS Web Service on 29/03/2019 for Julie Dibden for the following area at Datum :GDA, Zone : 55, Eastings : 620000 - 630000, Northings : 6030000 - 6040000 with a Buffer of 50 meters. Additional Info : Archaeological Assessment. Number of Aboriginal sites and Aboriginal objects found is 52

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Page 1 of 4

Office of Environment & Heritage

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : SH 2.0 #5
Client Service ID : 411069

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
56-6-0466	Ravine SU20/L7	GDA	55	627132	6030426	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0467	Ravine SU20/L9	GDA	55	627126	6030521	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0468	Ravine SU20/L8	GDA	55	627070	6030417	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0469	Ravine SU20/L11	GDA	55	627058	6030837	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0470	Ravine SU20/L10	GDA	55	627068	6030671	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0474	Ravine SU20/L4	GDA	55	627097	6030124	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0475	Ravine SU20/L5	GDA	55	627149	6030256	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0476	Ravine SU18/L1	GDA	55	626507	6037719	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0477	Ravine SU17/L1	GDA	55	626656	6038018	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0478	Ravine SU13/L2	GDA	55	625534	6039222	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0479	Ravine SU16/L1	GDA	55	625888	6039148	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0480	Ravine SU16/L2	GDA	55	626019	6039190	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0481	Ravine SU16/L3	GDA	55	625996	6039198	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0482	Ravine SU16/L4	GDA	55	625894	6039170	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0483	Ravine SU13/L1	GDA	55	625481	6039362	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0484	Ravine SU10/L1	GDA	55	626059	6038964	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0485	Ravine SU10/L2	GDA	55	626059	6038964	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		

Report generated by AHIMS Web Service on 29/03/2019 for Julie Dibden for the following area at Datum :GDA, Zone : 55, Eastings : 620000 - 630000, Northings : 6030000 - 6040000 with a Buffer of 50 meters. Additional Info : Archaeological Assessment. Number of Aboriginal sites and Aboriginal objects found is 52

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Page 2 of 4

Office of Environment & Heritage
NSW GOVERNMENT

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : SH 2.0 #5
Client Service ID : 411069

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
56-6-0486	Ravine SU10/L3	GDA	55	626087	6038871	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0487	Ravine SU11/L1	GDA	55	625886	6038900	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0488	Ravine SU11/L2	GDA	55	625923	6038957	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0489	Ravine SU6/L3	GDA	55	626522	6038358	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0490	Ravine SU6/L4	GDA	55	626534	6038365	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0491	Ravine SU6/L2	GDA	55	626522	6038555	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0492	Ravine SU5/L1	GDA	55	626799	6038327	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0493	Ravine SU5/L2	GDA	55	626774	6038362	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0494	Ravine SU6/L1	GDA	55	626474	6038393	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0495	Ravine SU3/L1	GDA	55	627704	6038078	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0496	Ravine SU3/L2	GDA	55	627673	6038084	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0497	Ravine SU3/L3	GDA	55	627641	6038087	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0498	Ravine SU4/L1	GDA	55	626704	6038275	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0499	Ravine SU4/L2	GDA	55	626599	6038247	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0504	Ravine SU22/L3	GDA	55	624955	6039963	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0505	Ravine SU22/L2	GDA	55	624940	6039871	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0507	Ravine SU22/L1	GDA	55	624978	6039859	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		

Report generated by AHIMS Web Service on 29/03/2019 for Julie Dibden for the following area at Datum :GDA, Zone : 55, Eastings : 620000 - 630000, Northings : 6030000 - 6040000 with a Buffer of 50 meters. Additional Info : Archaeological Assessment. Number of Aboriginal sites and Aboriginal objects found is 52

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Office of Environment & Heritage

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : SH 2.0 #5
Client Service ID : 411069

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
56-6-0047	KNP91-62;	AGD	55	625800	6038750	Open site	Valid	Artefact : -	Open Camp Site	1962
	Contact	**Recorders**	N Baczocha					**Permits**		

Report generated by AHIMS Web Service on 29/03/2019 for Julie Dibden for the following area at Datum :GDA, Zone : 55, Eastings : 620000 - 630000, Northings : 6030000 - 6040000 with a Buffer of 50 meters. Additional Info : Archaeological Assessment. Number of Aboriginal sites and Aboriginal objects found is 52

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Page 4 of 4

Office of Environment & Heritage
NSW GOVERNMENT

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : SH 2.0 #6
Client Service ID : 411074

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
57-6-0323	Kiandra Plain;	AGD	55	634600	6039000	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	Recorders	Mr.S.J Reilly					Permits		
56-6-0508	WSU16/L10	GDA	55	633473	6037371	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0509	WSU16/L9	GDA	55	633265	6036861	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0510	WSU16/L7	GDA	55	632964	6036192	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0511	WSU16/L8	GDA	55	633178	6036739	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0512	WSU16/L6	GDA	55	632691	6034949	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0513	WSU16/L5	GDA	55	632712	6035179	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0514	WSU16/L4	GDA	55	632736	6035381	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0515	WSU16/L2	GDA	55	632818	6035767	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0516	WSU16/L1	GDA	55	632847	6035803	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0517	WSU16/L3	GDA	55	632786	6035746	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0518	WSU13/L2	GDA	55	632920	6035344	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0519	WSU13/L1	GDA	55	632989	6035318	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0520	WSU9/L5	GDA	55	633307	6035450	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0521	WSU9/L4	GDA	55	633701	6035237	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0522	WSU9/L3	GDA	55	633804	6035217	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		

Report generated by AHIMS Web Service on 29/03/2019 for Julie Dibden for the following area at Datum :GDA, Zone : 55, Eastings : 630000 - 640000, Northings : 6030000 - 6040000 with a Buffer of 50 meters. Additional Info : Archaeological Assessment. Number of Aboriginal sites and Aboriginal objects found is 51

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Page 1 of 5

Office of Environment & Heritage NSW

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : SH 2.0 #6
Client Service ID : 411074

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
56-6-0523	WSU9/L2	GDA	55	633561	6035613	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0524	WSU9/L1	GDA	55	633825	6035651	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0525	WSU7/L2	GDA	55	633965	6035507	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0526	WSU4/L1	GDA	55	634182	6035447	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0404	Gooandra SU1/L12	GDA	55	636397	6039213	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0405	Gooandra SU1/L10	GDA	55	636276	6038666	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0527	WSU7/L1	GDA	55	634057	6035628	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0528	3MSU17/L1	GDA	55	634479	6033358	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0529	3MSU11/L1	GDA	55	632357	6031547	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0530	3MSU9/L1	GDA	55	632117	6030970	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0531	3MSU7/L1	GDA	55	631686	6030568	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		

Report generated by AHIMS Web Service on 29/03/2019 for Julie Dibden for the following area at Datum :GDA, Zone : 55, Eastings : 630000 - 640000, Northings : 6030000 - 6040000 with a Buffer of 50 meters. Additional Info : Archaeological Assessment. Number of Aboriginal sites and Aboriginal objects found is 51

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Office of Environment & Heritage

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : SH 2.0 #6
Client Service ID : 411074

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
56-6-0532	3MSU5/L1	GDA	55	631789	6030353	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0408	Gooandra SU1/L11	GDA	55	637212	6038974	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0409	GSU15/L1	GDA	55	638426	6036916	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0534	MSU4/L2	GDA	55	634309	6037856	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0535	MSU3/L1	GDA	55	634611	6037599	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0383	GSU18/L1	GDA	55	639122	6038234	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0424	NCTSU18/L1	GDA	55	637627	6030572	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0425	NCTSU15/L1	GDA	55	639783	6032604	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0313	Gooandra SU1/L1	GDA	55	636294	6037924	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0314	Gooandra SU1/L2	GDA	55	636629	6037434	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0315	Gooandra SU1/L3	GDA	55	636732	6037405	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0316	Gooandra SU1/L4	GDA	55	636994	6037645	Open site	Valid	Potential Archaeological Deposit (PAD) : -		

Report generated by AHIMS Web Service on 29/03/2019 for Julie Dibden for the following area at Datum :GDA, Zone : 55, Eastings : 630000 - 640000, Northings : 6030000 - 6040000 with a Buffer of 50 meters. Additional Info : Archaeological Assessment. Number of Aboriginal sites and Aboriginal objects found is 51

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Page 3 of 5

Office of Environment & Heritage

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : SH 2.0 #6
Client Service ID : 411074

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0317	Gooandra SU1/L5	GDA	55	637114	6037602	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0318	Gooandra SU3/L5	GDA	55	636901	6038869	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0319	Gooandra SU3/L4	GDA	55	637173	6038286	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0320	Gooandra SU3/L3	GDA	55	636737	6038285	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0322	Gooandra SU3/L1	GDA	55	636394	6038604	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0323	Gooandra SU1/L8	GDA	55	636630	6039080	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0324	Gooandra SU1/L9	GDA	55	636672	6039489	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0325	Gooandra SU1/L7	GDA	55	637225	6037677	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0326	Gooandra SU1/L6	GDA	55	637161	6037539	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0500	Marica SU4/L1	GDA	55	634054	6037923	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0501	Marica SU2/L1	GDA	55	634900	6037613	Open site	Valid	Potential Archaeological Deposit (PAD) : -		

Report generated by AHIMS Web Service on 29/03/2019 for Julie Dibden for the following area at Datum :GDA, Zone : 55, Eastings : 630000 - 640000, Northings : 6030000 - 6040000 with a Buffer of 50 meters. Additional Info : Archaeological Assessment. Number of Aboriginal sites and Aboriginal objects found is 51

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Page 4 of 5

Office of Environment & Heritage

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : SH 2.0 #6
Client Service ID : 411074

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0321	Gooandra SU3/L2	GDA	55	636871	6038343	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		

Report generated by AHIMS Web Service on 29/03/2019 for Julie Dibden for the following area at Datum :GDA, Zone : 55, Eastings : 630000 - 640000, Northings : 6030000 - 6040000 with a Buffer of 50 meters. Additional Info : Archaeological Assessment. Number of Aboriginal sites and Aboriginal objects found is 51

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Page 5 of 5

Office of Environment & Heritage
NSW

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : SH 2.0 #7
Client Service ID : 411080

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
57-4-0143	Quarry road -1	AGD	55	648970	6037260	Open site	Valid	Artefact : -		98506
	Contact	Recorders	Philip Boot,Dieuwer Reynders					Permits	4241	
57-4-0121	Quarry Road 8	AGD	55	648660	6036860	Open site	Valid	Artefact : -	Open Camp Site	98506
	Contact	Recorders	Philip Boot					Permits	4241	
57-4-0122	Quarry Road 7	AGD	55	648700	6036920	Open site	Valid	Artefact : -	Open Camp Site	98506
	Contact	Recorders	Philip Boot					Permits	4241	
57-4-0123	Quarry Road 2	AGD	55	648900	6037110	Open site	Valid	Artefact : -	Isolated Find	98506
	Contact	Recorders	Philip Boot					Permits	4241	
57-4-0124	Quarry Road 6	AGD	55	648920	6037050	Open site	Valid	Artefact : -	Open Camp Site	98506
	Contact	Recorders	Philip Boot					Permits		
57-4-0125	Quarry Road 5	AGD	55	648920	6037600	Open site	Valid	Artefact : -	Open Camp Site	98506
	Contact	Recorders	Philip Boot					Permits		
57-8-0001	Quarry Road 4 (wrong site number correct number is 57-4-0224)	AGD	55	649000	6037750	Open site	Deleted	Artefact : -	Open Camp Site	98506
	Contact	Recorders	Philip Boot					Permits		
57-4-0126	Quarry Road 3	AGD	55	648760	6037680	Open site	Valid	Artefact : -	Open Camp Site	98506
	Contact	Recorders	Philip Boot					Permits	4241	
57-4-0127	Quarry Road 1	AGD	55	648800	6037880	Open site	Valid	Artefact : -	Isolated Find	98506
	Contact	Recorders	Philip Boot					Permits	4241	
57-4-0128	Quarry Road 2	AGD	55	648950	6037400	Open site	Valid	Artefact : -	Open Camp Site	98506
	Contact	Recorders	Philip Boot					Permits	4241	
57-4-0080	Tantangara Dam West;	AGD	55	648700	6036700	Open site	Valid	Artefact : -	Open Camp Site	1962,98506
	Contact	Recorders	Alison Jones					Permits	1561,4241	
57-4-0003	Boggy Plain;	AGD	55	640200	6033800	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	Recorders	Jo Flood					Permits		
57-4-0166	Nungar Ridge 1	AGD	55	649928	6036519	Open site	Valid	Habitation Structure : -		
	Contact T Russell	Recorders	Mr.Dean Freeman					Permits		
57-4-0224	Quarry Road 4	AGD	55	649000	6037750	Open site	Valid	Artefact : 10		
	Contact	Recorders	Philip Boot					Permits		
57-4-0327	Tantangara Road SU1/L1	GDA	55	647289	6030694	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0328	Tantangara Road SU1/L2	GDA	55	647480	6031488	Open site	Valid	Potential Archaeological Deposit (PAD) : -		

Report generated by AHIMS Web Service on 29/03/2019 for Julie Dibden for the following area at Datum :GDA, Zone : 55, Eastings : 640000 - 650000, Northings : 6030000 - 6040000 with a Buffer of 50 meters. Additional Info : Archaeological Assessment. Number of Aboriginal sites and Aboriginal objects found is 101

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Page 1 of 8

Office of Environment & Heritage NSW

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : SH 2.0 #7
Client Service ID : 411080

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
	Contact	**Recorders**	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					**Permits**		
57-4-0329	Tantangara Road SU1/L3	GDA	55	647379	6033057	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	**Recorders**	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					**Permits**		
57-4-0330	Tantangara Road SU1/L5	GDA	55	647718	6033530	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					**Permits**		
57-4-0331	Tantangara Road SU1/L6	GDA	55	649460	6038417	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					**Permits**		
57-4-0332	Tantangara Road SU1/L4	GDA	55	647518	6033262	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	**Recorders**	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					**Permits**		
57-4-0343	NSU4/L1	GDA	55	641720	6037891	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					**Permits**		
57-4-0344	NSU1/L1	GDA	55	646044	6036129	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					**Permits**		
57-4-0354	TTxSU39/L1	GDA	55	648742	6034503	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					**Permits**		
57-4-0355	TTxSU36/L1	GDA	55	647801	6033645	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					**Permits**		
57-4-0357	TTxSU24/L1	GDA	55	647100	6030330	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	**Recorders**	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					**Permits**		
57-4-0390	NSU2/L1	GDA	55	645211	6036017	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					**Permits**		
57-4-0426	NCTSU10/L4	GDA	55	641482	6033743	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	**Recorders**	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					**Permits**		
57-4-0427	NCTSU10/L3	GDA	55	641358	6033516	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					**Permits**		
57-4-0428	NCTSU10/L2	GDA	55	641453	6033618	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	**Recorders**	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					**Permits**		

Report generated by AHIMS Web Service on 29/03/2019 for Julie Dibden for the following area at Datum :GDA, Zone : 55, Eastings : 640000 - 650000, Northings : 6030000 - 6040000 with a Buffer of 50 meters. Additional Info : Archaeological Assessment. Number of Aboriginal sites and Aboriginal objects found is 101

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Page 2 of 8

Office of Environment & Heritage

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : SH 2.0 #7
Client Service ID : 411080

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
57-4-0429	NCTSU10/L1	GDA	55	641440	6033667	Open site	Valid	Artefact : -, Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0430	NCTSU8/L1	GDA	55	641853	6032756	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0431	NCTSU4/L3	GDA	55	642702	6030981	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0432	NCTSU4/L2	GDA	55	642853	6030635	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0433	NCTSU4/L1	GDA	55	642982	6030302	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0251	Tantangara SU5/L5	GDA	55	649135	6037098	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0252	Tantangara SU4/L1	GDA	55	649163	6037212	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0253	Tantangara SU3/L3	GDA	55	649320	6037656	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0254	Tantangara SU3/L4	GDA	55	649269	6037540	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0255	Tantangara SU2/L9	GDA	55	649272	6037855	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0256	Tantangara SU8/L1	GDA	55	649367	6036727	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0257	Tantangara SU4/L3	GDA	55	649118	6037292	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		

Report generated by AHIMS Web Service on 29/03/2019 for Julie Dibden for the following area at Datum :GDA, Zone : 55, Eastings : 640000 - 650000, Northings : 6030000 - 6040000 with a Buffer of 50 meters. Additional Info : Archaeological Assessment. Number of Aboriginal sites and Aboriginal objects found is 101

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Page 3 of 8

Office of Environment & Heritage
NSW

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : SH 2.0 #7
Client Service ID : 411080

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
57-4-0258	Tantangara SU4/L4	GDA	55	649106	6037300	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0259	Tantangara SU5/L3	GDA	55	648995	6037129	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0260	Tantangara SU4/L2	GDA	55	649136	6037229	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0261	Tantangara SU4/L6	GDA	55	648999	6037259	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0262	Tantangara SU3/L15	GDA	55	649011	6037645	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0263	Tantangara SU2/L6	GDA	55	649097	6037888	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0264	Tantangara SU2/L8	GDA	55	649170	6037930	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0265	Tantangara SU2/L2	GDA	55	649027	6037843	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0266	Tantangara SU2/L3	GDA	55	649032	6037832	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0268	Tantangara SU3/L7	GDA	55	649210	6037693	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0269	Tantangara SU3/L6	GDA	55	649216	6037601	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0270	Tantangara SU3/L5	GDA	55	649245	6037581	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		

Report generated by AHIMS Web Service on 29/03/2019 for Julie Dibden for the following area at Datum :GDA, Zone : 55, Eastings : 640000 - 650000, Northings : 6030000 - 6040000 with a Buffer of 50 meters. Additional Info : Archaeological Assessment. Number of Aboriginal sites and Aboriginal objects found is 101

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Page 4 of 8

Office of Environment & Heritage
NSW GOVERNMENT

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : SH 2.0 #7
Client Service ID : 411080

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
57-4-0271	Tantangara SU3/L8	GDA	55	649135	6037668	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0272	Tantangara SU3/L12	GDA	55	649016	6037618	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0273	Tantangara SU3/L11	GDA	55	649030	6037609	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0274	Tantangara SU3/L13	GDA	55	648988	6037603	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0275	Tantangara SU3/L14	GDA	55	648974	6037615	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0276	Tantangara SU11/L16	GDA	55	648186	6039456	Closed site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0277	Tantangara SU11/L17	GDA	55	648158	6039501	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0278	Tantangara SU12/L1	GDA	55	647880	6039022	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0279	Tantangara SU12/L2	GDA	55	647873	6039644	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0280	Tantangara SU12/L3	GDA	55	647895	6039032	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0281	Tantangara SU11/L12 - (This is a Dulpicate to 57-4-0235)	GDA	55	648257	6038746	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0282	Tantangara SU7/L3	GDA	55	648566	6039221	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0283	Tantangara SU7/L4	GDA	55	648682	6039485	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0284	Tantangara SU7/L6	GDA	55	648595	6039537	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0285	Tantangara SU7/L5	GDA	55	648582	6039495	Open site	Valid	Artefact : -		

Report generated by AHIMS Web Service on 29/03/2019 for Julie Dibden for the following area at Datum :GDA, Zone : 55, Eastings : 640000 - 650000, Northings : 6030000 - 6040000 with a Buffer of 50 meters. Additional Info : Archaeological Assessment. Number of Aboriginal sites and Aboriginal objects found is 101

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Page 5 of 8

Office of Environment & Heritage
NSW GOVERNMENT

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : SH 2.0 #7
Client Service ID : 411080

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
57-4-0271	Tantangara SU3/L8	GDA	55	649135	6037668	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0272	Tantangara SU3/L12	GDA	55	649016	6037618	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0273	Tantangara SU3/L11	GDA	55	649030	6037609	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0274	Tantangara SU3/L13	GDA	55	648988	6037603	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0275	Tantangara SU3/L14	GDA	55	648974	6037615	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0276	Tantangara SU11/L16	GDA	55	648186	6039456	Closed site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0277	Tantangara SU11/L17	GDA	55	648158	6039501	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0278	Tantangara SU12/L1	GDA	55	647880	6039022	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0279	Tantangara SU12/L2	GDA	55	647873	6039644	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0280	Tantangara SU12/L3	GDA	55	647895	6039032	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0281	Tantangara SU11/L12 - (This is a Dulpicate to 57-4-0235)	GDA	55	648257	6038746	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0282	Tantangara SU7/L3	GDA	55	648566	6039221	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0283	Tantangara SU7/L4	GDA	55	648682	6039485	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0284	Tantangara SU7/L6	GDA	55	648595	6039537	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0285	Tantangara SU7/L5	GDA	55	648582	6039495	Open site	Valid	Artefact : -		

Report generated by AHIMS Web Service on 29/03/2019 for Julie Dibden for the following area at Datum :GDA, Zone : 55, Eastings : 640000 - 650000, Northings : 6030000 - 6040000 with a Buffer of 50 meters. Additional Info : Archaeological Assessment. Number of Aboriginal sites and Aboriginal objects found is 101

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Page 5 of 8

Office of Environment & Heritage NSW GOVERNMENT

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : SH 2.0 #7
Client Service ID : 411080

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0286	Tantangara SU7/L2	GDA	55	648703	6038987	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0287	Tantangara SU1/L4	GDA	55	649580	6038206	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0288	Tantangara SU1/L7	GDA	55	649021	6038390	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0289	Tantangara SU1/L6	GDA	55	649021	6038390	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0290	Tantangara SU1/L5	GDA	55	649558	6038329	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0291	Tantangara SU7/L1	GDA	55	648967	6038689	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0292	Tantangara SU3/L2	GDA	55	649402	6037510	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0293	Tantangara SU3/L1	GDA	55	649303	6037381	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0294	Tantangara SU5/L4	GDA	55	649256	6037063	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0295	Tantangara SU11/L4	GDA	55	648372	6037349	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0296	Tantangara SU11/L5	GDA	55	648247	6038022	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0297	Tantangara SU11/L8	GDA	55	648459	6038529	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0298	Tantangara SU11/L7	GDA	55	648358	6038546	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0299	Tantangara SU11/L6	GDA	55	648403	6038477	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0300	Tantangara SU11/L9	GDA	55	648459	6038586	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0301	Tantangara SU11/L11 - (This is a Dulpicate to 57-4-0237)	GDA	55	648357	6038690	Open site	Valid	Artefact : -		

Report generated by AHIMS Web Service on 29/03/2019 for Julie Dibden for the following area at Datum :GDA, Zone : 55, Eastings : 640000 - 650000, Northings : 6030000 - 6040000 with a Buffer of 50 meters. Additional Info : Archaeological Assessment. Number of Aboriginal sites and Aboriginal objects found is 101

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Page 6 of 8

Office of Environment & Heritage

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : SH 2.0 #7
Client Service ID : 411080

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0302	Tantangara SU11/L13 - (This is a Dulpicate to 57-4-0236)	GDA	55	648285	6038865	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0303	Tantangara SU11/L10	GDA	55	648380	6038611	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0304	Tantangara SU11/L14	GDA	55	648174	6038926	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0305	Tantangara SU11/L15	GDA	55	648199	6039112	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0306	Tantangara SU11/L2	GDA	55	648475	6036509	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0307	Tantangara SU7/L7	GDA	55	648637	6036619	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0308	Tantangara SU6/L1	GDA	55	648943	6036767	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0309	Tantangara SU11/L1	GDA	55	648565	6036317	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0310	Tantangara SU1/L2	GDA	55	649137	6038155	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0311	Tantangara SU1/L3	GDA	55	649254	6037962	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0312	Tantangara SU11/L3	GDA	55	648311	6036831	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0267	Tantangara SU2/L5	GDA	55	649056	6037811	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0413	Tantangara SU15/L2	GDA	55	648759	6039968	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0414	Tantangara SU15/L1	GDA	55	648567	6039918	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0235	SH2 A27	GDA	55	648257	6038746	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0236	SH2 A19	GDA	55	648285	6038865	Open site	Valid	Artefact : -		

Report generated by AHIMS Web Service on 29/03/2019 for Julie Dibden for the following area at Datum :GDA, Zone : 55, Eastings : 640000 - 650000, Northings : 6030000 - 6040000 with a Buffer of 50 meters. Additional Info : Archaeological Assessment. Number of Aboriginal sites and Aboriginal objects found is 101

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Office of Environment & Heritage

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : SH 2.0 #7
Client Service ID : 411080

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0237	SH2 A18	GDA	55	648357	6038690	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		

Report generated by AHIMS Web Service on 29/03/2019 for Julie Dibden for the following area at Datum :GDA, Zone : 55, Eastings : 640000 - 650000, Northings : 6030000 - 6040000 with a Buffer of 50 meters. Additional Info : Archaeological Assessment. Number of Aboriginal sites and Aboriginal objects found is 101

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Page 8 of 8

Office of Environment & Heritage
NSW GOVERNMENT

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : SH 2.0 #8
Client Service ID : 411084

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
57-4-0096	KNP91-72;	AGD	55	653100	6038300	Open site	Valid	Artefact : -	Open Camp Site	1962
	Contact	**Recorders**	Alison Jones					**Permits**		
57-4-0098	KNP91-76;	AGD	55	651500	6037450	Open site	Valid	Artefact : -	Open Camp Site	1962
	Contact	**Recorders**	D Sun					**Permits**		
57-4-0101	Gulf Bend;KNP91-80;	AGD	55	651400	6037300	Open site	Valid	Artefact : -	Open Camp Site	1962
	Contact	**Recorders**	Ian Johnson					**Permits**		
57-4-0058	KNP91-10;Gulf Bend;	AGD	55	651500	6037400	Open site	Valid	Artefact : -	Open Camp Site	1962
	Contact	**Recorders**	N Baczocha,Ian Johnson					**Permits**		
57-4-0059	KNP91-11;	AGD	55	651500	6037300	Open site	Valid	Artefact : -	Open Camp Site	1962
	Contact	**Recorders**	N Baczocha,Ian Johnson					**Permits**		
57-4-0060	KNP91-12;	AGD	55	651700	6036500	Open site	Valid	Artefact : -	Open Camp Site	1962
	Contact	**Recorders**	N Baczocha,Ian Johnson					**Permits**		
57-4-0073	Gulf Bend IF 2;	AGD	55	651200	6036470	Open site	Valid	Artefact : -	Open Camp Site	1962
	Contact	**Recorders**	Alison Jones					**Permits**		
57-4-0077	KNP91-42;	AGD	55	650970	6036600	Open site	Valid	Artefact : -	Open Camp Site	1962
	Contact	**Recorders**	Alison Jones					**Permits**		
57-4-0078	KNP91-43;	AGD	55	650050	6038700	Open site	Valid	Artefact : -	Open Camp Site	1962
	Contact	**Recorders**	Alison Jones					**Permits**		
57-4-0079	Gulf Bend I.F.1;	AGD	55	651050	6036700	Open site	Valid	Artefact : -	Open Camp Site	1962
	Contact	**Recorders**	Alison Jones					**Permits**		
57-4-0160	Nungar Creek	AGD	55	650083	6029972	Open site	Valid	Modified Tree (Carved or Scarred) : -		
	Contact	**Recorders**	Mr.Dean Freeman					**Permits**		
57-4-0166	Nungar Ridge 1	AGD	55	649928	6036519	Open site	Valid	Habitation Structure : -		
	Contact T Russell	**Recorders**	Mr.Dean Freeman					**Permits**		
57-4-0223	Tantangara Road AS	AGD	55	651357	6036812	Open site	Valid	Artefact : 5		
	Contact	**Recorders**	Mr.Dean Freeman					**Permits**		
57-4-0339	CHSU6/L1	GDA	55	653190	6034167	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					**Permits**		
57-4-0340	CHSU3/L2	GDA	55	652392	6035141	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					**Permits**		
57-4-0341	CHSU3/L1	GDA	55	652217	6035801	Open site	Valid	Potential Archaeological Deposit (PAD) : -		

Report generated by AHIMS Web Service on 29/03/2019 for Julie Dibden for the following area at Datum :GDA, Zone : 55, Eastings : 650000 - 660000, Northings : 6030000 - 6040000 with a Buffer of 50 meters. Additional Info : Archaeological Assessment. Number of Aboriginal sites and Aboriginal objects found is 40

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Page 1 of 3

Office of Environment & Heritage

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : SH 2.0 #8
Client Service ID : 411084

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0342	CHSU2/L1	GDA	55	651832	6036657	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0365	SSU23/L2	GDA	55	652843	6031041	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0366	SSU23/L1	GDA	55	652725	6031136	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0367	SSU22/L1	GDA	55	652261	6034184	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0368	SSU20/L1	GDA	55	652023	6033317	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0369	SSU17/L3	GDA	55	651907	6032820	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0370	SSU17/L2	GDA	55	651819	6032723	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0371	SSU17/L1	GDA	55	651827	6032532	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0372	SSU16/L2	GDA	55	651827	6031762	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0373	SSU16/L1	GDA	55	651721	6031424	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0374	SSU15/L2	GDA	55	652334	6031558	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0375	SSU15/L1	GDA	55	651359	6031151	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0376	SSU14/L3	GDA	55	651116	6031051	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0377	SSU14/L2	GDA	55	651075	6030889	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0378	SSU14/L1	GDA	55	650825	6030540	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0384	CHSU29/L1	GDA	55	658325	6034922	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		

Report generated by AHIMS Web Service on 29/03/2019 for Julie Dibden for the following area at Datum :GDA, Zone : 55, Eastings : 650000 - 660000, Northings : 6030000 - 6040000 with a Buffer of 50 meters. Additional Info : Archaeological Assessment. Number of Aboriginal sites and Aboriginal objects found is 40

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Page 2 of 3

Office of Environment & Heritage

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : SH 2.0 #8
Client Service ID : 411084

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
57-4-0385	CHSU22/L1	GDA	55	657249	6035103	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0386	CHSU26/L1	GDA	55	658103	6034916	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0387	CHSU14/L2	GDA	55	654567	6034577	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0388	CHSU14/L1	GDA	55	654207	6034442	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0389	CHSU12/L1	GDA	55	654007	6034349	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0391	CHSU11/L1	GDA	55	653822	6034377	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0392	CHSU10/L1	GDA	55	653643	6034411	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0393	CHSU7/L1	GDA	55	653334	6034321	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		

Report generated by AHIMS Web Service on 29/03/2019 for Julie Dibden for the following area at Datum :GDA, Zone : 55, Eastings : 650000 - 660000, Northings : 6030000 - 6040000 with a Buffer of 50 meters. Additional Info : Archaeological Assessment. Number of Aboriginal sites and Aboriginal objects found is 40

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Page 3 of 3

Office of Environment & Heritage

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : SH 2.0 #9
Client Service ID : 411090

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
56-6-0388	65/2-1 (Transmission Line 65, Tower 2, Kosci NP)	AGD	55	624589	6024759	Open site	Valid	Artefact : 1		
	Contact T Russell	**Recorders**	Charles Dearling Archaeological and Cultural Heritage Consultants					**Permits**		
56-6-0471	Ravine SU20/L1	GDA	55	628110	6027769	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					**Permits**		
56-6-0472	Ravine SU20/L2	GDA	55	627218	6028452	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					**Permits**		
56-6-0473	Ravine SU20/L3	GDA	55	627121	6028561	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					**Permits**		

Report generated by AHIMS Web Service on 29/03/2019 for Julie Dibden for the following area at Datum :GDA, Zone : 55, Eastings : 620000 - 630000, Northings : 6017000 - 6030000 with a Buffer of 50 meters. Additional Info : Archaeological Assessment. Number of Aboriginal sites and Aboriginal objects found is 4

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Page 1 of 1

Office of Environment & Heritage

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : SH 2.0 #10
Client Service ID : 411094

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
57-4-0095	Rocky Plain Creek;KNP91-71;	AGD	55	639200	6025400	Open site	Valid	Artefact : -	Open Camp Site	1962
	Contact	**Recorders**	M Bryant,P Pemberton					**Permits**		
56-6-0032	Nine Mile Diggings;	AGD	55	633550	6018650	Open site	Valid	Artefact : -	Isolated Find	99585
	Contact	**Recorders**	Ms.Tessa Corkill					**Permits**		
56-6-0130	MS-ST-1	AGD	55	631360	6027240	Open site	Valid	Modified Tree (Carved or Scarred) : -		
	Contact	**Recorders**	Central West Archaeological and Heritage Services Pty Ltd					**Permits**		
57-4-0211	Tabletop AS 1	AGD	55	636543	6017021	Open site	Valid	Potential Archaeological Deposit (PAD) : 1, Artefact : 1		103047
	Contact T Russell	**Recorders**	Mr.Dean Freeman					**Permits**		
57-4-0212	Tabletop as	AGD	55	636444	6017174	Open site	Valid	Artefact : 1, Potential Archaeological Deposit (PAD) : 1		103047
	Contact	**Recorders**	Mr.Dean Freeman					**Permits**		
57-4-0113	Four Mile Hill Fire Trail 5;	AGD	55	639070	6024350	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	**Recorders**	P Saunders					**Permits**		
57-4-0114	Four Mile Hill Fire Trail 6;	AGD	55	638970	6023780	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	**Recorders**	P Saunders					**Permits**		
57-4-0115	Four Mile Hill Fire Trail 4;	AGD	55	639030	6025710	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	**Recorders**	P Saunders					**Permits**		
57-4-0116	Four Mile Hill Fire Trail 1;	AGD	55	639080	6025950	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	**Recorders**	P Saunders					**Permits**		
57-4-0117	Four Mile Hill Fire Trail 2;	AGD	55	639170	6025670	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	**Recorders**	P Saunders					**Permits**		
57-4-0118	Tabletop Mountain;	AGD	55	635250	6018200	Open site	Valid	Artefact : -	Open Camp Site	99585
	Contact	**Recorders**	Mr.S.J Reilly					**Permits**		
56-6-0006	Kiandra;Flood 6;	AGD	55	634500	6022850	Open site	Valid	Artefact : -	Open Camp Site	321,102779
	Contact	**Recorders**	Jo Flood					**Permits**		
57-4-0057	Mount Tantangara 1;	AGD	55	639130	6028050	Open site	Valid	Artefact : -	Isolated Find,Open Camp Site	1912
	Contact	**Recorders**	Kerry Navin,Mr.Kelvin Officer					**Permits**		
57-4-0004	Tantangara Mountain;Sawyer's Hill;	AGD	55	637500	6027800	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	**Recorders**	Jo Flood					**Permits**		
57-4-0108	4 Mile Creek. Junction Koscuisko National Park	AGD	55	636700	6024800	Open site	Valid	Artefact : -	Open Camp Site	

Report generated by AHIMS Web Service on 29/03/2019 for Julie Dibden for the following area at Datum :GDA, Zone : 55, Eastings : 630000 - 640000, Northings : 6017000 - 6030000 with a Buffer of 50 meters. Additional Info : Archaeological Assessment. Number of Aboriginal sites and Aboriginal objects found is 19

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Page 1 of 2

Office of Environment & Heritage

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : SH 2.0 #10
Client Service ID : 411094

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
	Contact	Recorders	Unknown Author					Permits		
57-4-0353	RPTxSU7/L1	GDA	55	638629	6026216	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0533	3MSU1/L1	GDA	55	630721	6028467	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0435	RPSU5/L1	GDA	55	639204	6027011	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
56-6-0175	Mt Selwyn PAD	AGD	55	632600	6025250	Open site	Valid	Potential Archaeological Deposit (PAD) : -		98795
	Contact	Recorders	Doctor.Julie Dibden					Permits	1822	

Report generated by AHIMS Web Service on 29/03/2019 for Julie Dibden for the following area at Datum :GDA, Zone : 55, Eastings : 630000 - 640000, Northings : 6017000 - 6030000 with a Buffer of 50 meters. Additional Info : Archaeological Assessment. Number of Aboriginal sites and Aboriginal objects found is 19

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Page 2 of 2

Office of Environment & Heritage

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : SH 2.0 #11
Client Service ID : 411096

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
57-4-0093	Denison;KNP91-64;	AGD	55	644400	6021200	Open site	Valid	Artefact : -	Open Camp Site	1962
	Contact	**Recorders**	N Baczocha,Ian Johnson					**Permits**		
57-4-0094	Denison;KNP91-68;	AGD	55	644200	6021600	Open site	Valid	Artefact : -	Open Camp Site	1962
	Contact	**Recorders**	Ian Johnson					**Permits**		
57-4-0157	Providence Portal (PP 1)	AGD	55	646550	6021275	Open site	Valid	Artefact : 4		
	Contact	**Recorders**	Mr.Matthew Barber					**Permits**	2401	
57-4-0158	Connors Hill 2	AGD	55	642500	6024800	Open site	Valid	Artefact : 3		
	Contact	**Recorders**	Doctor.Julie Dibden					**Permits**	1901	
57-4-0210	Isolated Find Gang Gang Creek	GDA	55	644540	6022600	Open site	Valid	Artefact : -		
	Contact Searle	**Recorders**	Mr.Warwick Blaydon					**Permits**		
57-4-0038	Gang Gang Creek;	AGD	55	646150	6024650	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	**Recorders**	Val Attenbrow,Margrit Koettig					**Permits**		
57-4-0214	Delaneys Huts Artifact Scatter	AGD	55	640976	6024822	Open site	Valid	Artefact : -		
	Contact T Russell	**Recorders**	Mr.Dean Freeman					**Permits**		
57-4-0055	Providence Portal;	AGD	55	646550	6021150	Open site	Valid	Artefact : -	Open Camp Site	98653
	Contact	**Recorders**	Rod Wellington,Mr.Doug Williams,Doctor.Sue Feary					**Permits**	2401	
57-4-0005	Connor's Hill;Alpine Creek;	AGD	55	641200	6024700	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	**Recorders**	Jo Flood					**Permits**		
57-4-0161	Tantangara 1	AGD	55	646384	6027050	Open site	Valid	Habitation Structure : -		
	Contact	**Recorders**	Mr.Dean Freeman					**Permits**		
57-4-0163	Alpine Hill 3	AGD	55	640699	6024408	Open site	Valid	Modified Tree (Carved or Scarred) : -, Habitation Structure : -, Artefact : -		
	Contact	**Recorders**	Mr.Dean Freeman					**Permits**		
57-4-0164	Alpine Hill 1	AGD	55	642490	6023790	Open site	Valid	Modified Tree (Carved or Scarred) : -, Habitation Structure : -		
	Contact	**Recorders**	Mr.Dean Freeman					**Permits**		
57-4-0165	Alpine Hill 2	AGD	55	641661	6024209	Open site	Valid	Modified Tree (Carved or Scarred) : -		
	Contact	**Recorders**	Mr.Dean Freeman					**Permits**		

Report generated by AHIMS Web Service on 29/03/2019 for Julie Dibden for the following area at Datum :GDA, Zone : 55, Eastings : 640000 - 650000, Northings : 6017000 - 6030000 with a Buffer of 50 meters. Additional Info : Archaeological Assessment. Number of Aboriginal sites and Aboriginal objects found is 51

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Page 1 of 4

Office of Environment & Heritage NSW

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : SH 2.0 #11
Client Service ID : 411096

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
57-4-0333	Tantangara Road SU1/L9	GDA	55	646659	6025283	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0334	Tantangara Road SU1/L8	GDA	55	646715	6025486	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0335	Tantangara Road SU1/L7	GDA	55	646500	6027245	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0336	Tantangara Road SU1/L10	GDA	55	646564	6025269	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0337	Tantangara Road SU1/L11	GDA	55	645922	6023538	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0338	Tantangara Road SU1/L12	GDA	55	646507	6025227	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0345	RPTxSU3/L4	GDA	55	640872	6024588	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0346	RPTxSU3/L3	GDA	55	640984	6024546	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0347	RPTxSU3/L2	GDA	55	641118	6024529	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0348	RPTxSU3/L1	GDA	55	641313	6024493	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0349	RPTxSU2/L1	GDA	55	642693	6023979	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0350	DSU4/L1	GDA	55	646325	6022522	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0351	DSU2/L2	GDA	55	647986	6021119	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0352	DSU2/L1	GDA	55	647942	6021145	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0356	TTxSU21/L1	GDA	55	646912	6029151	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor,Julie Dibden,NSW Archaeology Pty Ltd					Permits		

Report generated by AHIMS Web Service on 29/03/2019 for Julie Dibden for the following area at Datum :GDA, Zone : 55, Eastings : 640000 - 650000, Northings : 6017000 - 6030000 with a Buffer of 50 meters. Additional Info : Archaeological Assessment. Number of Aboriginal sites and Aboriginal objects found is 51

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Page 2 of 4

Office of Environment & Heritage NSW

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : SH 2.0 #11
Client Service ID : 411096

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
57-4-0358	TTxSU18/L1	GDA	55	646782	6028658	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0359	TTxSU16/L1	GDA	55	646851	6028313	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0360	TTxSU14/L1	GDA	55	646758	6027260	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0361	TTxSU1/L1	GDA	55	645896	6022886	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0362	TTxSU11/L1	GDA	55	646507	6025732	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0363	TTxSU9/L1	GDA	55	646464	6025503	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0364	TTxSU17/L1	GDA	55	646870	6028502	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0381	SSU10/L2	GDA	55	649781	6029800	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0382	SSU10/L1	GDA	55	649558	6029811	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0417	NCTSU2/L1	GDA	55	643148	6029681	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0423	NCTSU27/L1	GDA	55	644110	6028173	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
57-4-0434	NCTSU1/L1	GDA	55	643328	6029171	Open site	Valid	Artefact : -		
	Contact	Recorders	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					Permits		
58-4-0889	CM 1	AGD	55	643200	6017150	Open site	Valid	Artefact : -	Open Camp Site	99585
	Contact	Recorders	Robert Paton					Permits	1499	
57-4-0133	Denison Site 4	AGD	55	644600	6021400	Open site	Valid	Artefact : -		
	Contact	Recorders	Philip Boot,Reg Russell					Permits		
57-4-0134	Denison Site 3	AGD	55	644470	6021400	Open site	Valid	Artefact : -		
	Contact	Recorders	Philip Boot,Reg Russell					Permits		

Report generated by AHIMS Web Service on 29/03/2019 for Julie Dibden for the following area at Datum :GDA, Zone : 55, Eastings : 640000 - 650000, Northings : 6017000 - 6030000 with a Buffer of 50 meters. Additional Info : Archaeological Assessment. Number of Aboriginal sites and Aboriginal objects found is 51

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Page 3 of 4

Office of Environment & Heritage

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : SH 2.0 #11
Client Service ID : 411096

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
57-4-0135	Denison Site 2	AGD	55	644620	6021120	Open site	Valid	Artefact : -		
	Contact	Recorders	Philip Boot,Reg Russell					Permits		
57-4-0136	Denison Site 1	AGD	55	644350	6021270	Open site	Valid	Artefact : -		
	Contact	Recorders	Philip Boot,Reg Russell					Permits		
57-4-0137	Denison IF3	AGD	55	644250	6021550	Open site	Valid	Artefact : -		
	Contact	Recorders	Philip Boot,Reg Russell					Permits		
57-4-0138	Denison IF2	AGD	55	644150	6021570	Open site	Valid	Artefact : -		
	Contact	Recorders	Philip Boot,Reg Russell					Permits		
57-4-0139	Denison IF1	AGD	55	644150	6021600	Open site	Valid	Artefact : -		
	Contact	Recorders	Philip Boot,Reg Russell					Permits		
57-4-0207	PP 4	AGD	55	646658	6021506	Open site	Valid	Artefact : 27		99397
	Contact Searle	Recorders	Ms.Trish Saunders					Permits		
57-4-0233	Denison IF4	GDA	55	644678	6021483	Open site	Valid	Artefact : 1		
	Contact	Recorders	Ms.Christine Gant Thompson					Permits		
57-4-0234	Denison IF5	GDA	55	644705	6021504	Open site	Valid	Artefact : 1		
	Contact	Recorders	Ms.Christine Gant Thompson					Permits		

Report generated by AHIMS Web Service on 29/03/2019 for Julie Dibden for the following area at Datum :GDA, Zone : 55, Eastings : 640000 - 650000, Northings : 6017000 - 6030000 with a Buffer of 50 meters. Additional Info : Archaeological Assessment. Number of Aboriginal sites and Aboriginal objects found is 51

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Page 4 of 4

Office of Environment & Heritage

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : SH 2.0 #12
Client Service ID : 411099

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
57-4-0379	SSU10/L4	GDA	55	650218	6029898	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					**Permits**		
57-4-0380	SSU10/L3	GDA	55	650085	6029808	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					**Permits**		
57-4-0418	CCSU1/L1	GDA	55	650789	6021072	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					**Permits**		
57-4-0419	CCSU1/L2	GDA	55	650641	6020983	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					**Permits**		
57-4-0420	CCSU1/L3	GDA	55	650715	6020938	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					**Permits**		
57-4-0421	CCSU11/L1	GDA	55	651476	6019579	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					**Permits**		
57-4-0422	CCSU17/L1	GDA	55	650251	6021675	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	**Recorders**	Doctor.Julie Dibden,NSW Archaeology Pty Ltd					**Permits**		

Report generated by AHIMS Web Service on 29/03/2019 for Julie Dibden for the following area at Datum :GDA, Zone : 55, Eastings : 650000 - 660000, Northings : 6017000 - 6030000 with a Buffer of 50 meters. Additional Info : Archaeological Assessment. Number of Aboriginal sites and Aboriginal objects found is 7

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Page 1 of 1

Office of Environment & Heritage

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : SH 2.0 #13
Client Service ID : 411112

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
56-6-0110	JP-OS-2/A	AGD	55	615090	6060720	Open site	Valid	Artefact : -		97490
	Contact	Recorders	Mr.Terry Howard					Permits		
56-6-0111	JP-OS-3/A	AGD	55	615070	6060840	Open site	Valid	Artefact : -		97490
	Contact	Recorders	Mr.Terry Howard					Permits		
56-6-0112	JP-OS-4/A	AGD	55	615080	6061070	Open site	Valid	Artefact : -		97490
	Contact	Recorders	Mr.Terry Howard					Permits		
56-6-0113	JP-OS-5/A	AGD	55	615060	6061250	Open site	Valid	Artefact : -		97490
	Contact	Recorders	Mr.Terry Howard					Permits		
56-6-0114	JP-OS-7/A	AGD	55	615060	6061670	Open site	Valid	Artefact : -		97490
	Contact	Recorders	Mr.Terry Howard					Permits		
56-6-0116	JP-OS-6/A	AGD	55	615060	6061540	Open site	Valid	Artefact : -		97490
	Contact	Recorders	Mr.Terry Howard					Permits		
56-6-0070	JP- IF-1	AGD	55	615070	6060450	Open site	Destroyed	Artefact : -		97490
	Contact	Recorders	Mrs.Robynne Mills					Permits	1293,1480	
56-6-0071	JP-OS-1	AGD	55	614950	6060670	Open site	Destroyed	Artefact : -		97490
	Contact	Recorders	Mrs.Robynne Mills					Permits	1293,1480	
56-6-0072	JP-OS-2	AGD	55	615180	6060690	Open site	Destroyed	Artefact : -		97490
	Contact	Recorders	Mrs.Robynne Mills					Permits	1293,1480	
56-6-0073	JP-OS-3	AGD	55	615060	6060870	Open site	Destroyed	Artefact : -		97490
	Contact	Recorders	Mrs.Robynne Mills					Permits	1293,1480	
56-6-0074	JP-OS-4	AGD	55	615070	6061080	Open site	Destroyed	Artefact : -		97490
	Contact	Recorders	Mrs.Robynne Mills					Permits	1293,1480	
56-6-0075	JP-OS-5	AGD	55	615050	6061350	Open site	Destroyed	Artefact : -		97490
	Contact	Recorders	Mrs.Robynne Mills					Permits	1293,1480	
56-6-0077	JP-OS-6	AGD	55	615050	6061490	Open site	Destroyed	Artefact : -		97490
	Contact	Recorders	Mrs.Robynne Mills					Permits	1293,1480	
56-6-0079	JP-SO-7	AGD	55	615020	6061570	Open site	Destroyed	Artefact : -		97490
	Contact	Recorders	Mrs.Robynne Mills					Permits	1293,1480	
56-6-0108	JP-IF-1/A	AGD	55	615040	6060450	Open site	Valid	Artefact : 1		97490
	Contact	Recorders	Mr.Terry Howard					Permits		
56-6-0109	JP-OS-1/A	AGD	55	615030	6060530	Open site	Valid	Artefact : -		97490
	Contact	Recorders	Mr.Terry Howard					Permits		

Report generated by AHIMS Web Service on 29/03/2019 for Julie Dibden for the following area at Datum :GDA, Zone : 55, Eastings : 615000 - 619000, Northings : 6052000 - 6062000 with a Buffer of 50 meters. Additional Info : Archaeological Assessment. Number of Aboriginal sites and Aboriginal objects found is 16

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Page 1 of 1

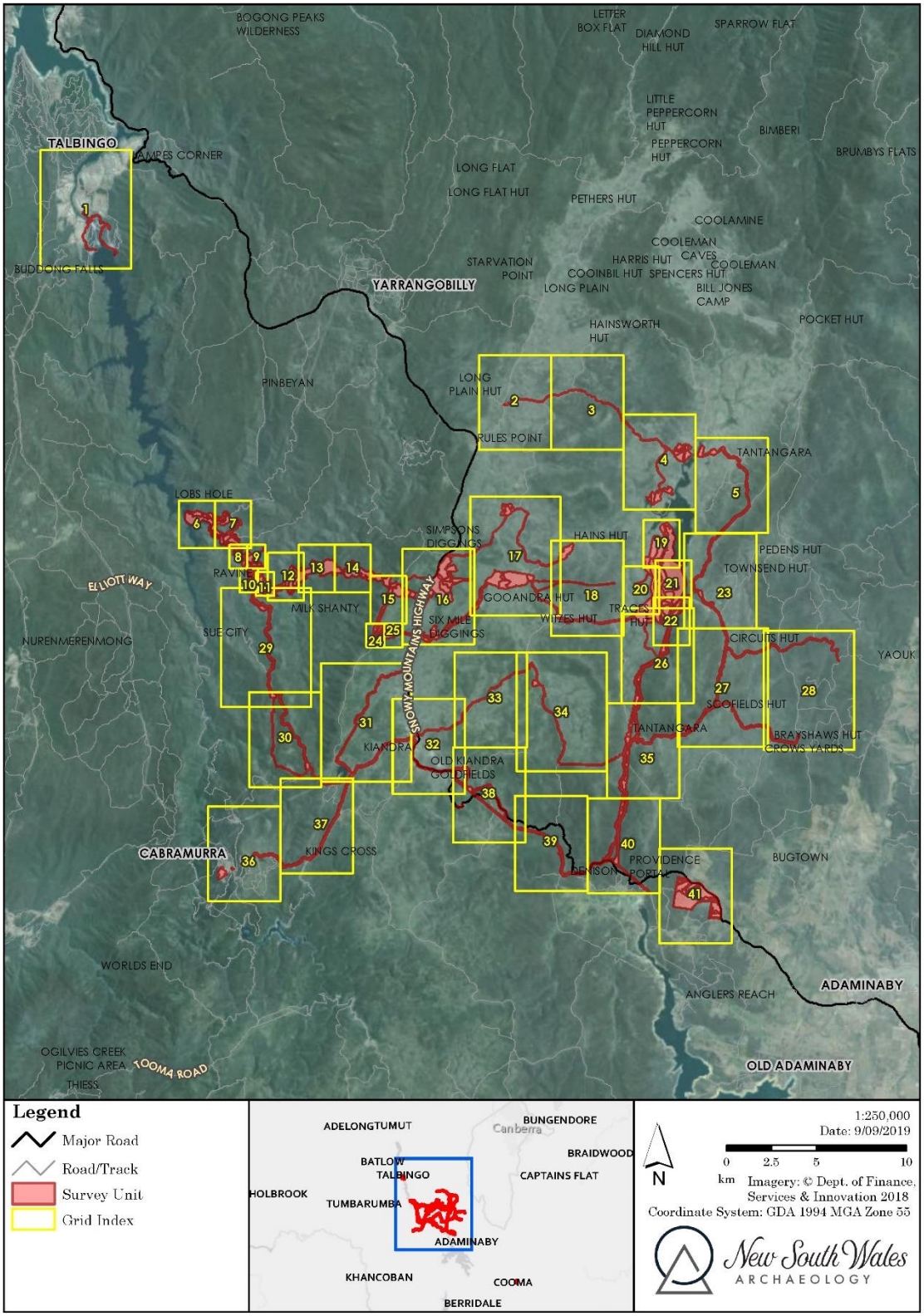


APPENDIX P.1

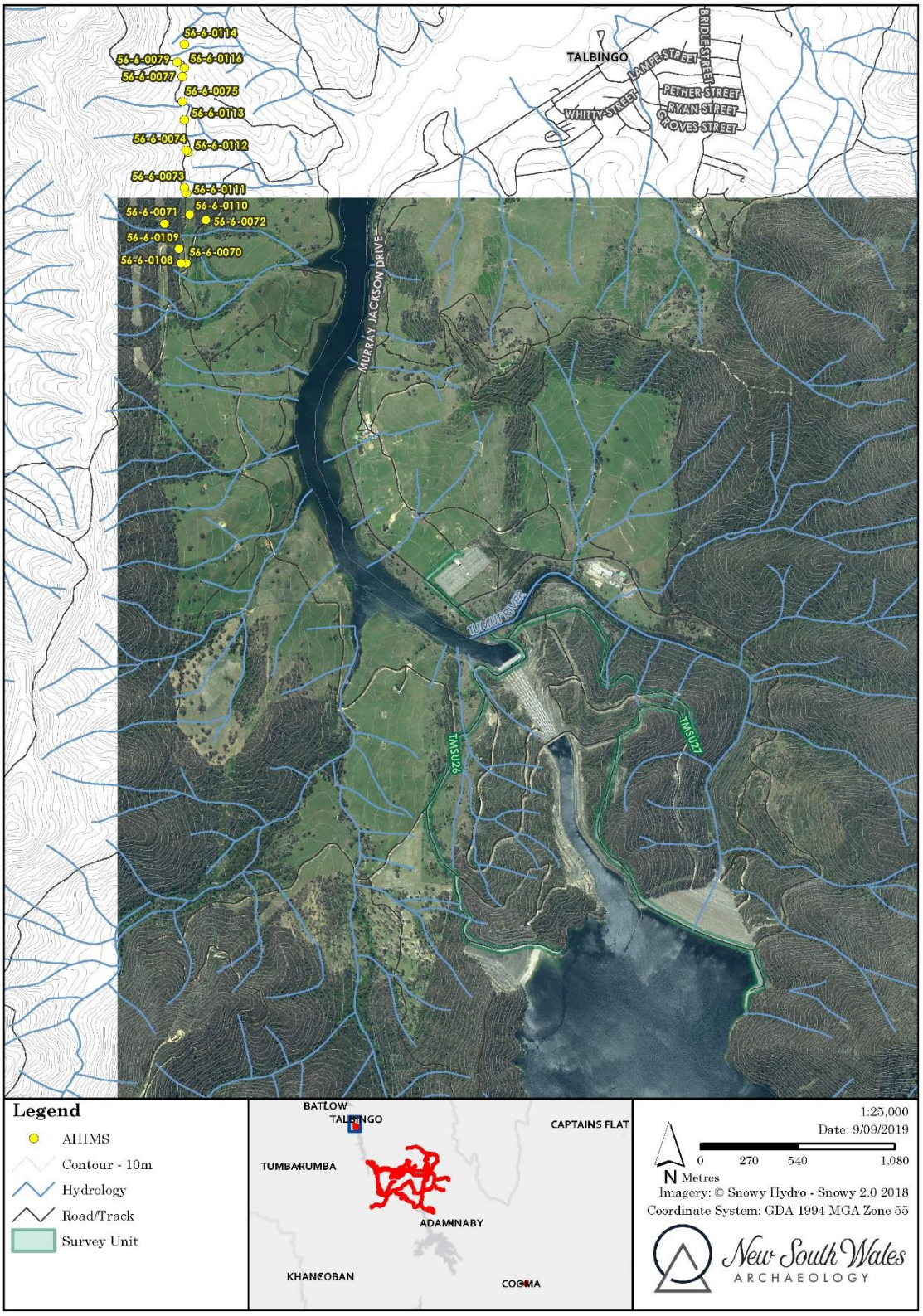
ABORIGINAL CULTURAL HERITAGE ASSESSMENT – ANNEXURES 3-5

ANNEXURE 3 MAPPING: SURVEY UNITS AND ABORIGINAL OBJECT LOCALES

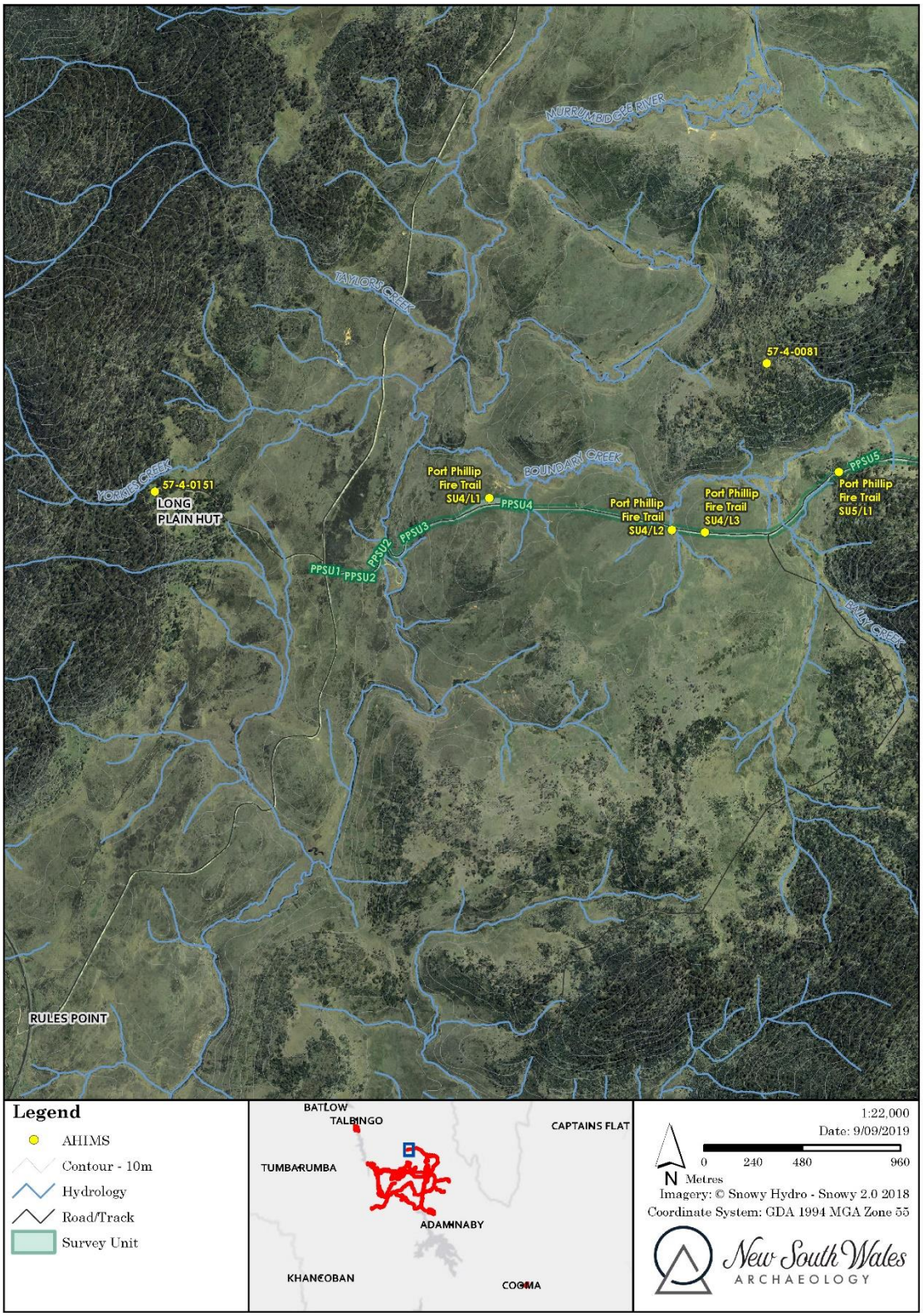
Map index


BOGONG PEAKS WILDERNESS
LETTER BOX FLAT
DIAMOND HILL HUT
SPARROW FLAT
LITTLE PEPPERCORN HUT
PEPPERCORN HUT
BIMBERI
BRUMBYS FLATS
TALBINGO
LAMPES CORNER
LONG FLAT
LONG FLAT HUT
PETHERS HUT
COOLAMINE
COOLEMAN CAVES
COOLEMAN
HARRIS HUT
COOINBIL HUT
SPENCERS HUT
BILL JONES CAMP
STARVATION POINT
LONG PLAIN
BUDDONG FALLS
YARRANGOBILLY
HAINSWORTH HUT
POCKET HUT
PINBEYAN
LONG PLAIN HUT
RULES POINT
TANTANGARA
LOBS HOLE
SIMPSONS DIGGINGS
HAINS HUT
PEDENS HUT
TOWNSEND HUT
RAVINE
ELLIOTT WAY
MILK SHANTY
GOOANDRA HUT
WITZES HUT
TRACES HUT
SUE CITY
SIX MILE DIGGINGS
SNOWY MOUNTAINS HIGHWAY
NURENMERENMONG
CIRCUITS HUT
YAOUK
SCOFIELDS HUT
BRAYSHAWS HUT
CROWS YARDS
KIANDRA
OLD KIANDRA GOLDFIELDS
KINGS CROSS
CABRAMURRA
PROVIDENCE PORTAL
BUGTOWN
DENISON
WORLDS END
ANGLERS REACH
ADAMINABY
OGILVIES CREEK PICNIC AREA
TOOMA ROAD
OLD ADAMINABY
THIESS
Legend
Major Road
Road/Track
Survey Unit
Grid Index
ADELONGTUMUT
BUNGENDORE
Canberra
BRAIDWOOD
BATLOW
TALBINGO
CAPTAINS FLAT
HOLBROOK
TUMBARUMBA
ADAMINABY
KHANCOBAN
COOMA
BERRIDALE
N
1:250,000
Date: 9/09/2019
0 2.5 5 10
km
Imagery: © Dept. of Finance, Services & Innovation 2018
Coordinate System: GDA 1994 MGA Zone 55
New South Wales ARCHAEOLOGY

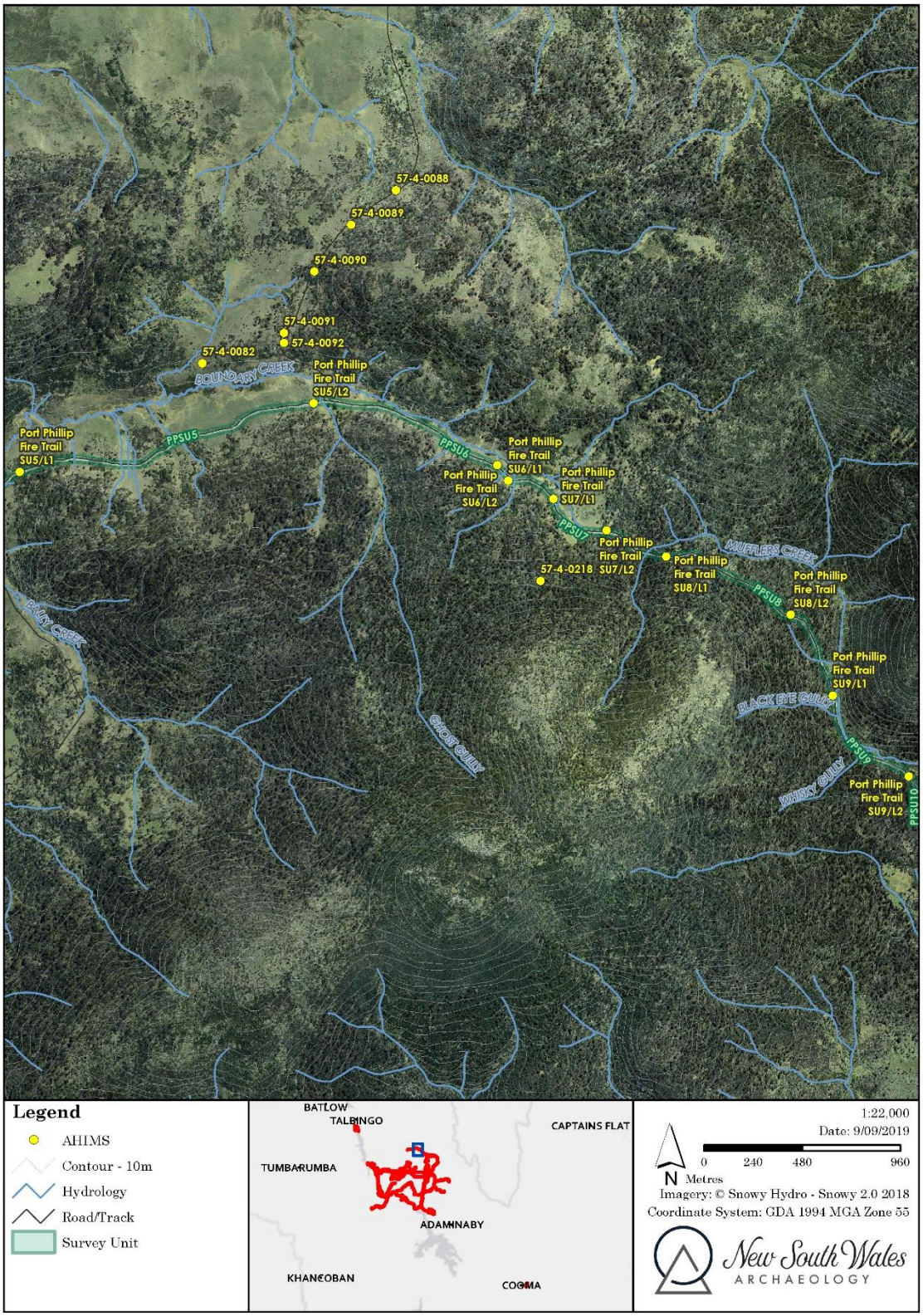
Map 1


56-6-0114
56-6-0079
56-6-0116
56-6-0077
56-6-0075
56-6-0113
56-6-0074
56-6-0112
56-6-0073
56-6-0111
56-6-0110
56-6-0071
56-6-0072
56-6-0109
56-6-0070
56-6-0108
TALBINGO
BRIDLE STREET
LAMB STREET
PETHER STREET
RYAN STREET
GROVES STREET
WHITTY STREET
MURRAY JACKSON DRIVE
TUMUT RIVER
TMSU26
TMSU27
Legend
AHIMS
Contour - 10m
Hydrology
Road/Track
Survey Unit
BATLOW
TALBINGO
CAPTAINS FLAT
TUMBARUMBA
ADAMINABY
KHANCOBAN
COOMA
1:25,000
Date: 9/09/2019
0
270
540
1,080
N
Metres
Imagery: © Snowy Hydro - Snowy 2.0 2018
Coordinate System: GDA 1994 MGA Zone 55
New South Wales
ARCHAEOLOGY

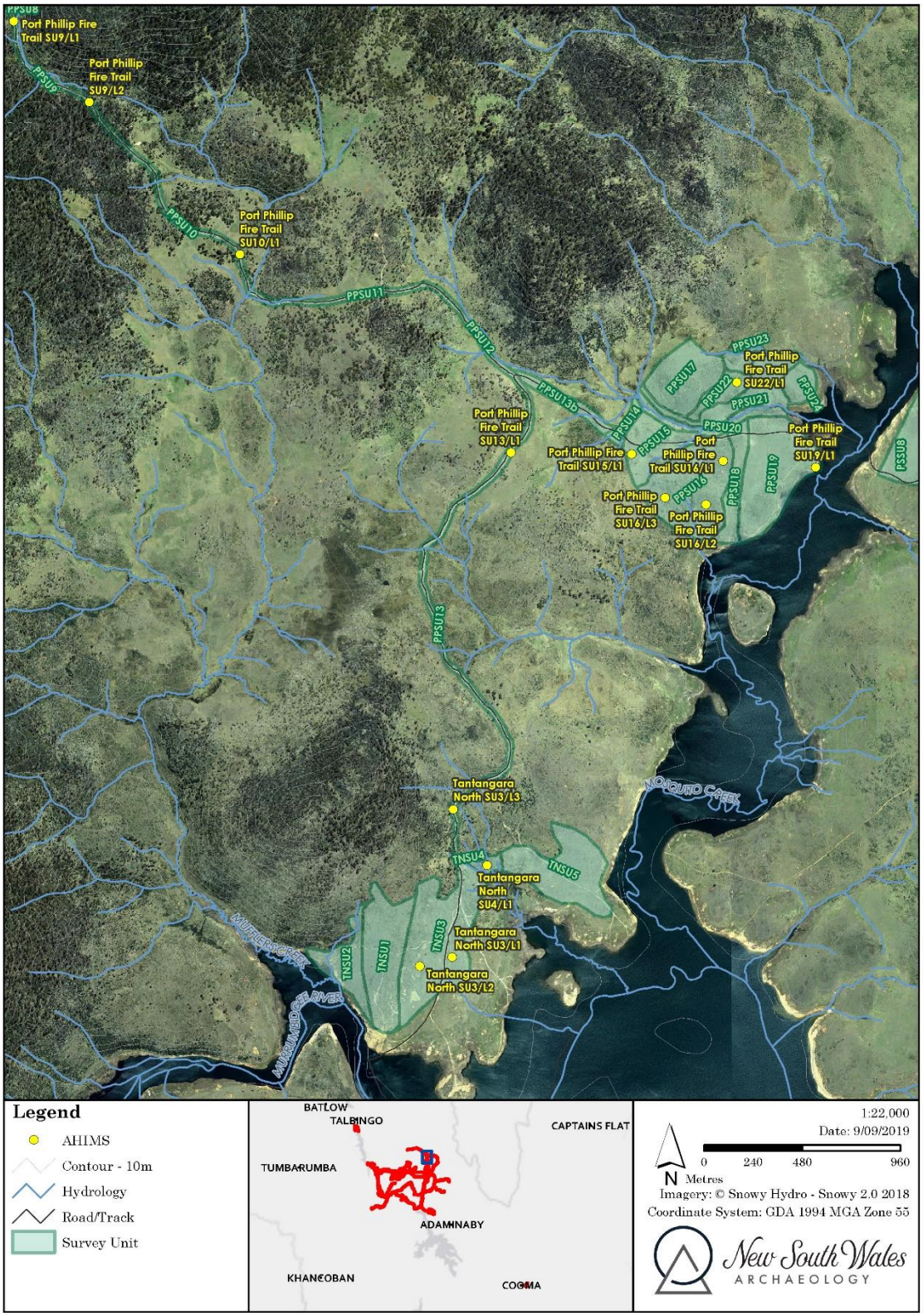
Map 2


MURRUMBIDGEE RIVER
TAYLORS CREEK
57-4-0081
YOUNGS CREEK
57-4-0151
LONG PLAIN HUT
Port Phillip Fire Trail SU4/L1
BOUNDARY CREEK
PPSU4
Port Phillip Fire Trail SU4/L2
Port Phillip Fire Trail SU4/L3
PPSU5
Port Phillip Fire Trail SU5/L1
PPSU3
PPSU2
PPSU1
PPSU2
BAILEY CREEK
RULES POINT
Legend
AHIMS
Contour - 10m
Hydrology
Road/Track
Survey Unit
BATLOW
TALBINGO
CAPTAINS FLAT
TUMBARUMBA
ADAMINABY
KHANCOBAN
COOMA
1:22,000
Date: 9/09/2019
0 240 480 960
N Metres
Imagery: © Snowy Hydro - Snowy 2.0 2018
Coordinate System: GDA 1994 MGA Zone 55
New South Wales ARCHAEOLOGY

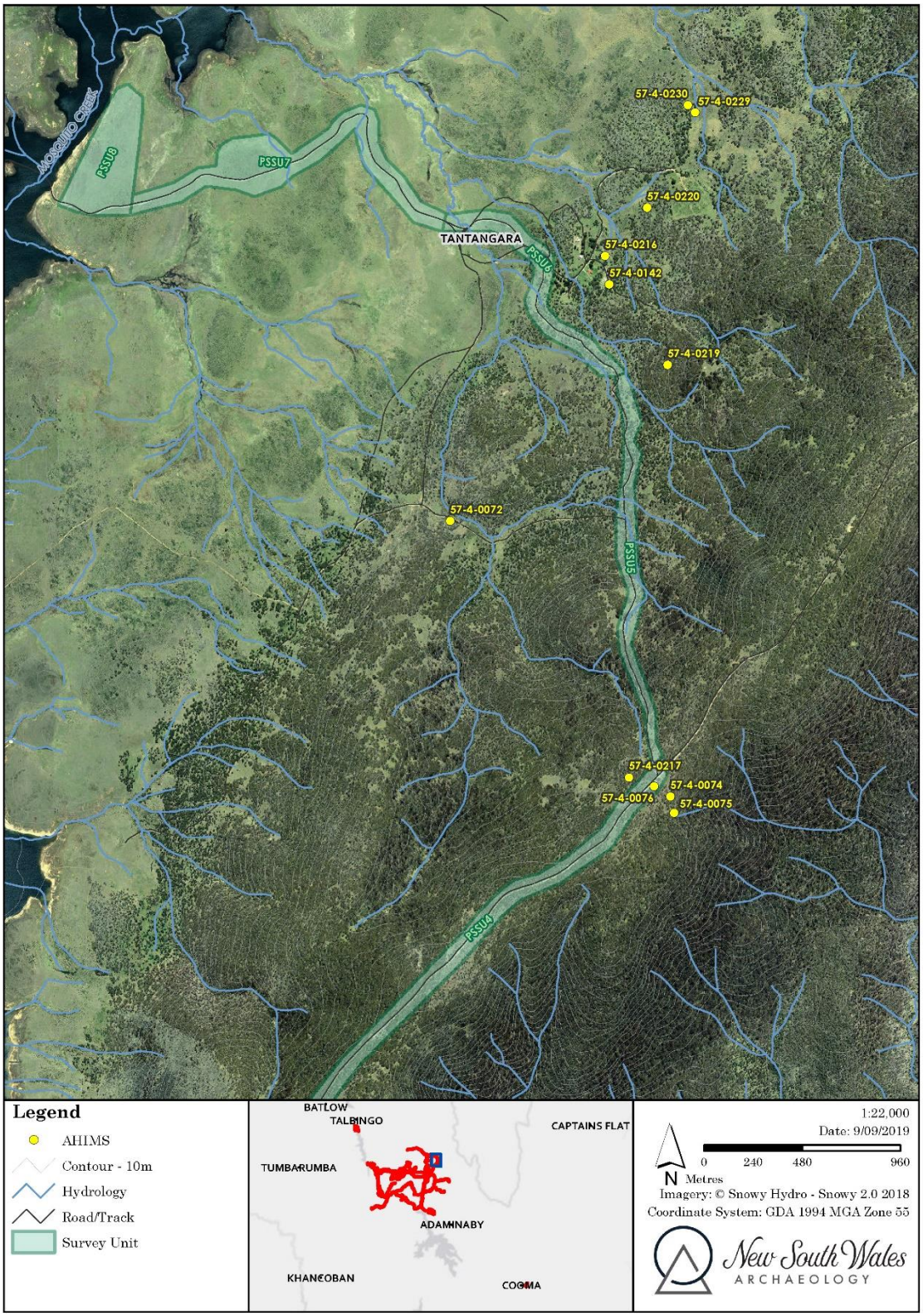
Map 3


57-4-0088
57-4-0089
57-4-0090
57-4-0091
57-4-0092
57-4-0082
BOUNDARY CREEK
Port Phillip Fire Trail SU6/L2
Port Phillip Fire Trail SU5/L1
PPSU5
PPSU6
Port Phillip Fire Trail SU6/L1
Port Phillip Fire Trail SU6/L2
Port Phillip Fire Trail SU7/L1
PPSU7
Port Phillip Fire Trail SU7/L2
57-4-0218
Port Phillip Fire Trail SU8/L1
MUFFLERS CREEK
PPSU8
Port Phillip Fire Trail SU8/L2
Port Phillip Fire Trail SU9/L1
BLACK EYE GULLY
PPSU9
WHISKY GULLY
Port Phillip Fire Trail SU9/L2
PPSU10
BAILEY CREEK
GHOST GULLY
Legend
AHIMS
Contour - 10m
Hydrology
Road/Track
Survey Unit
BATLOW
TALBINGO
CAPTAINS FLAT
TUMBARUMBA
ADAMINABY
KHANCOBAN
COOMA
1:22,000
Date: 9/09/2019
0 240 480 960
N Metres
Imagery: © Snowy Hydro - Snowy 2.0 2018
Coordinate System: GDA 1994 MGA Zone 55
New South Wales ARCHAEOLOGY

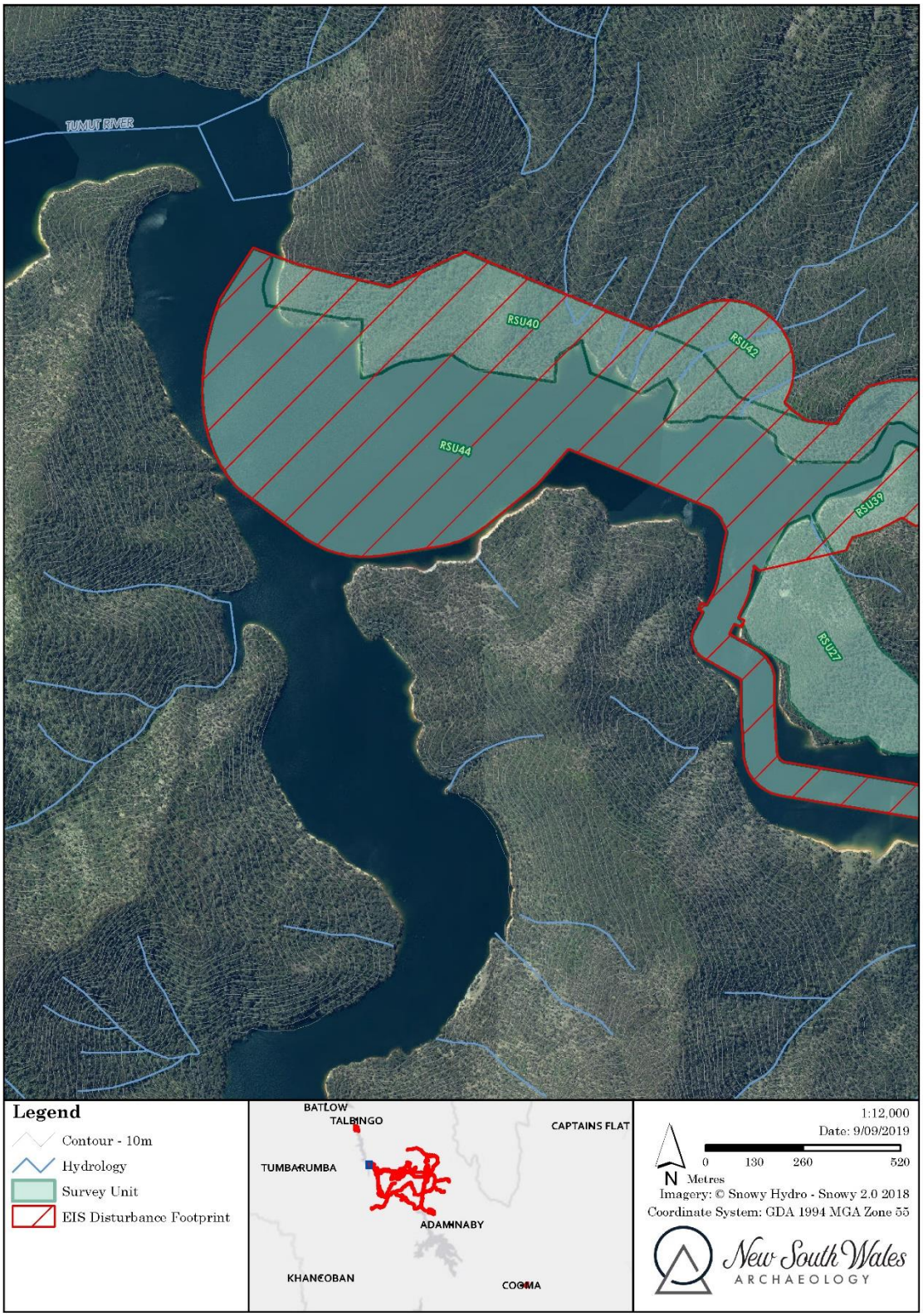
Map 4


PPSU8
Port Phillip Fire Trail SU9/L1
Port Phillip Fire Trail SU9/L2
PPSU9
PPSU10
Port Phillip Fire Trail SU10/L1
PPSU11
PPSU12
PPSU13b
PPSU23
Port Phillip Fire Trail SU22/L1
PPSU17
PPSU22
PPSU21
PPSU24
PPSU14
PPSU15
PPSU20
Port Phillip Fire Trail SU13/L1
Port Phillip Fire Trail SU15/L1
Port Phillip Fire Trail SU16/L1
Port Phillip Fire Trail SU19/L1
PPSU8
PPSU19
PPSU18
PPSU16
Port Phillip Fire Trail SU16/L3
Port Phillip Fire Trail SU16/L2
PPSU13
MOSQUITO CREEK
Tantangara North SU3/L3
TNSU4
TNSU5
Tantangara North SU4/L1
MUFFLER CREEK
TNSU3
Tantangara North SU3/L1
TNSU2
TNSU1
Tantangara North SU3/L2
MURRUMBIDGEE RIVER
Legend
AHIMS
Contour - 10m
Hydrology
Road/Track
Survey Unit
BATLOW
TALBINGO
CAPTAINS FLAT
TUMBARUMBA
ADAMINABY
KHANCOBAN
COOMA
1:22,000
Date: 9/09/2019
0 240 480 960
N Metres
Imagery: © Snowy Hydro - Snowy 2.0 2018
Coordinate System: GDA 1994 MGA Zone 55
New South Wales ARCHAEOLOGY

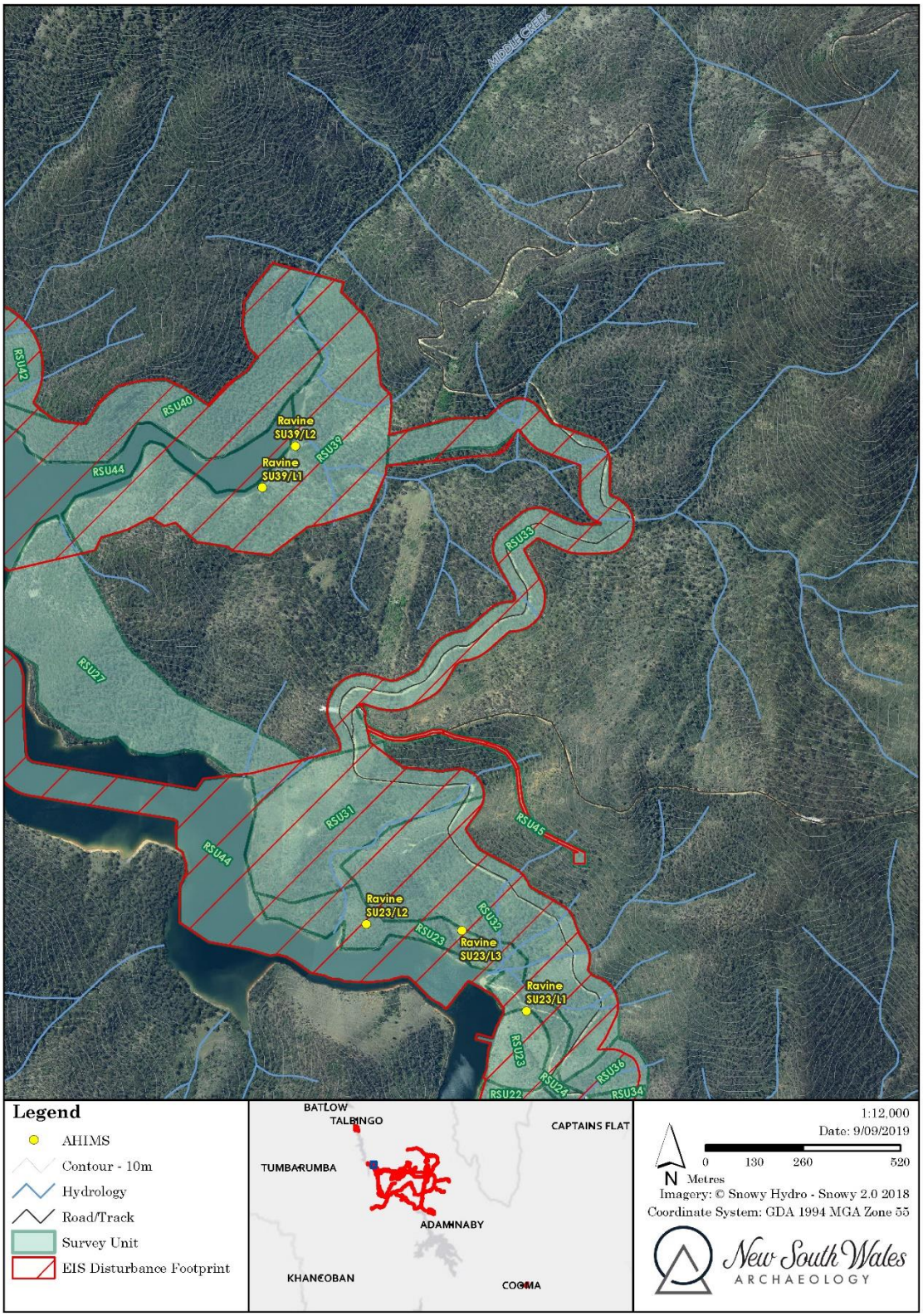
Map 5


57-4-0230
57-4-0229
57-4-0220
57-4-0216
57-4-0142
57-4-0219
57-4-0072
57-4-0217
57-4-0074
57-4-0076
57-4-0075
MOSQUITO CREEK
PSSU8
PSSU7
PSSU6
PSSU5
PSSU4
TANTANGARA
Legend
AHIMS
Contour - 10m
Hydrology
Road/Track
Survey Unit
BATLOW
TALBINGO
CAPTAINS FLAT
TUMBARUMBA
ADAMINABY
KHANCOBAN
COOMA
1:22,000
Date: 9/09/2019
0 240 480 960
N Metres
Imagery: © Snowy Hydro - Snowy 2.0 2018
Coordinate System: GDA 1994 MGA Zone 55
New South Wales ARCHAEOLOGY

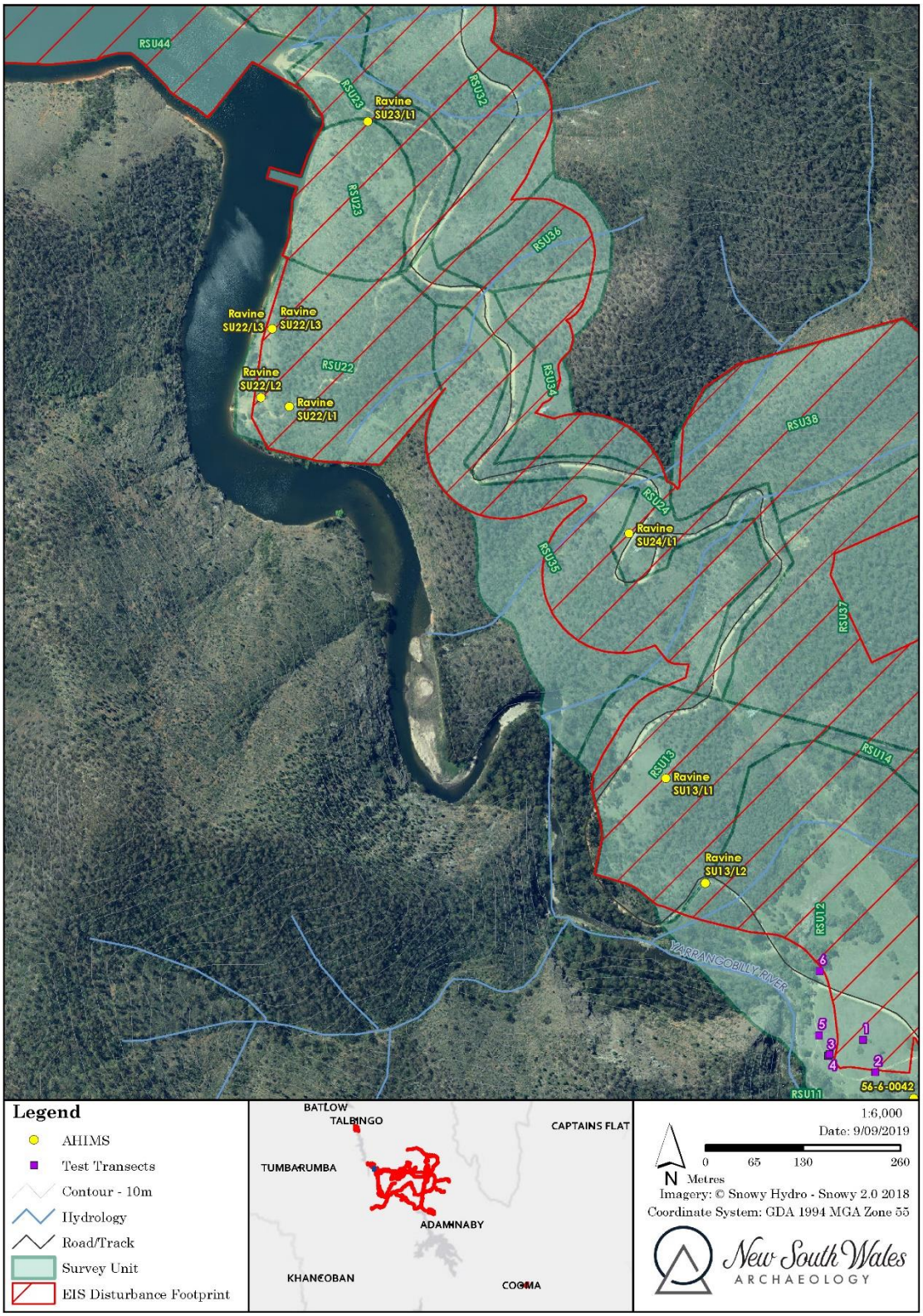
Map 6


TUMUT RIVER
RSU40
RSU42
RSU44
RSU39
RSU27
Legend
Contour - 10m
Hydrology
Survey Unit
EIS Disturbance Footprint
BATLOW
TALBINGO
CAPTAINS FLAT
TUMBARUMBA
ADAMINABY
KHANCOBAN
COOMA
1:12,000
Date: 9/09/2019
0 130 260 520
N Metres
Imagery: © Snowy Hydro - Snowy 2.0 2018
Coordinate System: GDA 1994 MGA Zone 55
New South Wales ARCHAEOLOGY

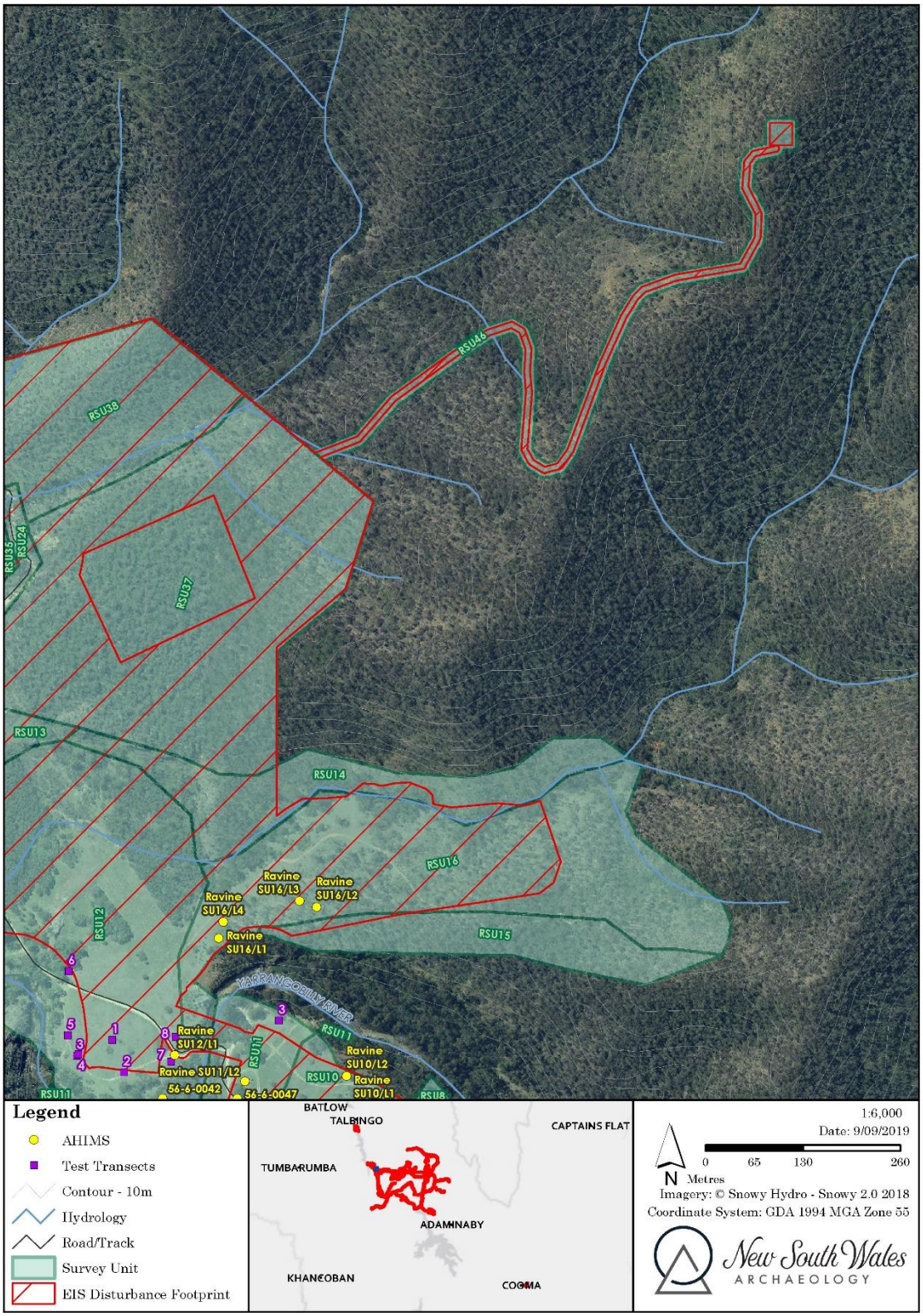
Map 7


MIDDLE CREEK
RSU42
RSU40
RSU44
Ravine SU39/L2
Ravine SU39/L1
RSU39
RSU33
RSU27
RSU31
RSU45
RSU44
Ravine SU23/L2
RSU23
RSU32
Ravine SU23/L3
Ravine SU23/L1
RSU23
RSU24
RSU22
RSU36
RSU34
Legend
AHIMS
Contour - 10m
Hydrology
Road/Track
Survey Unit
EIS Disturbance Footprint
BATLOW
TALBINGO
CAPTAINS FLAT
TUMBARUMBA
ADAMINABY
KHANCOBAN
COOMA
1:12,000
Date: 9/09/2019
0 130 260 520
N Metres
Imagery: © Snowy Hydro - Snowy 2.0 2018
Coordinate System: GDA 1994 MGA Zone 55
New South Wales ARCHAEOLOGY

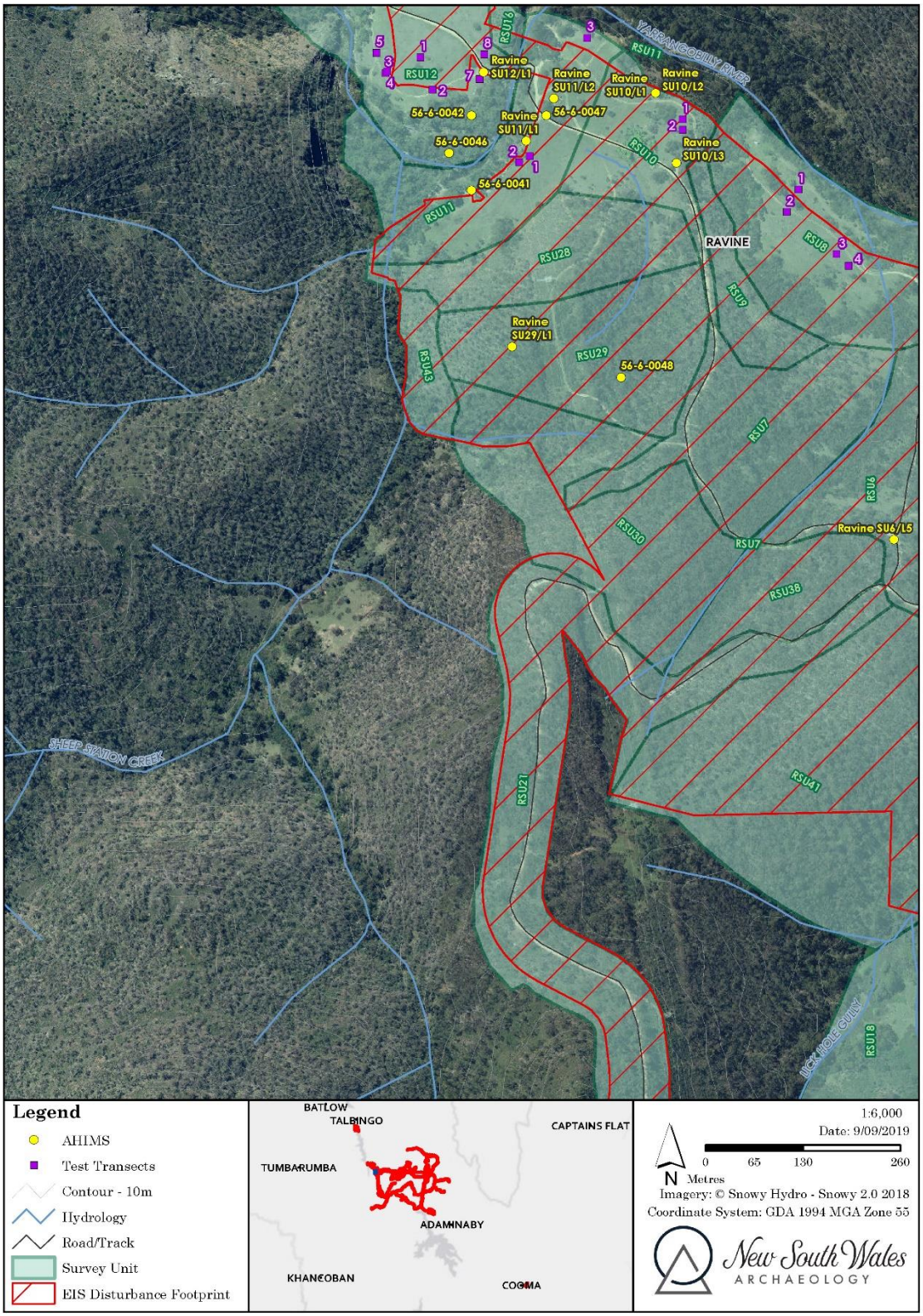
Map 8


RSU44
RSU23
RSU32
Ravine SU23/L1
RSU23
RSU36
Ravine SU22/L3
Ravine SU22/L3
RSU22
RSU34
Ravine SU22/L2
Ravine SU22/L1
RSU38
RSU24
Ravine SU24/L1
RSU35
RSU37
RSU13
RSU14
Ravine SU13/L1
Ravine SU13/L2
RSU12
YARRANGOBILLY RIVER
6
5
1
3
2
4
56-6-0042
RSU11
Legend
AHIMS
Test Transects
Contour - 10m
Hydrology
Road/Track
Survey Unit
EIS Disturbance Footprint
BATLOW
TALBINGO
CAPTAINS FLAT
TUMBARUMBA
ADAMINABY
KHANCOBAN
COOMA
1:6,000
Date: 9/09/2019
0 65 130 260
N Metres
Imagery: © Snowy Hydro - Snowy 2.0 2018
Coordinate System: GDA 1994 MGA Zone 55
New South Wales ARCHAEOLOGY

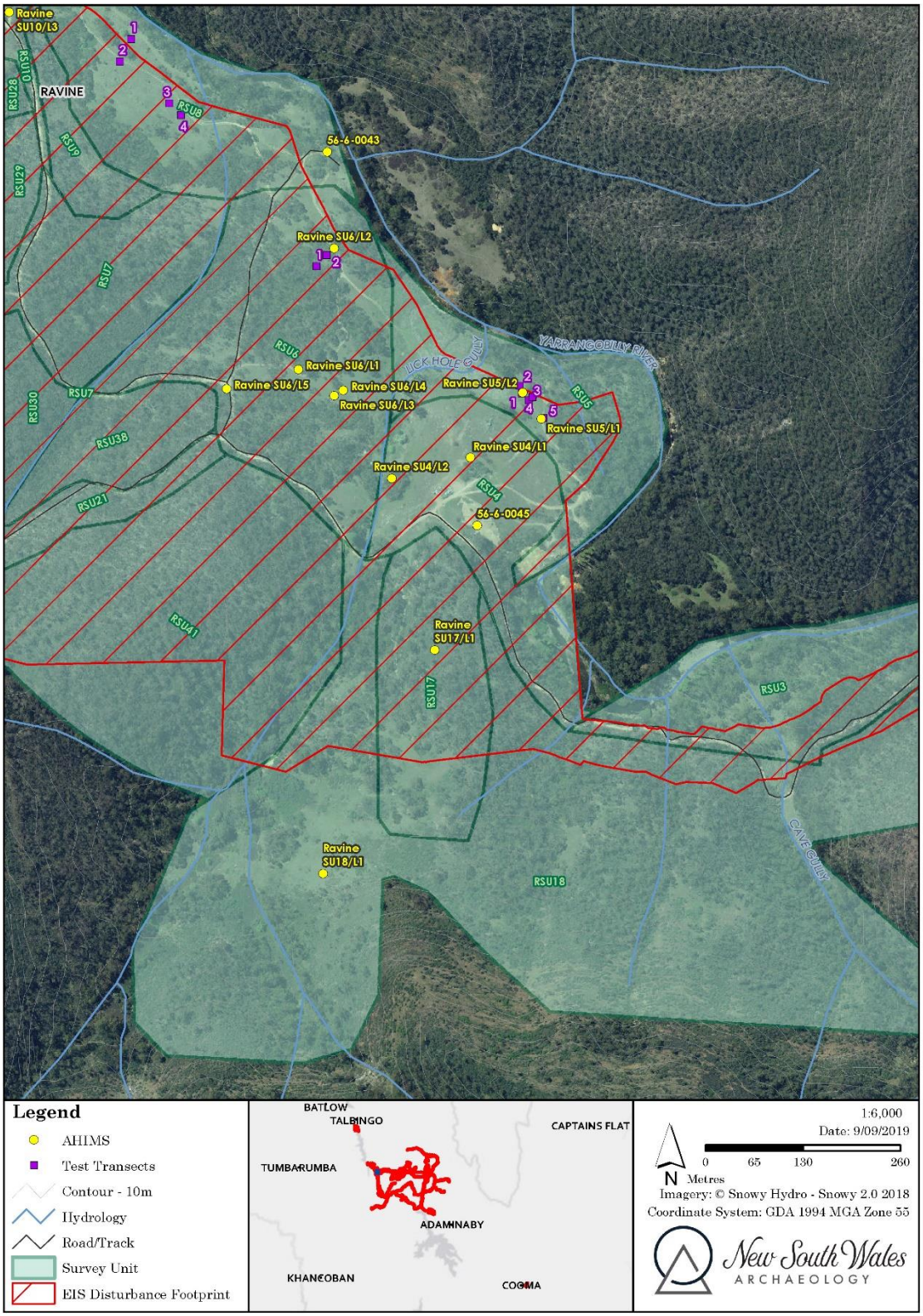
Map 9


RSU46
RSU38
RSU35
RSU24
RSU37
RSU13
RSU14
RSU16
RSU12
RSU15
RSU17
RSU11
RSU10
RSU8
Ravine SU16/L3
Ravine SU16/L2
Ravine SU16/L4
Ravine SU16/L1
Ravine SU12/L1
Ravine SU11/L2
Ravine SU10/L2
Ravine SU10/L1
56-6-0042
56-6-0047
YARRANGOBILLY RIVER
1
2
3
4
5
6
7
8
Legend
AHIMS
Test Transects
Contour - 10m
Hydrology
Road/Track
Survey Unit
EIS Disturbance Footprint
BATLOW
TALBINGO
CAPTAINS FLAT
TUMBARUMBA
ADAMINABY
KHANCOBAN
COOMA
1:6,000
Date: 9/09/2019
0 65 130 260
N
Metres
Imagery: © Snowy Hydro - Snowy 2.0 2018
Coordinate System: GDA 1994 MGA Zone 55
New South Wales ARCHAEOLOGY

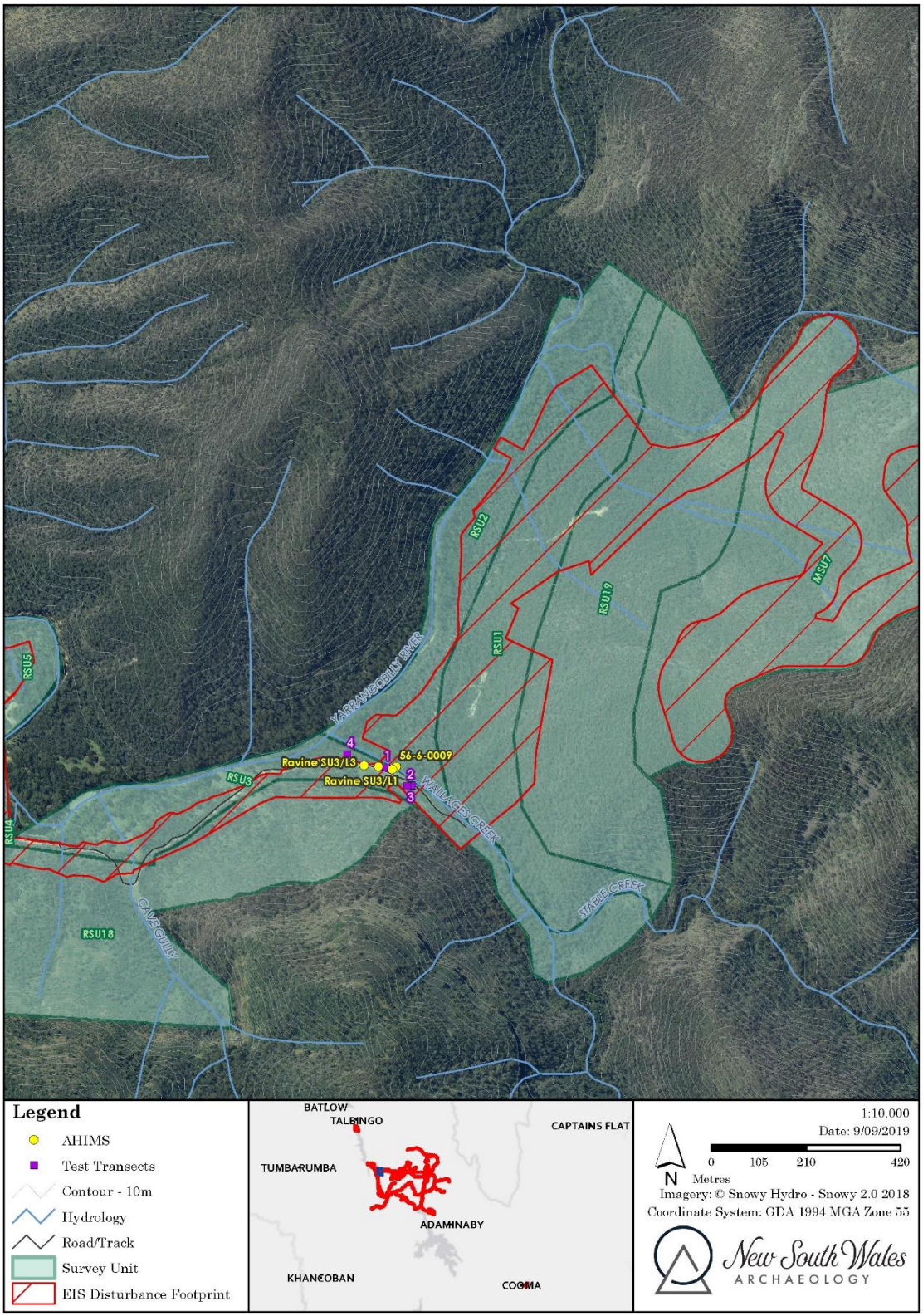
Map 10


Ravine SU12/L1
Ravine SU11/L2
Ravine SU10/L1
Ravine SU10/L2
56-6-0042
Ravine SU11/L1
56-6-0047
56-6-0046
Ravine SU10/L3
56-6-0041
RAVINE
Ravine SU29/L1
56-6-0048
Ravine SU6/L5
SHEEP STATION CREEK
YARRANGOBILLY RIVER
NICK HOLE GULLY
RSU6
RSU11
RSU12
RSU28
RSU8
RSU9
RSU43
RSU29
RSU7
RSU30
RSU38
RSU21
RSU41
RSU18
Legend
AHIMS
Test Transects
Contour - 10m
Hydrology
Road/Track
Survey Unit
EIS Disturbance Footprint
BATLOW
TALBINGO
CAPTAINS FLAT
TUMBARUMBA
ADAMINABY
KHANCOBAN
COOMA
1:6,000
Date: 9/09/2019
0 65 130 260
N Metres
Imagery: © Snowy Hydro - Snowy 2.0 2018
Coordinate System: GDA 1994 MGA Zone 55
New South Wales ARCHAEOLOGY

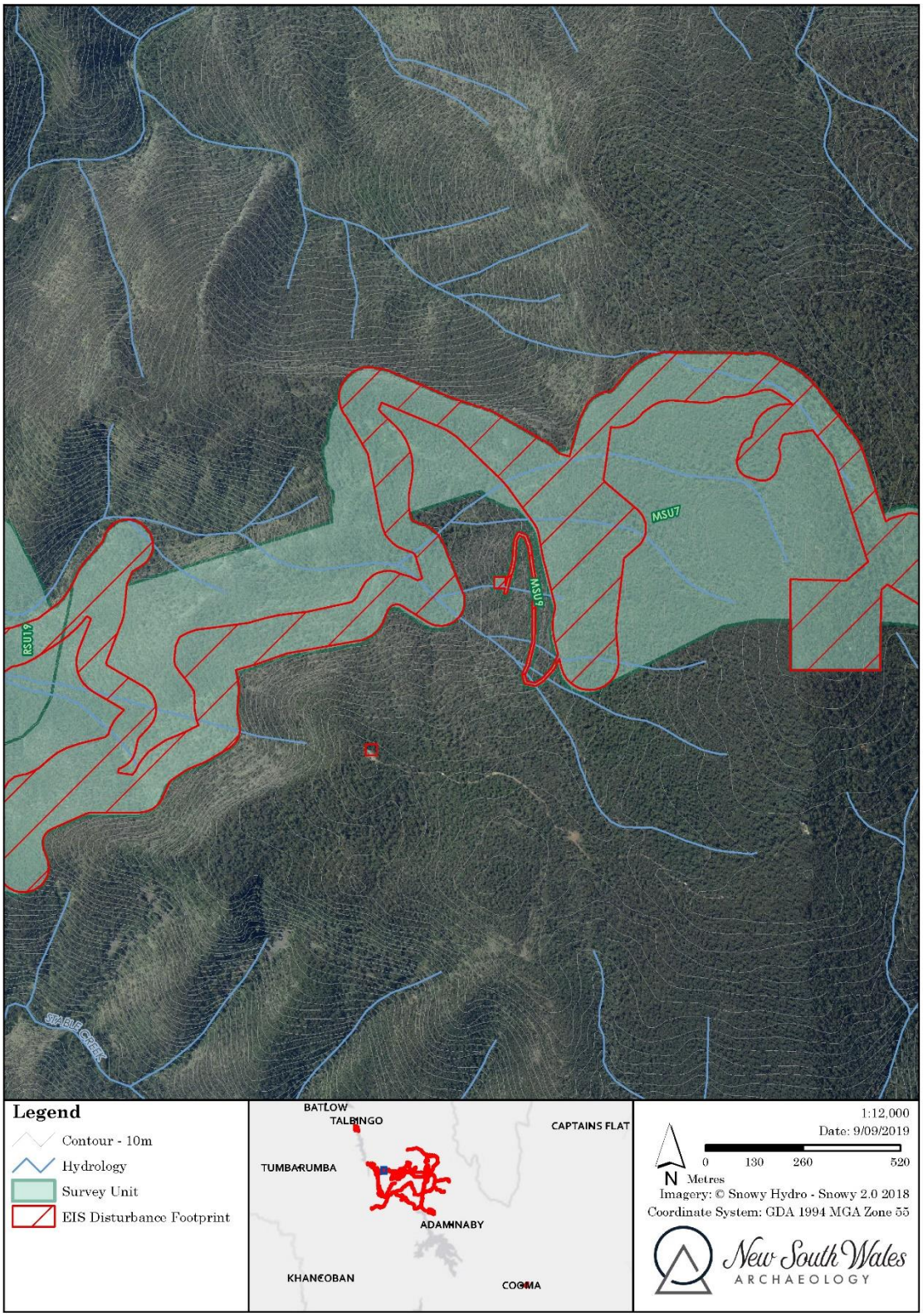
Map 11


Ravine SU10/L3
RAVINE
56-6-0043
Ravine SU6/L2
Ravine SU6/L1
Ravine SU6/L5
Ravine SU6/L4
Ravine SU6/L3
Ravine SU5/L2
Ravine SU5/L1
Ravine SU4/L1
Ravine SU4/L2
56-6-0045
Ravine SU17/L1
Ravine SU18/L1
LICK HOLE GULLY
YARRANGOBILLY RIVER
CAVE GULLY
RSU1
RSU2
RSU3
RSU4
RSU5
RSU6
RSU7
RSU8
RSU9
RSU10
RSU17
RSU18
RSU21
RSU28
RSU29
RSU30
RSU38
RSU41
Legend
AHIMS
Test Transects
Contour - 10m
Hydrology
Road/Track
Survey Unit
EIS Disturbance Footprint
BATLOW
TALBINGO
CAPTAINS FLAT
TUMBARUMBA
ADAMINABY
KHANCOBAN
COOMA
1:6,000
Date: 9/09/2019
0 65 130 260
N Metres
Imagery: © Snowy Hydro - Snowy 2.0 2018
Coordinate System: GDA 1994 MGA Zone 55
New South Wales ARCHAEOLOGY

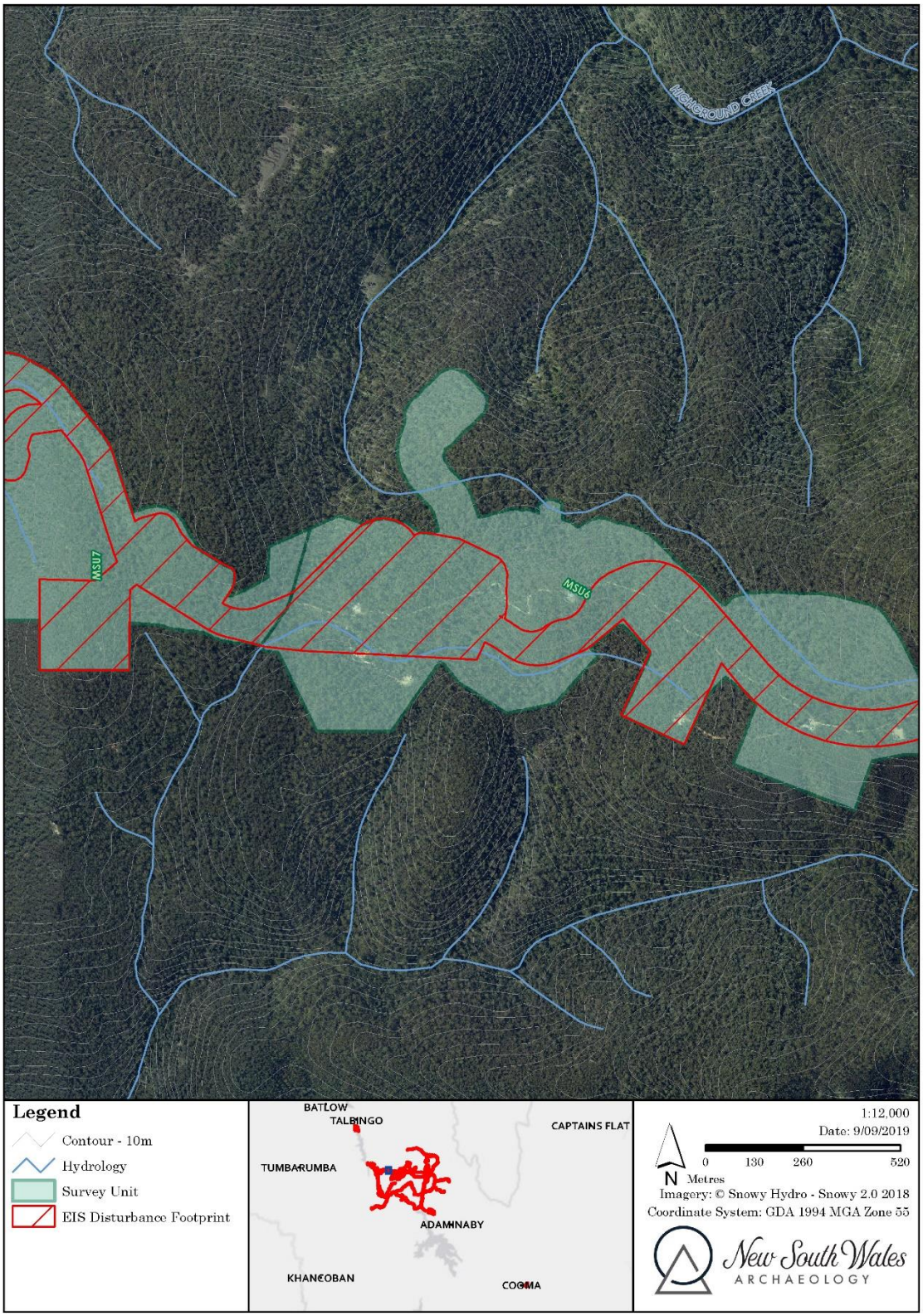
Map 12


RSU2
RSU19
RSU7
RSU1
RSU5
RSU3
RSU4
RSU18
YARRANGOBILLY RIVER
WALLACES CREEK
STAPLE CREEK
CAVE GULLY
56-6-0009
Ravine SU3/L3
Ravine SU3/L1
1
2
3
4
Legend
AHIMS
Test Transects
Contour - 10m
Hydrology
Road/Track
Survey Unit
EIS Disturbance Footprint
BATLOW
TALBINGO
CAPTAINS FLAT
TUMBARUMBA
ADAMINABY
KHANCOBAN
COOMA
1:10,000
Date: 9/09/2019
0 105 210 420
N
Metres
Imagery: © Snowy Hydro - Snowy 2.0 2018
Coordinate System: GDA 1994 MGA Zone 55
New South Wales
ARCHAEOLOGY

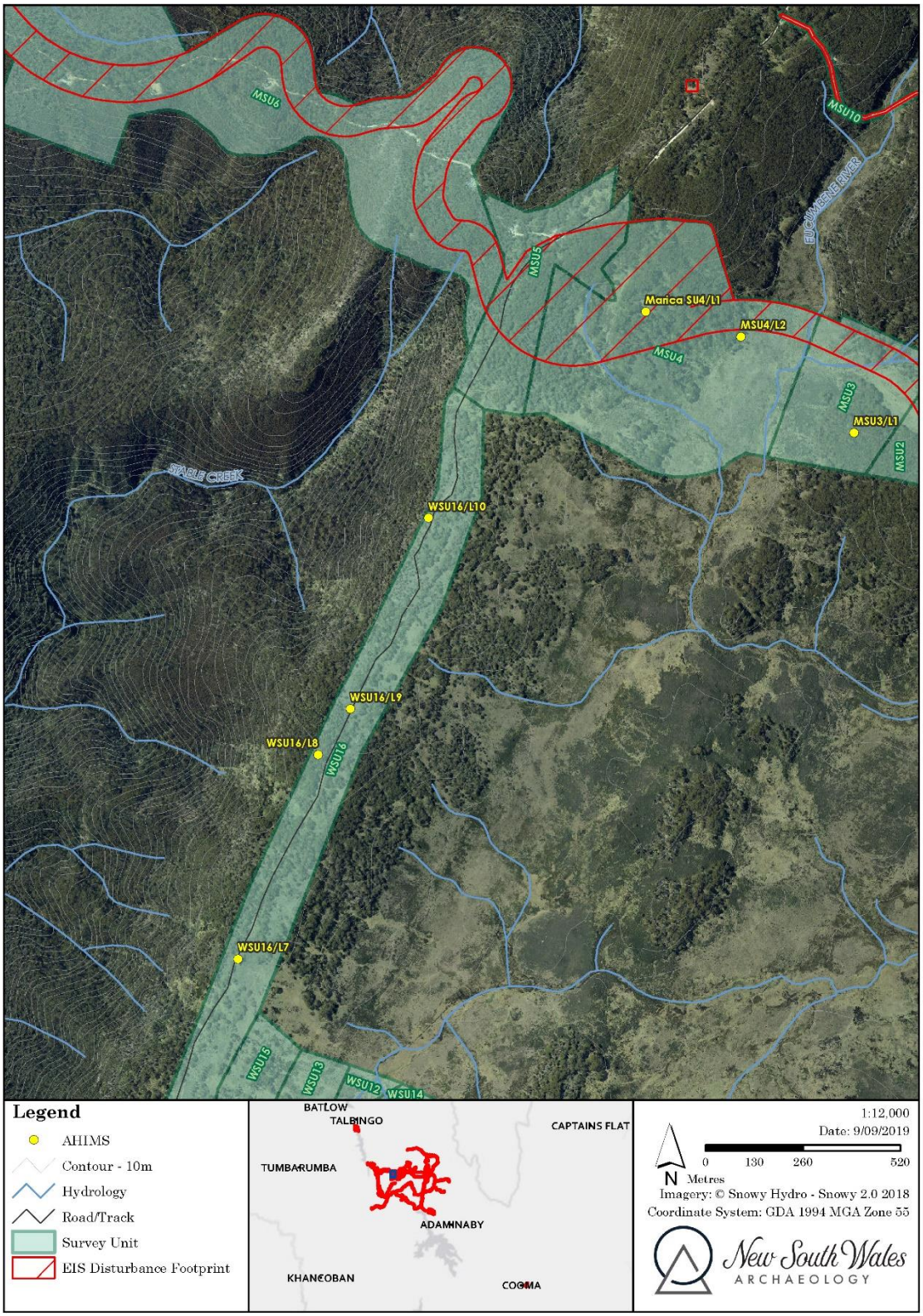
Map 13


MSU7
MSU19
MSU19
STABLE CREEK
Legend
Contour - 10m
Hydrology
Survey Unit
EIS Disturbance Footprint
BATLOW
TALBINGO
CAPTAINS FLAT
TUMBARUMBA
ADAMINABY
KHANCOBAN
COOMA
1:12,000
Date: 9/09/2019
0 130 260 520
N Metres
Imagery: © Snowy Hydro - Snowy 2.0 2018
Coordinate System: GDA 1994 MGA Zone 55
New South Wales
ARCHAEOLOGY

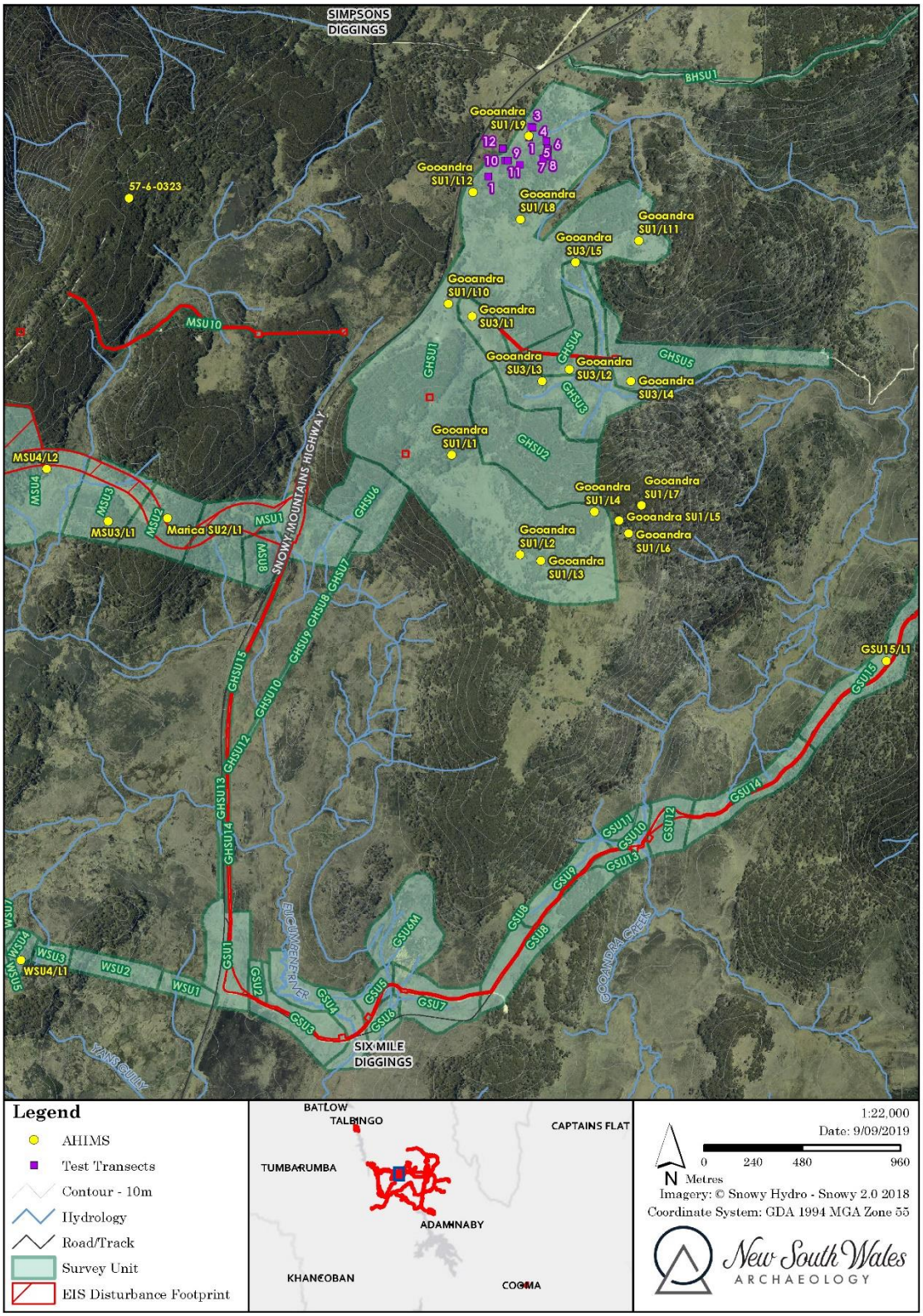
Map 14


HIGHGROUND CREEK
MSU7
MSU6
Legend
Contour - 10m
Hydrology
Survey Unit
EIS Disturbance Footprint
BATLOW
TALBINGO
CAPTAINS FLAT
TUMBARUMBA
ADAMINABY
KHANCOBAN
COOMA
1:12,000
Date: 9/09/2019
0 130 260 520
N Metres
Imagery: © Snowy Hydro - Snowy 2.0 2018
Coordinate System: GDA 1994 MGA Zone 55
New South Wales
ARCHAEOLOGY

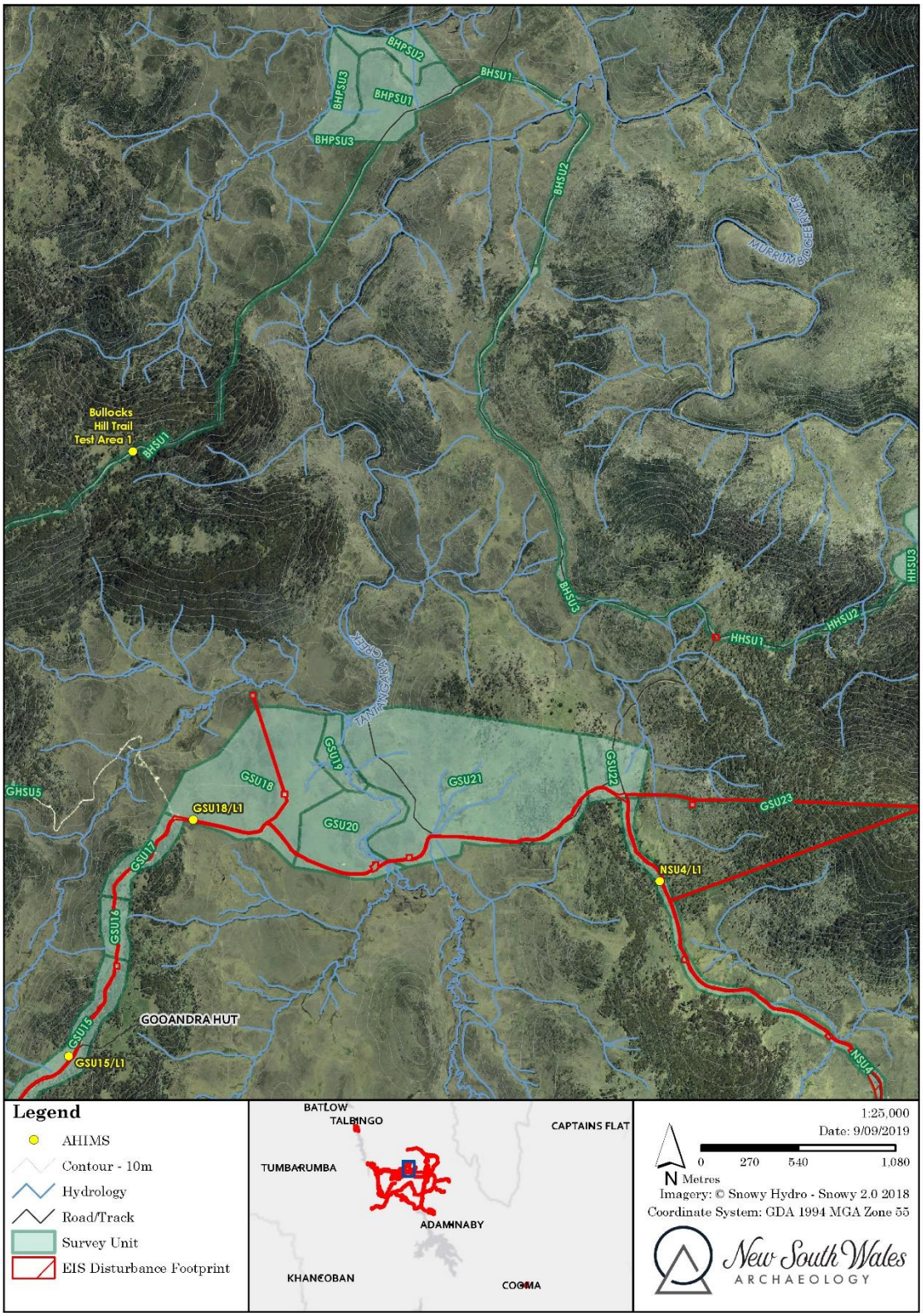
Map 15


MSU6
MSU10
EUCUMBENE RIVER
MSU5
Manica SU4/L1
MSU4/L2
MSU4
MSU3
MSU3/L1
MSU2
STABLE CREEK
WSU16/L10
WSU16/L9
WSU16/L8
WSU16
WSU16/L7
WSU15
WSU13
WSU12
WSU14
Legend
AHIMS
Contour - 10m
Hydrology
Road/Track
Survey Unit
EIS Disturbance Footprint
BATLOW
TALBINGO
CAPTAINS FLAT
TUMBARUMBA
ADAMINABY
KHANCOBAN
COOMA
1:12,000
Date: 9/09/2019
0 130 260 520
N Metres
Imagery: © Snowy Hydro - Snowy 2.0 2018
Coordinate System: GDA 1994 MGA Zone 55
New South Wales ARCHAEOLOGY

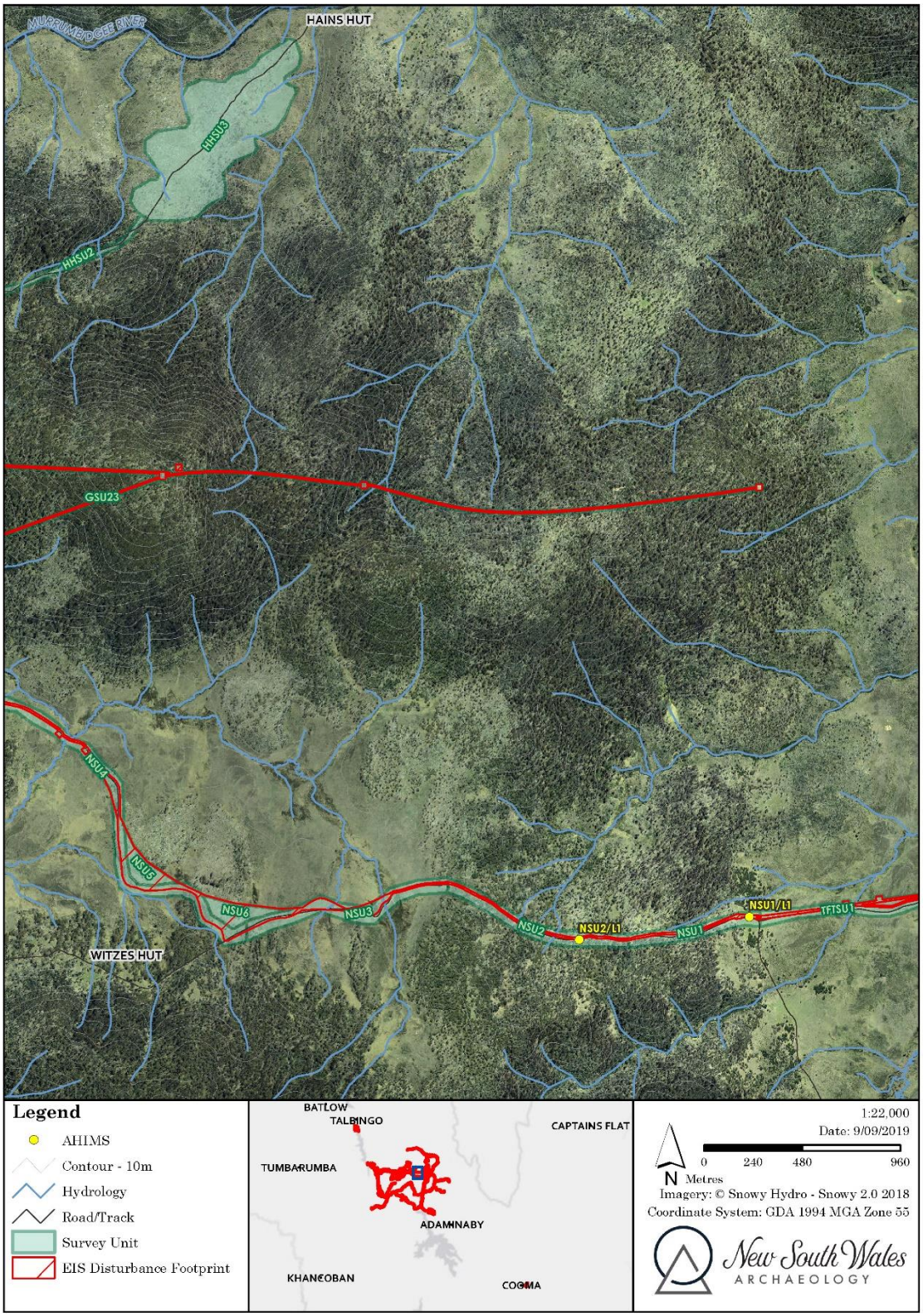
Map 16


SIMPSONS DIGGINGS
BHSU1
Gooandra SU1/L9
Gooandra SU1/L12
Gooandra SU1/L8
Gooandra SU1/L11
Gooandra SU3/L5
Gooandra SU1/L10
Gooandra SU3/L1
Gooandra SU3/L3
Gooandra SU3/L2
Gooandra SU3/L4
Gooandra SU1/L1
Gooandra SU1/L4
Gooandra SU1/L7
Gooandra SU1/L5
Gooandra SU1/L2
Gooandra SU1/L6
Gooandra SU1/L3
57-6-0323
MSU10
MSU4/L2
MSU3/L1
Marica SU2/L1
SNOWY MOUNTAINS HIGHWAY
GHSU1
GHSU2
GHSU3
GHSU4
GHSU5
GHSU6
GHSU7
GHSU8
GHSU9
GHSU10
GHSU11
GHSU12
GHSU13
GHSU14
GHSU15
GSU15/L1
GSU14
GSU13
GSU12
GSU11
GSU10
GSU9
GSU8
GSU7
GSU6
GSU6M
GSU5
GSU4
GSU3
GSU2
GSU1
WSU4/L1
WSU1
WSU2
WSU3
WSU4
WSU5
WSU6
WSU7
ELIGUMBEN RIVER
GOOANDRA CREEK
YANS GULLY
SIX MILE DIGGINGS
Legend
AHIMS
Test Transects
Contour - 10m
Hydrology
Road/Track
Survey Unit
EIS Disturbance Footprint
BATLOW
TALBINGO
CAPTAINS FLAT
TUMBARUMBA
ADAMINABY
KHANCOBAN
COOMA
1:22,000
Date: 9/09/2019
0 240 480 960
N Metres
Imagery: © Snowy Hydro - Snowy 2.0 2018
Coordinate System: GDA 1994 MGA Zone 55
New South Wales ARCHAEOLOGY

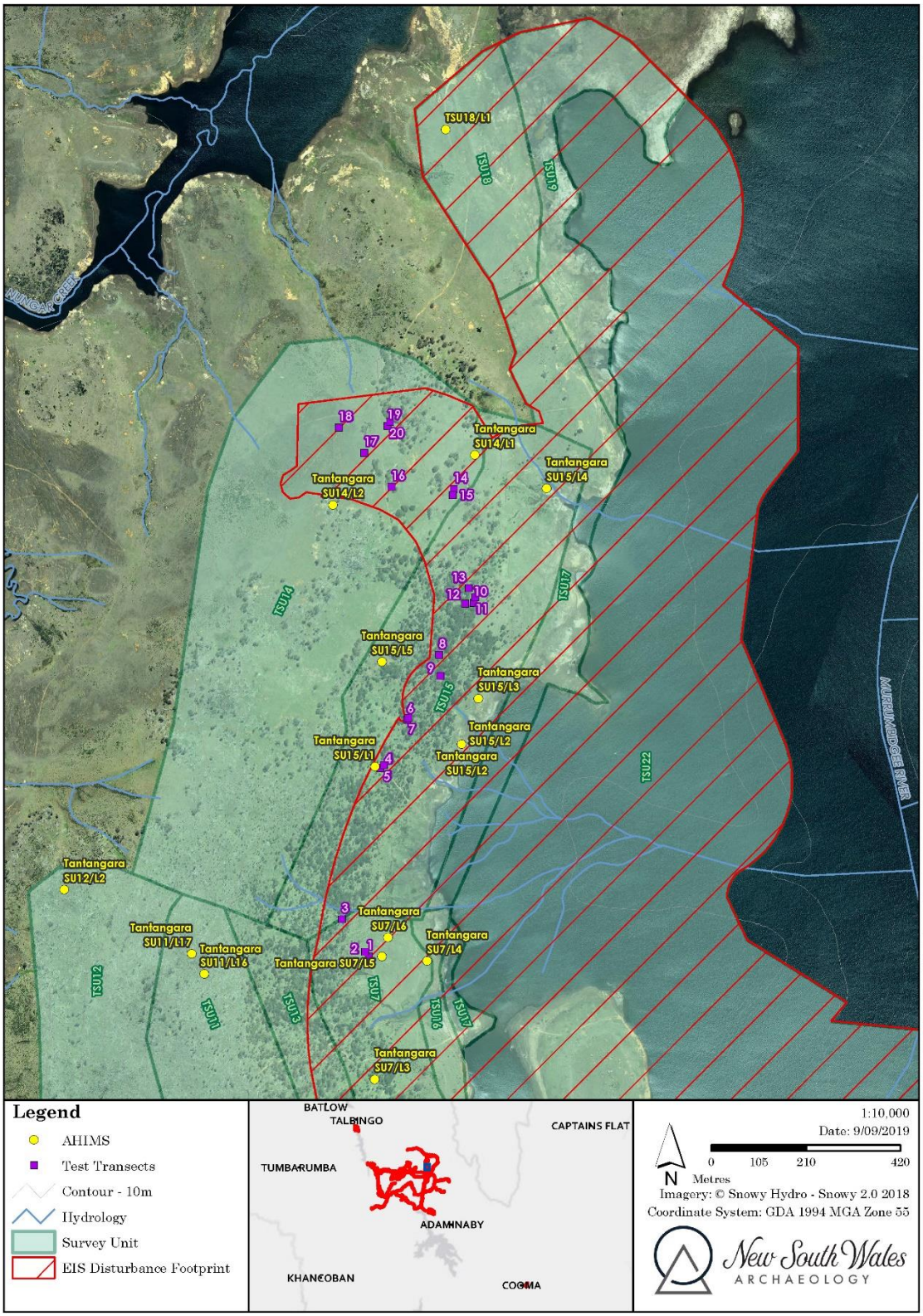
Map 17


BHPSU2
BHPSU3
BHPSU1
BHSU1
BHSU2
BHSU3
MURRUMBIDGEE RIVER
Bullocks Hill Trail Test Area 1
HHSU1
HHSU2
HHSU3
TAMANGARA CREEK
GSU19
GSU18
GSU21
GSU22
GSU23
GSU20
GHSU5
GSU18/L1
GSU17
GSU16
NSU4/L1
GOOANDRA HUT
GSU15
GSU15/L1
NSU4
Legend
AHIMS
Contour - 10m
Hydrology
Road/Track
Survey Unit
EIS Disturbance Footprint
BATLOW
TALBINGO
CAPTAINS FLAT
TUMBARUMBA
ADAMINABY
KHANCOBAN
COOMA
1:25,000
Date: 9/09/2019
0 270 540 1,080
N Metres
Imagery: © Snowy Hydro - Snowy 2.0 2018
Coordinate System: GDA 1994 MGA Zone 55
New South Wales ARCHAEOLOGY

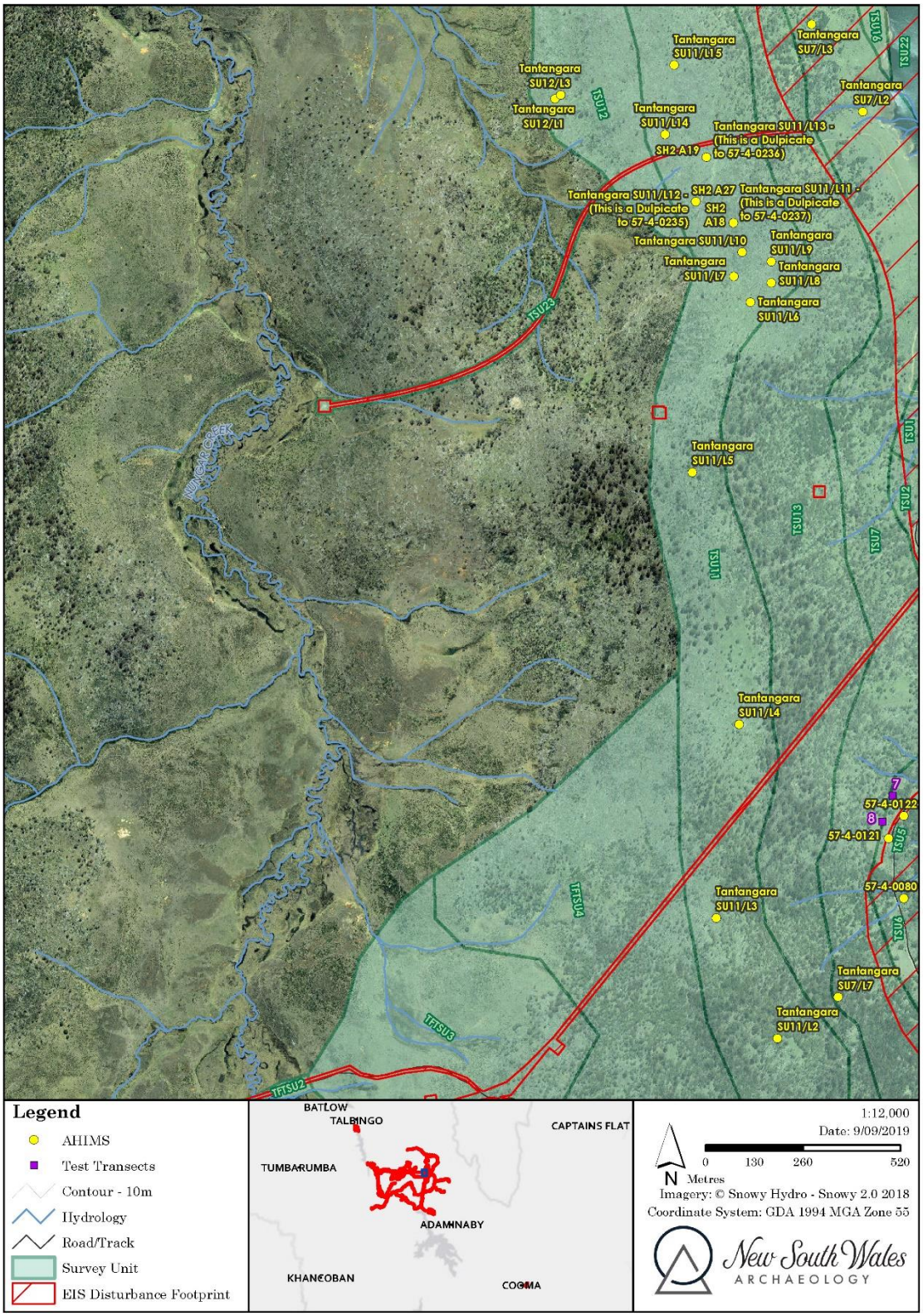
Map 18


MURRUMBIDGEE RIVER
HAINS HUT
HHSU3
HHSU2
GSU23
NSU4
NSU5
NSU6
NSU3
NSU2
NSU2/L1
NSU1
NSU1/L1
TFTSU1
WITZES HUT
Legend
AHIMS
Contour - 10m
Hydrology
Road/Track
Survey Unit
EIS Disturbance Footprint
BATLOW
TALBINGO
CAPTAINS FLAT
TUMBARUMBA
ADAMINABY
KHANCOBAN
COOMA
1:22,000
Date: 9/09/2019
0 240 480 960
N Metres
Imagery: © Snowy Hydro - Snowy 2.0 2018
Coordinate System: GDA 1994 MGA Zone 55
New South Wales
ARCHAEOLOGY

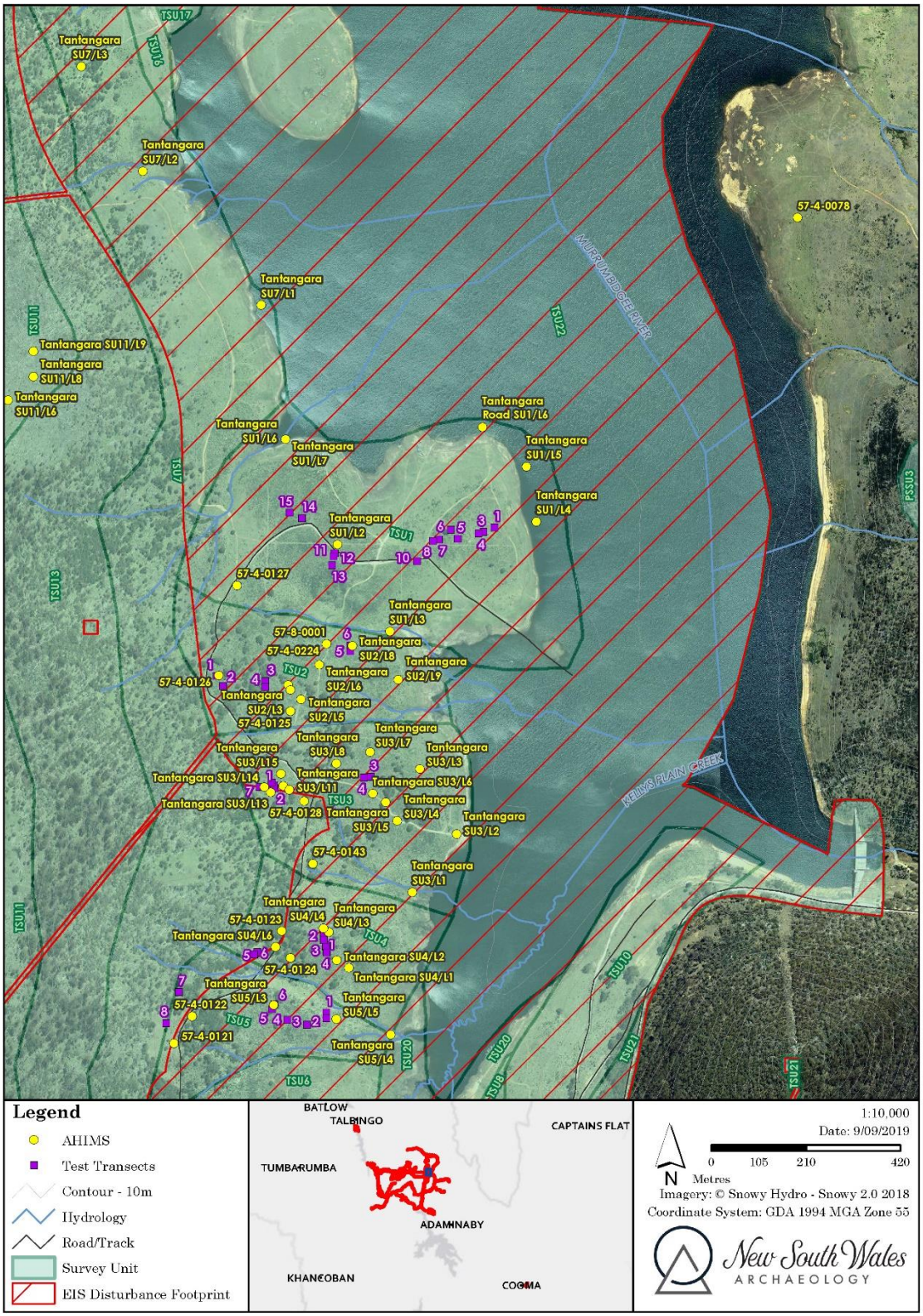
Map 19


TSU18/L1
TSU18
TSU19
NUNGAR CREEK
18
19
20
17
Tantangara SU14/L1
Tantangara SU15/L4
Tantangara SU14/L2
16
14
15
13
12
10
11
TSU14
TSU17
Tantangara SU15/L5
8
9
Tantangara SU15/L3
TSU15
6
7
Tantangara SU15/L2
Tantangara SU15/L1
4
5
Tantangara SU15/L2
TSU22
MURRUMBIDGEE RIVER
Tantangara SU12/L2
3
Tantangara SU7/L6
Tantangara SU11/L17
Tantangara SU7/L4
Tantangara SU11/L16
2
1
Tantangara SU7/L5
TSU12
TSU11
TSU13
TSU7
TSU16
TSU17
Tantangara SU7/L3
Legend
AHIMS
Test Transects
Contour - 10m
Hydrology
Survey Unit
EIS Disturbance Footprint
BATLOW
TALBINGO
CAPTAINS FLAT
TUMBARUMBA
ADAMINABY
KHANCOBAN
COOMA
1:10,000
Date: 9/09/2019
0 105 210 420
N
Metres
Imagery: © Snowy Hydro - Snowy 2.0 2018
Coordinate System: GDA 1994 MGA Zone 55
New South Wales ARCHAEOLOGY

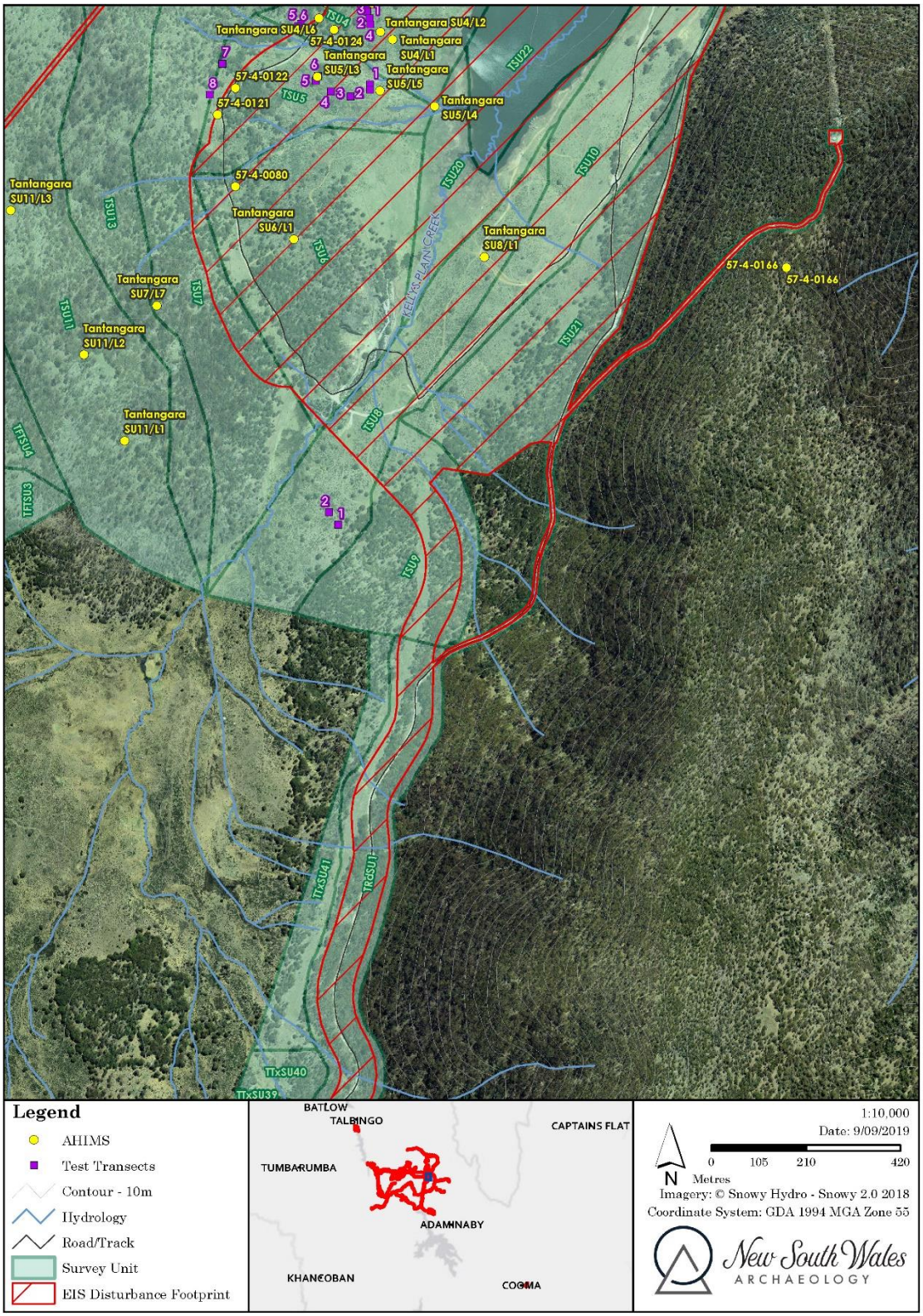
Map 20


Tantangara SU11/L15
Tantangara SU7/L3
Tantangara SU12/L3
Tantangara SU12/L1
Tantangara SU11/L14
Tantangara SU7/L2
Tantangara SU11/L13 - (This is a Dulpicate to 57-4-0236)
SH2 A19
Tantangara SU11/L12 - (This is a Dulpicate to 57-4-0235)
SH2 A27
SH2 A18
Tantangara SU11/L11 - (This is a Dulpicate to 57-4-0237)
Tantangara SU11/L10
Tantangara SU11/L9
Tantangara SU11/L7
Tantangara SU11/L8
Tantangara SU11/L6
Tantangara SU11/L5
Tantangara SU11/L4
57-4-0122
57-4-0121
57-4-0080
Tantangara SU11/L3
Tantangara SU7/L7
Tantangara SU11/L2
TSU23
TSU12
TSU16
TSU22
TSU1
TSU2
TSU13
TSU7
TSU11
TSU5
TSU6
TFTSU4
TFTSU3
TFTSU2
Legend
AHIMS
Test Transects
Contour - 10m
Hydrology
Road/Track
Survey Unit
EIS Disturbance Footprint
BATLOW
TALBINGO
CAPTAINS FLAT
TUMBARUMBA
ADAMINABY
KHANCOBAN
COOMA
1:12,000
Date: 9/09/2019
0 130 260 520
N Metres
Imagery: © Snowy Hydro - Snowy 2.0 2018
Coordinate System: GDA 1994 MGA Zone 55
New South Wales ARCHAEOLOGY

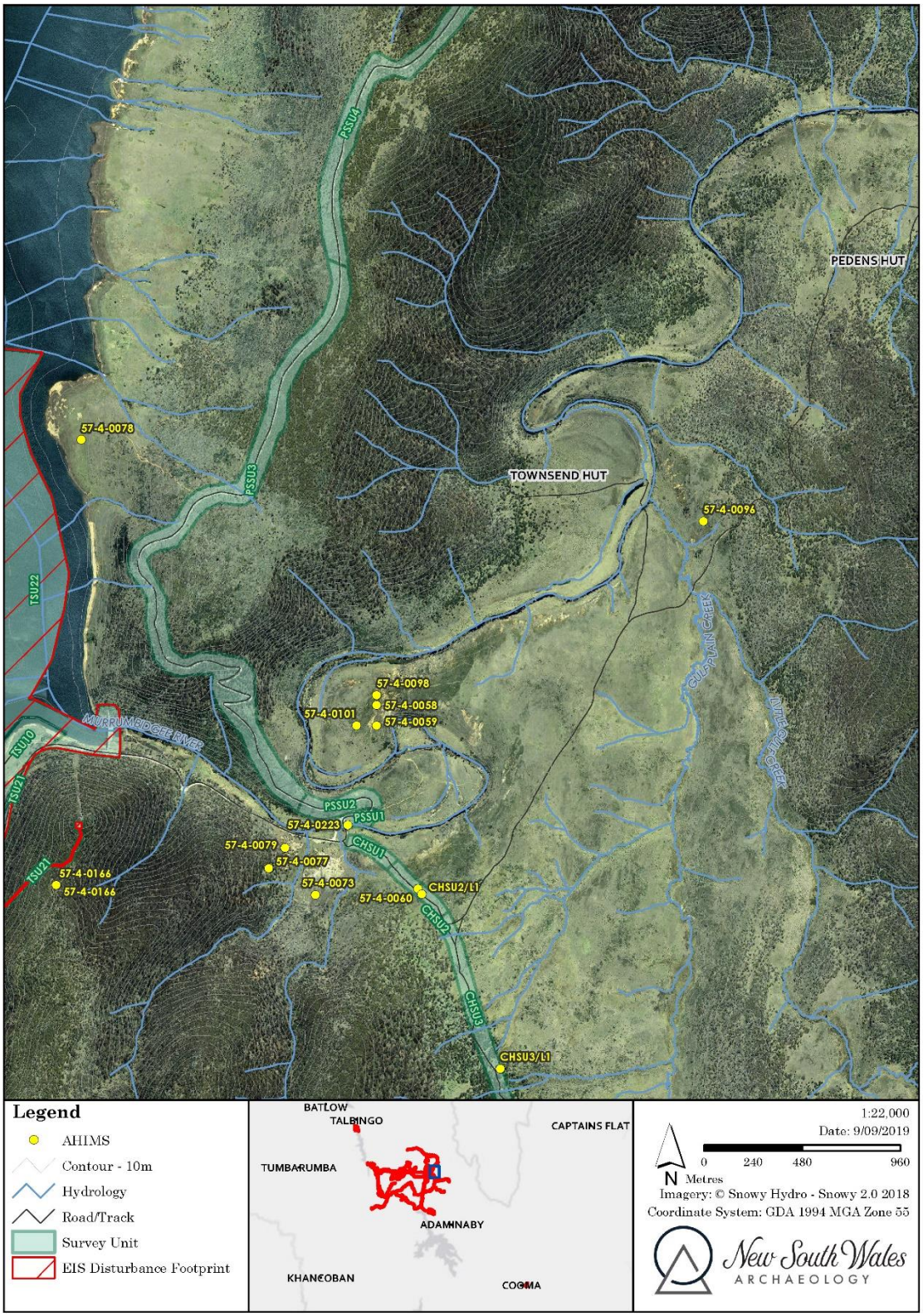
Map 21


Legend
AHIMS
Test Transects
Contour - 10m
Hydrology
Road/Track
Survey Unit
EIS Disturbance Footprint
BATLOW
TALBINGO
CAPTAINS FLAT
TUMBARUMBA
ADAMINABY
KHANCOBAN
COOMA
1:10,000
Date: 9/09/2019
0 105 210 420
N
Metres
Imagery: © Snowy Hydro - Snowy 2.0 2018
Coordinate System: GDA 1994 MGA Zone 55
New South Wales ARCHAEOLOGY
MURRUMBIDGEE RIVER
KELLYS PLAIN CREEK
57-4-0078
57-4-0127
57-8-0001
57-4-0224
57-4-0126
57-4-0125
57-4-0128
57-4-0143
57-4-0123
57-4-0124
57-4-0122
57-4-0121
Tantangara SU7/L3
Tantangara SU7/L2
Tantangara SU7/L1
Tantangara SU11/L9
Tantangara SU11/L8
Tantangara SU1/L6
Tantangara SU1/L7
Tantangara Road SU1/L6
Tantangara SU1/L5
Tantangara SU1/L4
Tantangara SU1/L2
Tantangara SU1/L3
Tantangara SU2/L8
Tantangara SU2/L9
Tantangara SU2/L6
Tantangara SU2/L3
Tantangara SU2/L5
Tantangara SU3/L8
Tantangara SU3/L7
Tantangara SU3/L3
Tantangara SU3/L15
Tantangara SU3/L14
Tantangara SU3/L11
Tantangara SU3/L6
Tantangara SU3/L13
Tantangara SU3/L4
Tantangara SU3/L5
Tantangara SU3/L2
Tantangara SU3/L1
Tantangara SU4/L4
Tantangara SU4/L3
Tantangara SU4/L6
Tantangara SU4/L2
Tantangara SU4/L1
Tantangara SU5/L3
Tantangara SU5/L5
Tantangara SU5/L4
TSU17
TSU16
TSU11
TSU1
TSU13
TSU22
TSU2
TSU3
TSU4
TSU5
TSU6
TSU10
TSU20
TSU18
TSU21
PSSU13

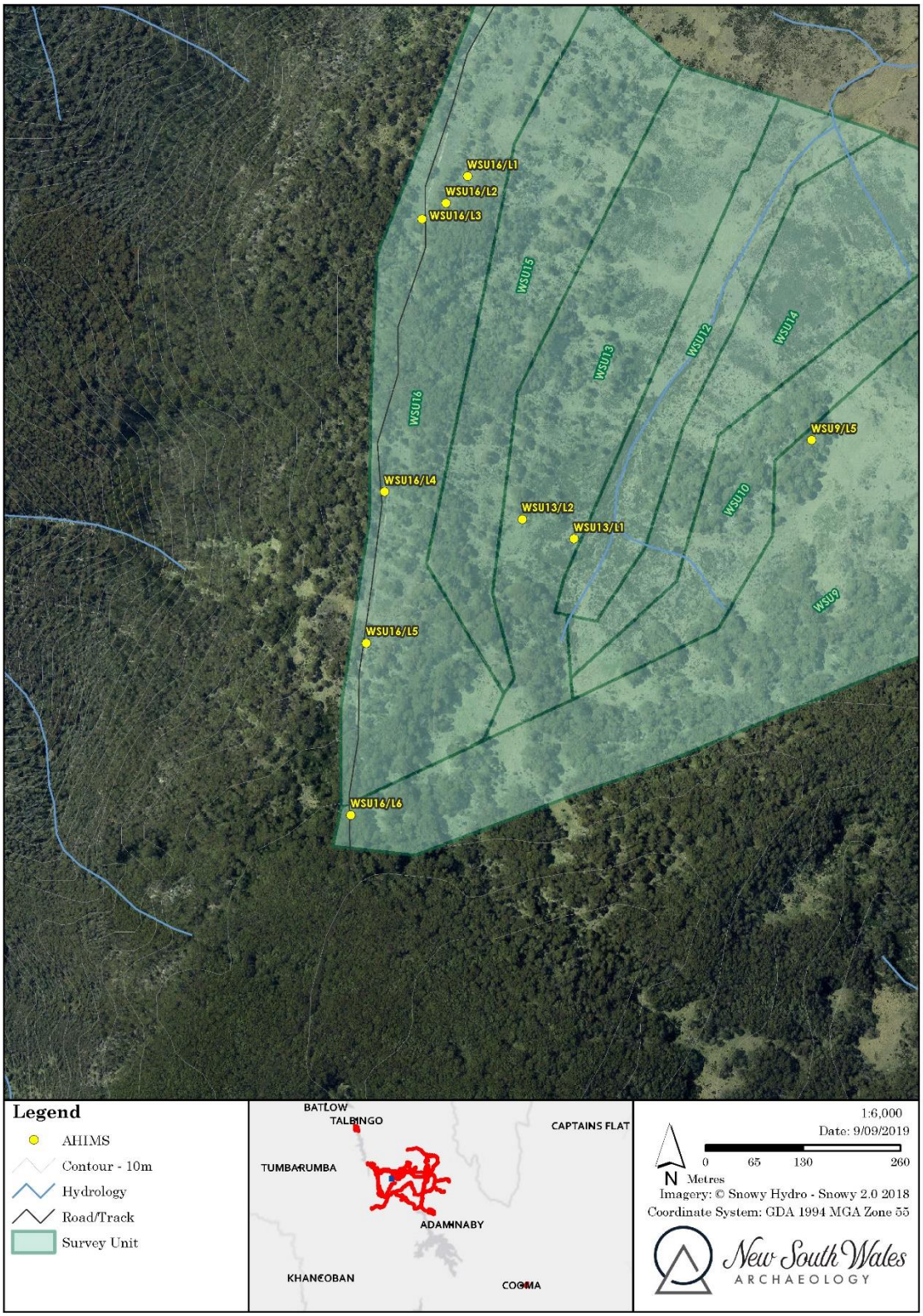
Map 22


Tantangara SU4/L6
Tantangara SU4/L2
Tantangara SU4/L1
Tantangara SU5/L3
Tantangara SU5/L5
Tantangara SU5/L4
57-4-0124
57-4-0122
57-4-0121
57-4-0080
57-4-0166
Tantangara SU11/L3
Tantangara SU6/L1
Tantangara SU8/L1
Tantangara SU7/L7
Tantangara SU11/L2
Tantangara SU11/L1
TSU1
TSU2
TSU3
TSU4
TSU5
TSU6
TSU7
TSU8
TSU9
TSU10
TSU11
TSU13
TSU20
TSU21
TSU22
KELLYS PLAIN CREEK
TTxSU40
TTxSU39
TTxSU41
TRGSU1
Legend
AHIMS
Test Transects
Contour - 10m
Hydrology
Road/Track
Survey Unit
EIS Disturbance Footprint
BATLOW
TALBINGO
CAPTAINS FLAT
TUMBARUMBA
ADAMINABY
KHANCOBAN
COOMA
1:10,000
Date: 9/09/2019
0 105 210 420
N
Metres
Imagery: © Snowy Hydro - Snowy 2.0 2018
Coordinate System: GDA 1994 MGA Zone 55
New South Wales
ARCHAEOLOGY

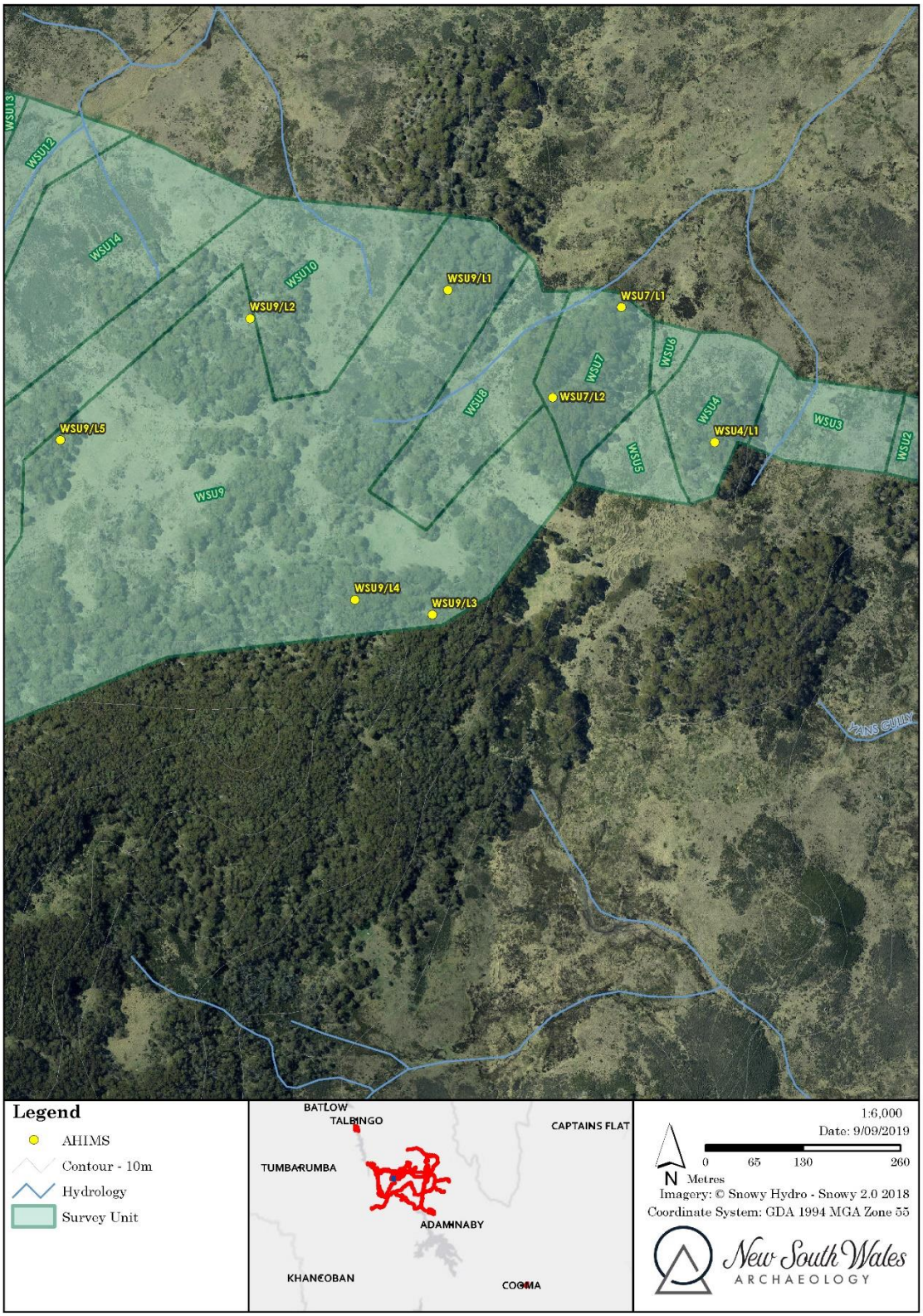
Map 23


PSSU4
PSSU3
PSSU2
PSSU1
CHSU1
CHSU2
CHSU3
TSU22
TSU21
TSU20
TSU1
PEDENS HUT
TOWNSEND HUT
57-4-0078
57-4-0096
57-4-0098
57-4-0058
57-4-0101
57-4-0059
57-4-0223
57-4-0079
57-4-0077
57-4-0073
57-4-0060
57-4-0166
57-4-0166
CHSU2/L1
CHSU3/L1
MURRUMBIDGEE RIVER
GULPLAIN CREEK
Legend
AHIMS
Contour - 10m
Hydrology
Road/Track
Survey Unit
EIS Disturbance Footprint
BATLOW
TALBINGO
CAPTAINS FLAT
TUMBARUMBA
ADAMINABY
KHANCOBAN
COOMA
1:22,000
Date: 9/09/2019
0 240 480 960
N Metres
Imagery: © Snowy Hydro - Snowy 2.0 2018
Coordinate System: GDA 1994 MGA Zone 55
New South Wales ARCHAEOLOGY

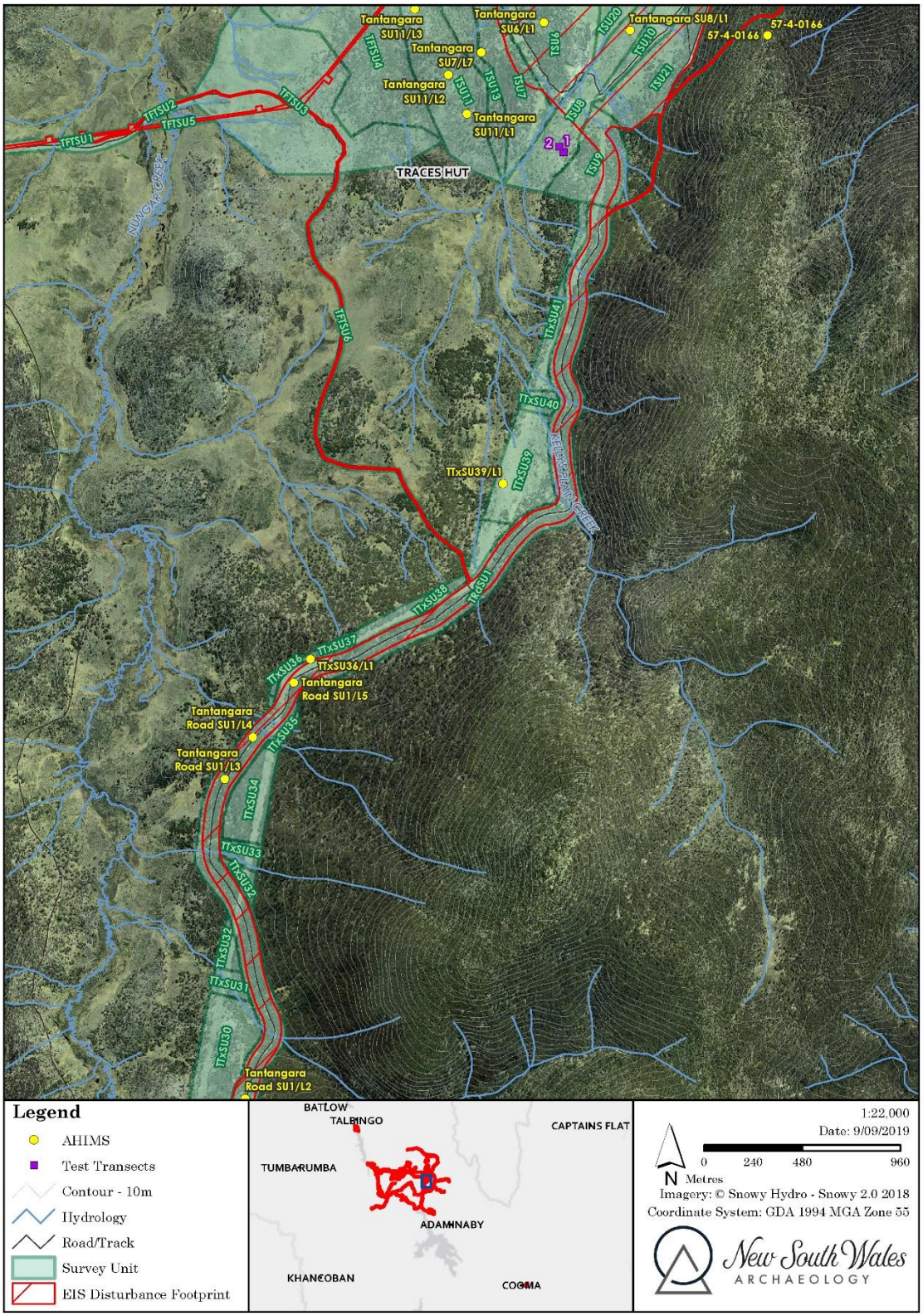
Map 24


WSU16/L1
WSU16/L2
WSU16/L3
WSU15
WSU12
WSU14
WSU13
WSU16
WSU9/L5
WSU16/L4
WSU13/L2
WSU13/L1
WSU10
WSU9
WSU16/L5
WSU16/L6
Legend
AHIMS
Contour - 10m
Hydrology
Road/Track
Survey Unit
BATLOW
TALBINGO
CAPTAINS FLAT
TUMBARUMBA
ADAMINABY
KHANCOBAN
COOMA
1:6,000
Date: 9/09/2019
0 65 130 260
N Metres
Imagery: © Snowy Hydro - Snowy 2.0 2018
Coordinate System: GDA 1994 MGA Zone 55
New South Wales ARCHAEOLOGY

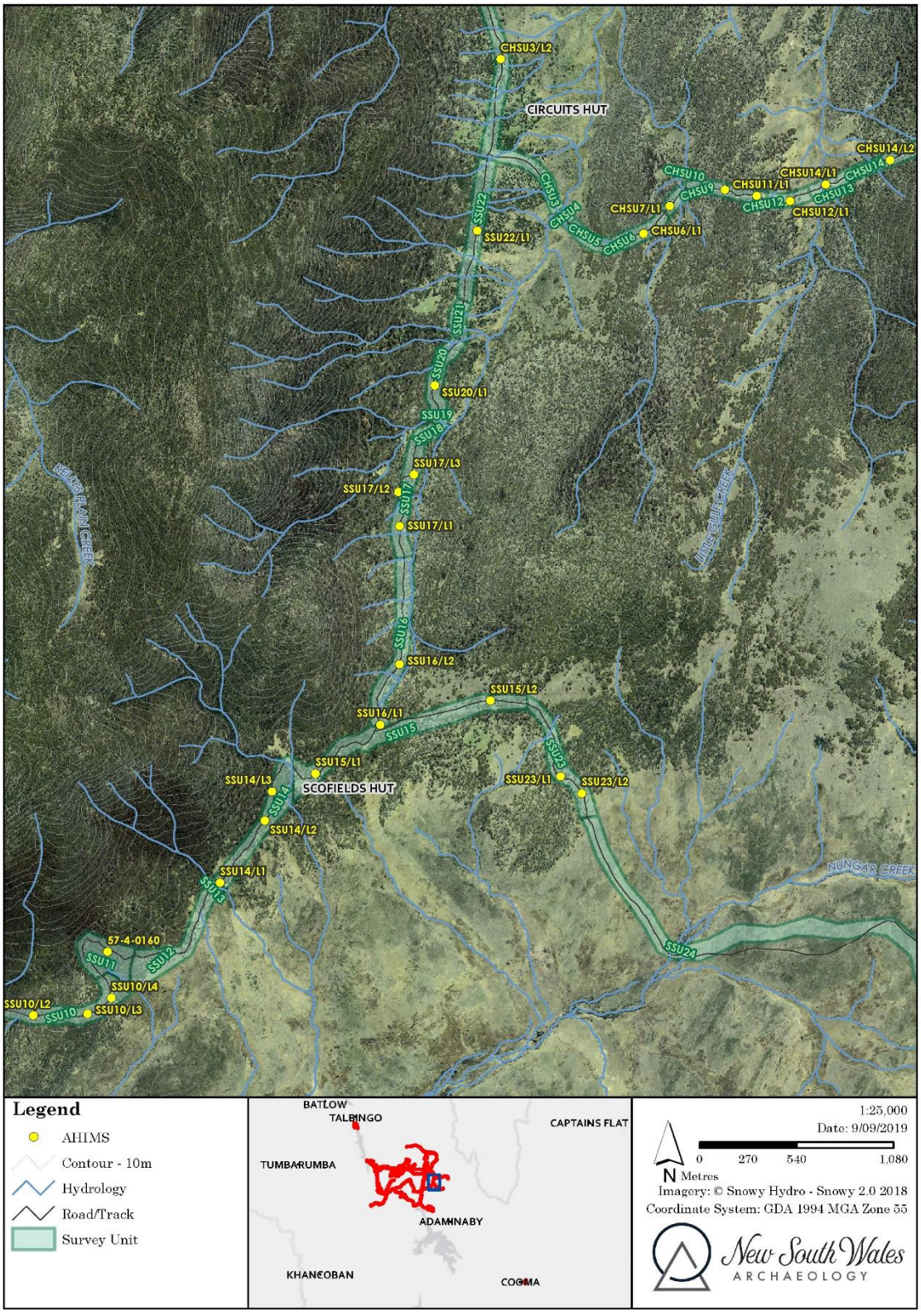
Map 25


WSU13
WSU12
WSU14
WSU10
WSU9/L1
WSU9/L2
WSU7/L1
WSU6
WSU7
WSU8
WSU7/L2
WSU4
WSU4/L1
WSU3
WSU2
WSU5
WSU9/L5
WSU9
WSU9/L4
WSU9/L3
ZANS GULLY
Legend
AHIMS
Contour - 10m
Hydrology
Survey Unit
BATLOW
TALBINGO
CAPTAINS FLAT
TUMBARUMBA
ADAMINABY
KHANCOBAN
COOMA
1:6,000
Date: 9/09/2019
0
65
130
260
N
Metres
Imagery: © Snowy Hydro - Snowy 2.0 2018
Coordinate System: GDA 1994 MGA Zone 55
New South Wales
ARCHAEOLOGY

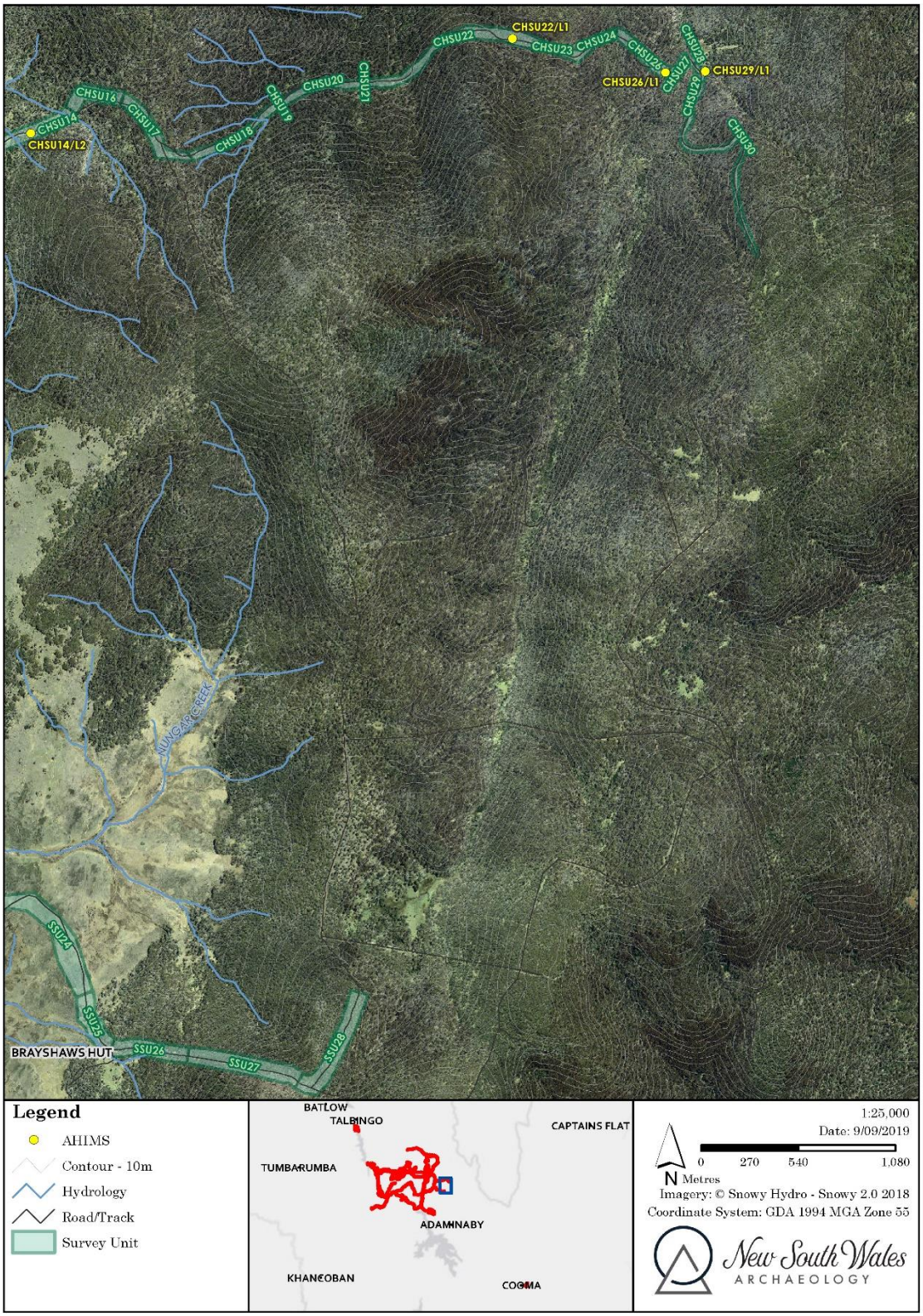
Map 26


Tantangara SU11/L3
Tantangara SU6/L1
Tantangara SU8/L1
57-4-0166
57-4-0166
Tantangara SU7/L7
Tantangara SU11/L2
Tantangara SU11/L1
TRACES HUT
TTxSU39/L1
TTxSU36/L1
Tantangara Road SU1/L5
Tantangara Road SU1/L4
Tantangara Road SU1/L3
Tantangara Road SU1/L2
TFTSU1
TFTSU2
TFTSU3
TFTSU4
TFTSU5
TFTSU16
TSU1
TSU6
TSU7
TSU8
TSU9
TSU10
TSU13
TSU20
TSU21
TTxSU30
TTxSU31
TTxSU32
TTxSU33
TTxSU34
TTxSU35
TTxSU36
TTxSU37
TTxSU38
TTxSU39
TTxSU40
TTxSU41
TR6SU1
Legend
AHIMS
Test Transects
Contour - 10m
Hydrology
Road/Track
Survey Unit
EIS Disturbance Footprint
BATLOW
TALBINGO
CAPTAINS FLAT
TUMBARUMBA
ADAMINABY
KHANCOBAN
COOMA
1:22,000
Date: 9/09/2019
0
240
480
960
N
Metres
Imagery: © Snowy Hydro - Snowy 2.0 2018
Coordinate System: GDA 1994 MGA Zone 55
New South Wales
ARCHAEOLOGY

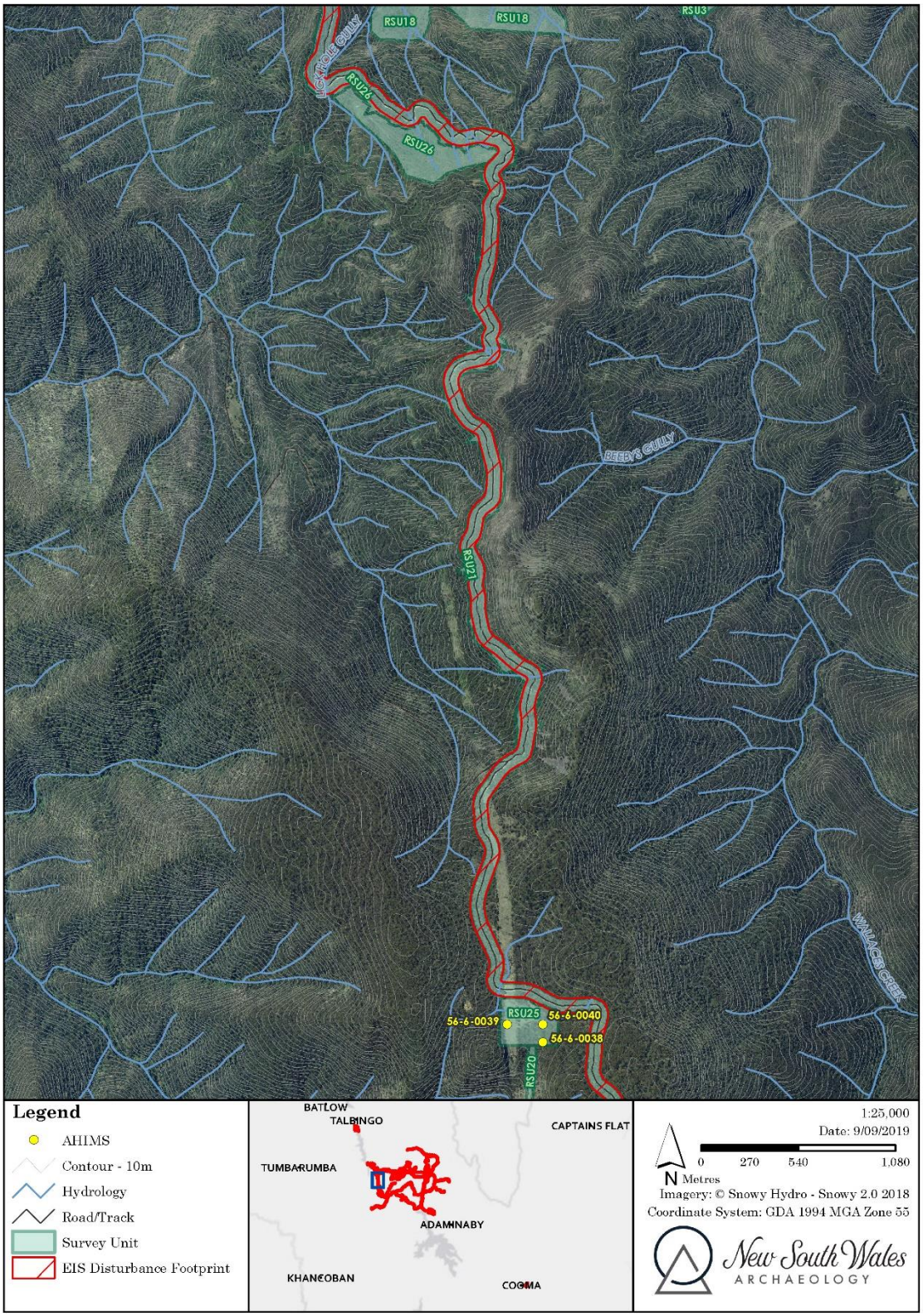
Map 27


CHSU3/L2
CIRCUITS HUT
CHSU14/L2
CHSU14/L1
CHSU11/L1
CHSU12/L1
CHSU7/L1
CHSU6/L1
SSU22/L1
SSU20/L1
SSU17/L3
SSU17/L2
SSU17/L1
SSU16/L2
SSU15/L2
SSU16/L1
SSU15/L1
SSU14/L3
SCOFIELDS HUT
SSU23/L1
SSU23/L2
SSU14/L2
SSU14/L1
57-4-0160
SSU10/L4
SSU10/L2
SSU10/L3
NUNGAR CREEK
Legend
AHIMS
Contour - 10m
Hydrology
Road/Track
Survey Unit
BATLOW
TALBINGO
CAPTAINS FLAT
TUMBARUMBA
ADAMINABY
KHANCOBAN
COOMA
1:25,000
Date: 9/09/2019
0 270 540 1,080
N Metres
Imagery: © Snowy Hydro - Snowy 2.0 2018
Coordinate System: GDA 1994 MGA Zone 55
New South Wales ARCHAEOLOGY

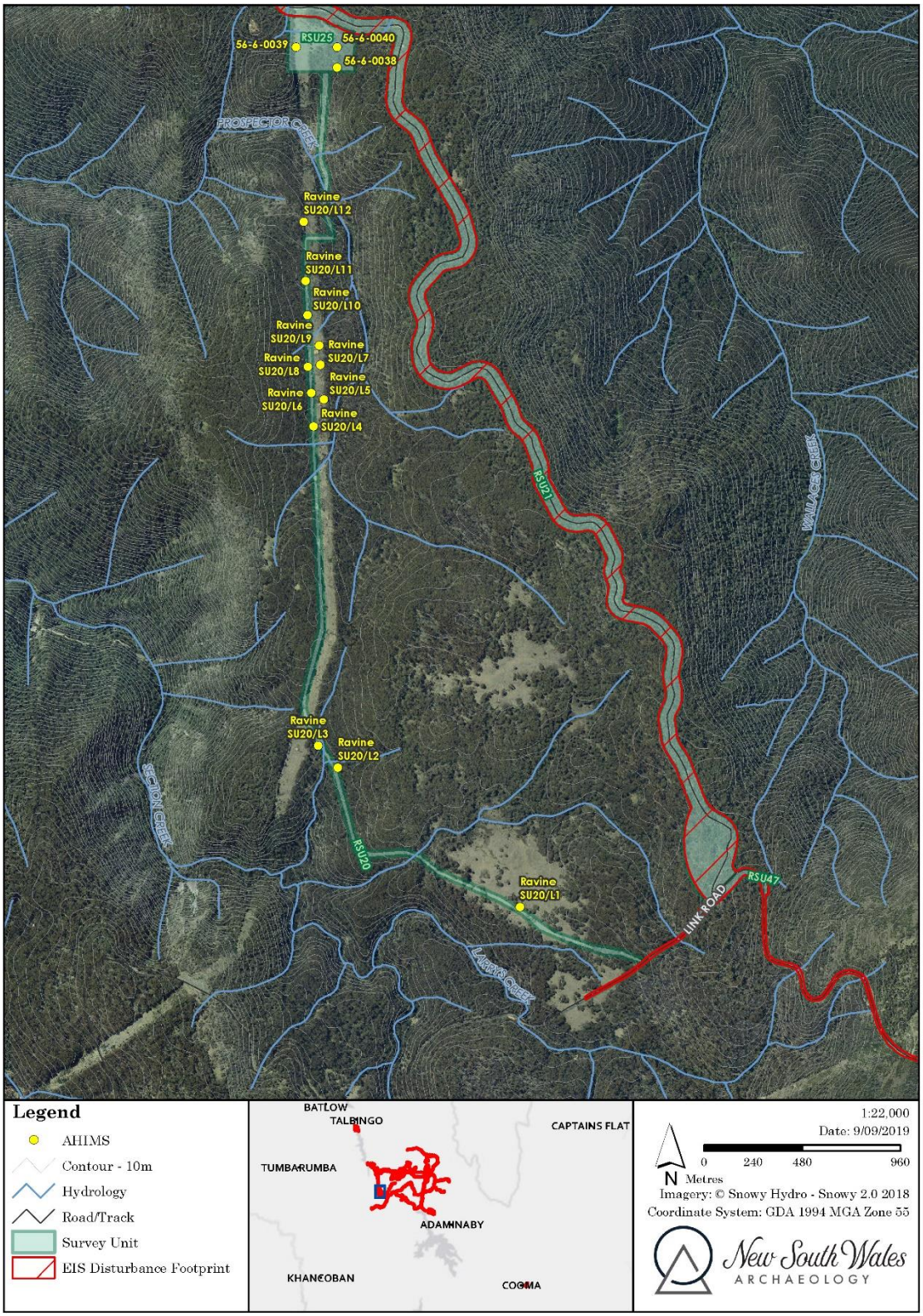
Map 28


CHSU22/L1
CHSU22
CHSU23
CHSU24
CHSU25
CHSU26/L1
CHSU27
CHSU28
CHSU29
CHSU29/L1
CHSU30
CHSU20
CHSU21
CHSU19
CHSU18
CHSU17
CHSU16
CHSU14
CHSU14/L2
NUNGAR CREEK
SSU24
SSU25
SSU26
SSU27
SSU28
BRAYSHAWS HUT
Legend
AHIMS
Contour - 10m
Hydrology
Road/Track
Survey Unit
BATLOW
TALBINGO
CAPTAINS FLAT
TUMBARUMBA
ADAMINABY
KHANCOBAN
COOMA
1:25,000
Date: 9/09/2019
0 270 540 1,080
N Metres
Imagery: © Snowy Hydro - Snowy 2.0 2018
Coordinate System: GDA 1994 MGA Zone 55
New South Wales ARCHAEOLOGY

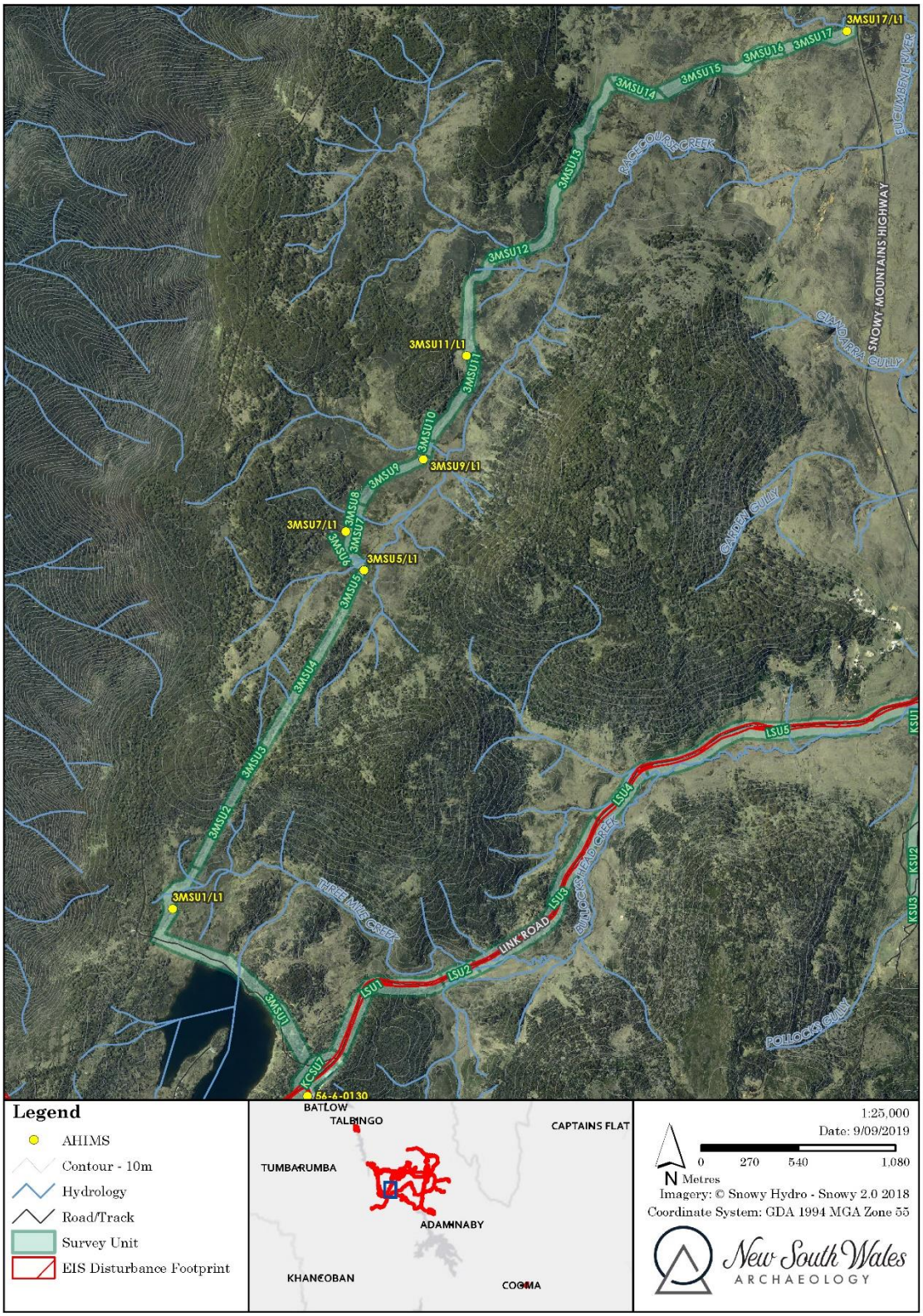
Map 29


RSU18
RSU18
RSU3
RSU26
RSU26
BEEBYS GULLY
RSU21
WALLACE CREEK
56-6-0039
RSU25
56-6-0040
56-6-0038
RSU20
Legend
AHIMS
Contour - 10m
Hydrology
Road/Track
Survey Unit
EIS Disturbance Footprint
BATLOW
TALBINGO
CAPTAINS FLAT
TUMBARUMBA
ADAMINABY
KHANCOBAN
COOMA
1:25,000
Date: 9/09/2019
0 270 540 1,080
N Metres
Imagery: © Snowy Hydro - Snowy 2.0 2018
Coordinate System: GDA 1994 MGA Zone 55
New South Wales
ARCHAEOLOGY

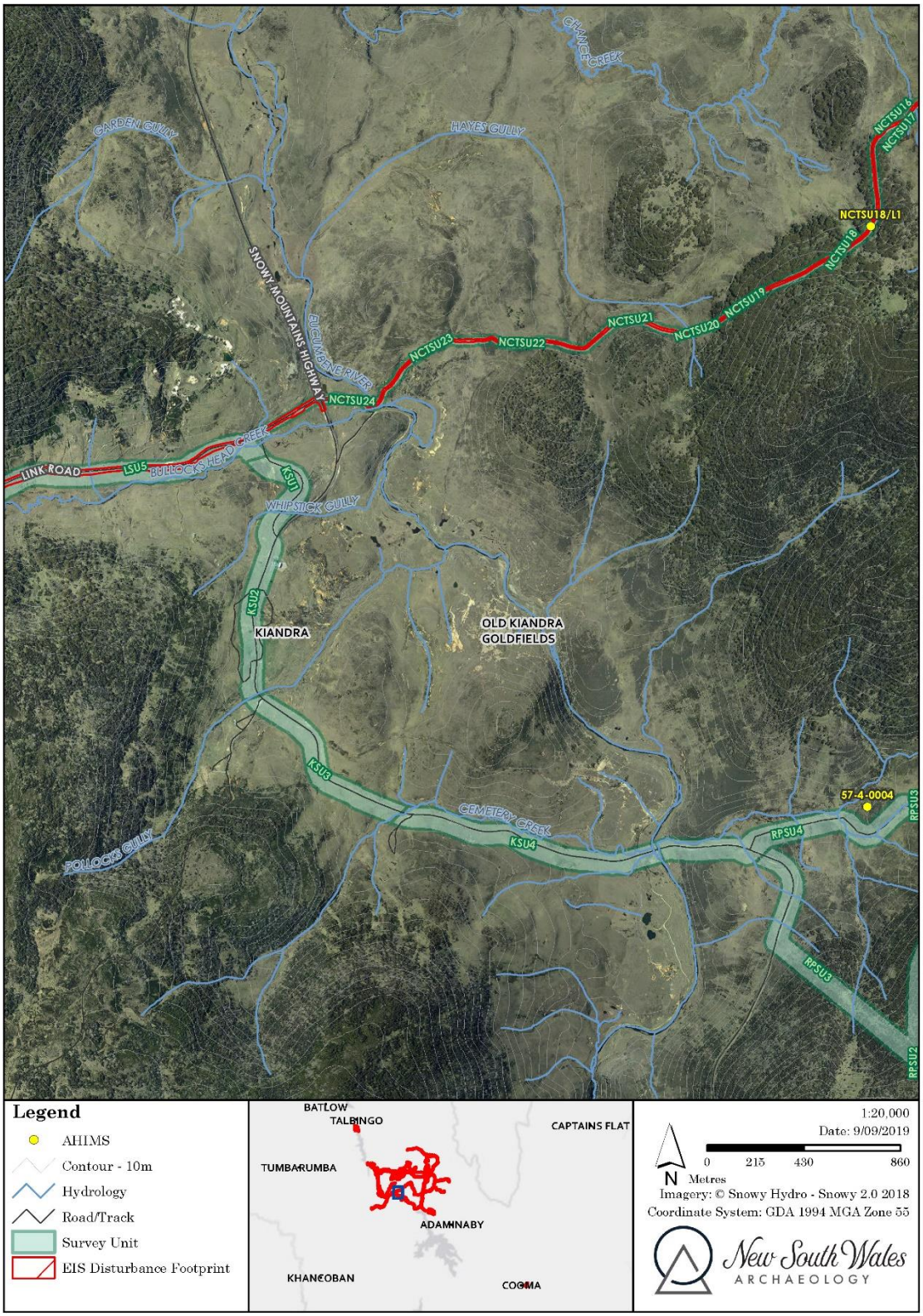
Map 30


56-6-0039
RSU25
56-6-0040
56-6-0038
PROSPECTOR CREEK
Ravine SU20/L12
Ravine SU20/L11
Ravine SU20/L10
Ravine SU20/L9
Ravine SU20/L7
Ravine SU20/L8
Ravine SU20/L5
Ravine SU20/L6
Ravine SU20/L4
RSU21
WALLACES CREEK
Ravine SU20/L3
Ravine SU20/L2
SECTION CREEK
RSU20
Ravine SU20/L1
LINK ROAD
RSU47
LOCKYERS CREEK
Legend
AHIMS
Contour - 10m
Hydrology
Road/Track
Survey Unit
EIS Disturbance Footprint
BATLOW
TALBINGO
CAPTAINS FLAT
TUMBARUMBA
ADAMINABY
KHANCOBAN
COOMA
1:22,000
Date: 9/09/2019
0 240 480 960
N Metres
Imagery: © Snowy Hydro - Snowy 2.0 2018
Coordinate System: GDA 1994 MGA Zone 55
New South Wales ARCHAEOLOGY

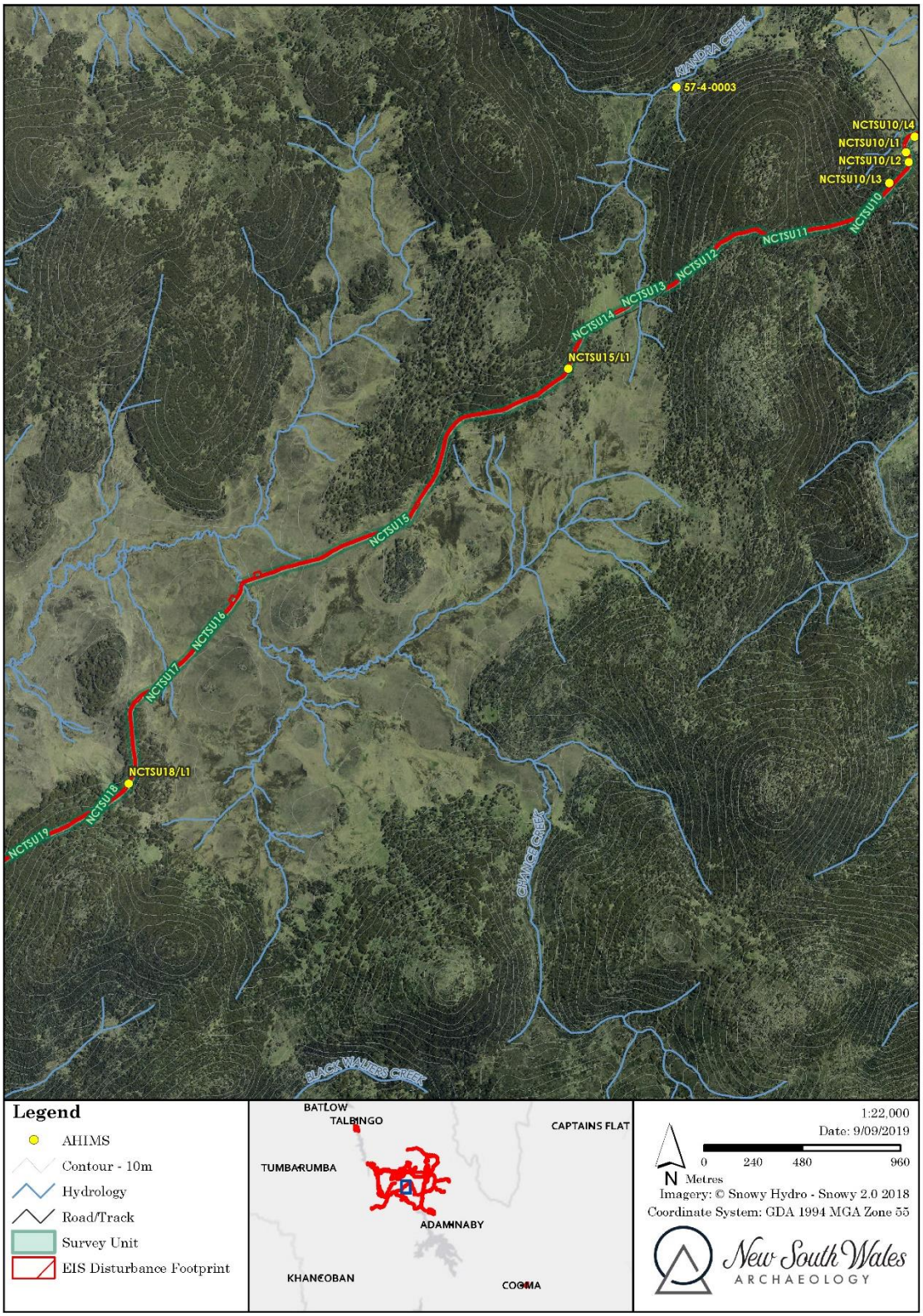
Map 31


3MSU17/L1
3MSU16
3MSU17
3MSU15
3MSU14
3MSU13
BUCUMBENE RIVER
RACECOURSE CREEK
SNOWY MOUNTAINS HIGHWAY
3MSU12
3MSU11/L1
3MSU11
3MSU10
3MSU9/L1
3MSU9
3MSU8
3MSU7
3MSU7/L1
3MSU6
3MSU5/L1
3MSU5
3MSU4
3MSU3
3MSU2
3MSU1/L1
3MSU1
KCSU7
54-4-0130
LSU1
LSU2
LSU3
LSU4
LSU5
KSU1
KSU2
KSU3
LINK ROAD
BULLOCKS HEAD CREEK
THREE MILE CREEK
POLLOCKS GULLY
CARDEN GULLY
Legend
AHIMS
Contour - 10m
Hydrology
Road/Track
Survey Unit
EIS Disturbance Footprint
BATLOW
TALBINGO
CAPTAINS FLAT
TUMBARUMBA
ADAMINABY
KHANCOBAN
COOMA
1:25,000
Date: 9/09/2019
0 270 540 1,080
N Metres
Imagery: © Snowy Hydro - Snowy 2.0 2018
Coordinate System: GDA 1994 MGA Zone 55
New South Wales ARCHAEOLOGY

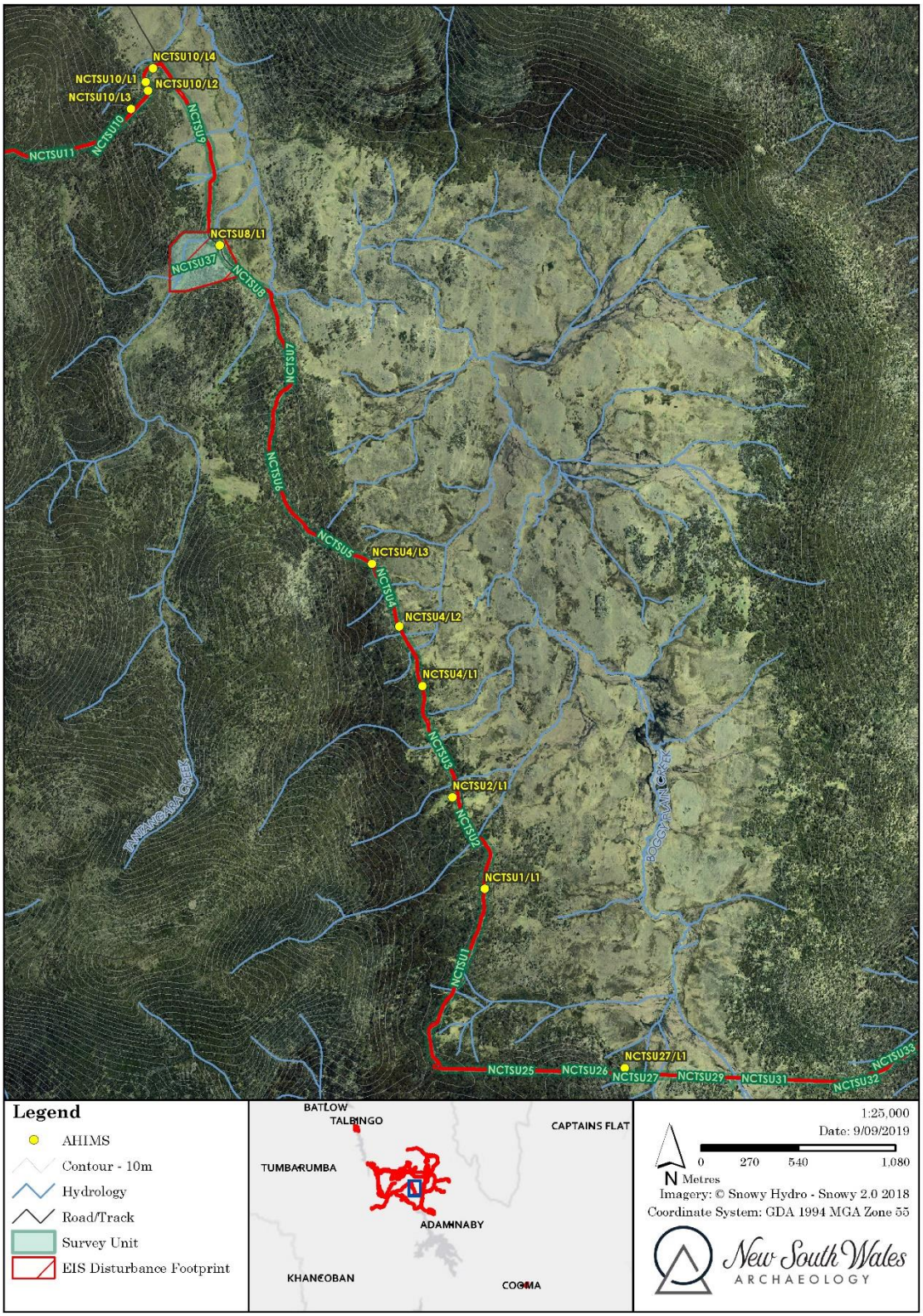
Map 32


CHANCE CREEK
GARDEN GULLY
HAYES GULLY
NCTSU14
NCTSU17
NCTSU18/L1
NCTSU18
NCTSU19
NCTSU20
NCTSU21
NCTSU22
NCTSU23
NCTSU24
SNOWY MOUNTAINS HIGHWAY
BUCKWONGENE RIVER
LINK ROAD
LSU5
BULLOCKS HEAD CREEK
KSU1
WHIPSTICK GULLY
KSU2
KIANDRA
OLD KIANDRA GOLDFIELDS
KSU3
CEMETERY CREEK
KSU4
57-4-0004
RPSU3
RPSU4
RPSU3
RPSU2
POLLOCKS GULLY
Legend
AHIMS
Contour - 10m
Hydrology
Road/Track
Survey Unit
EIS Disturbance Footprint
BATLOW
TALBINGO
CAPTAINS FLAT
TUMBARUMBA
ADAMINABY
KHANCOBAN
COOMA
1:20,000
Date: 9/09/2019
0 215 430 860
N
Metres
Imagery: © Snowy Hydro - Snowy 2.0 2018
Coordinate System: GDA 1994 MGA Zone 55
New South Wales ARCHAEOLOGY

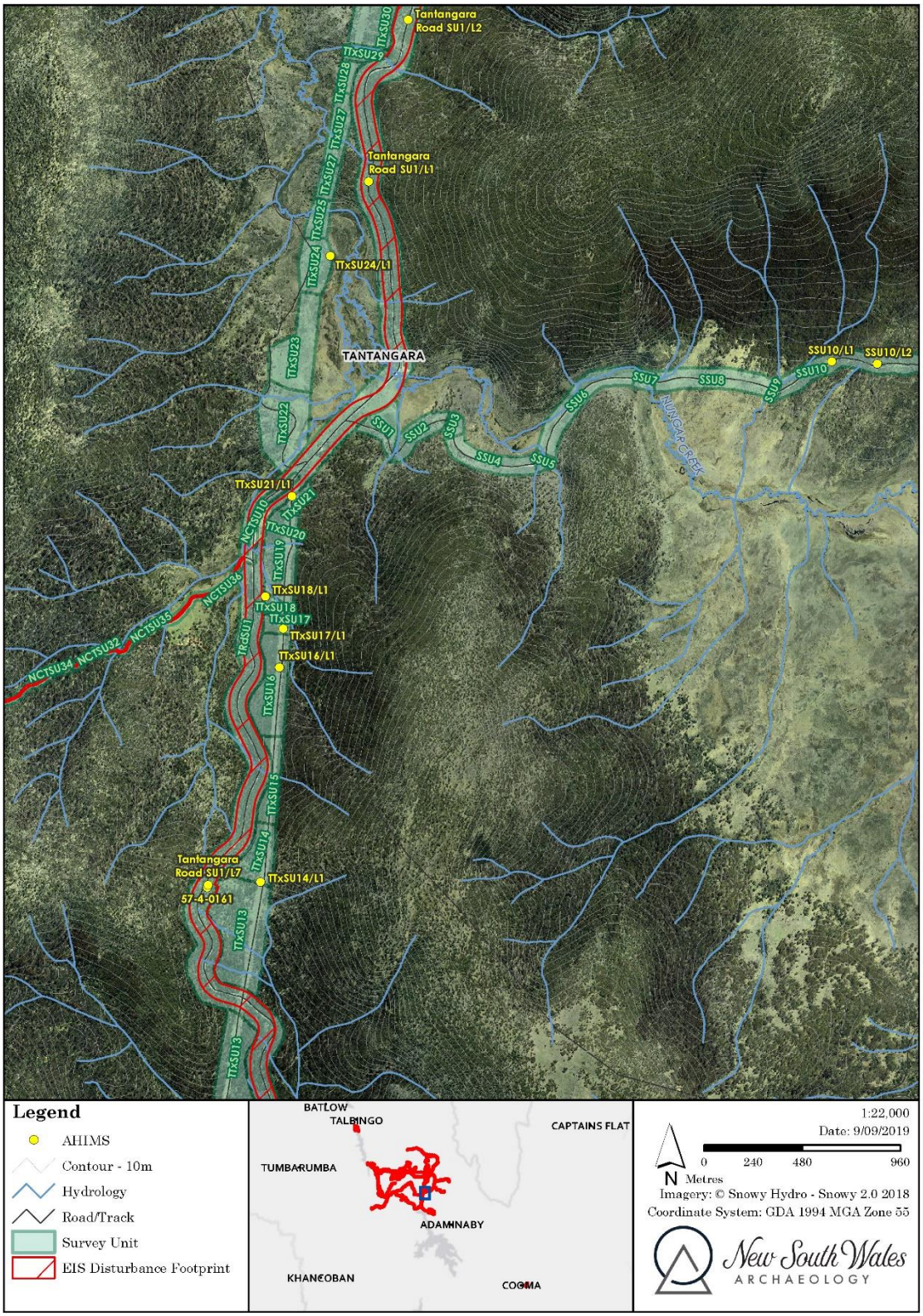
Map 33


KIANDRA CREEK
57-4-0003
NCTSU10/L4
NCTSU10/L1
NCTSU10/L2
NCTSU10/L3
NCTSU10
NCTSU11
NCTSU12
NCTSU13
NCTSU14
NCTSU15/L1
NCTSU15
NCTSU16
NCTSU17
NCTSU18/L1
NCTSU18
NCTSU19
CHANCE CREEK
BLACK WALERS CREEK
Legend
AHIMS
Contour - 10m
Hydrology
Road/Track
Survey Unit
EIS Disturbance Footprint
BATLOW
TALBINGO
CAPTAINS FLAT
TUMBARUMBA
ADAMINABY
KHANCOBAN
COOMA
1:22,000
Date: 9/09/2019
0 240 480 960
N Metres
Imagery: © Snowy Hydro - Snowy 2.0 2018
Coordinate System: GDA 1994 MGA Zone 55
New South Wales
ARCHAEOLOGY

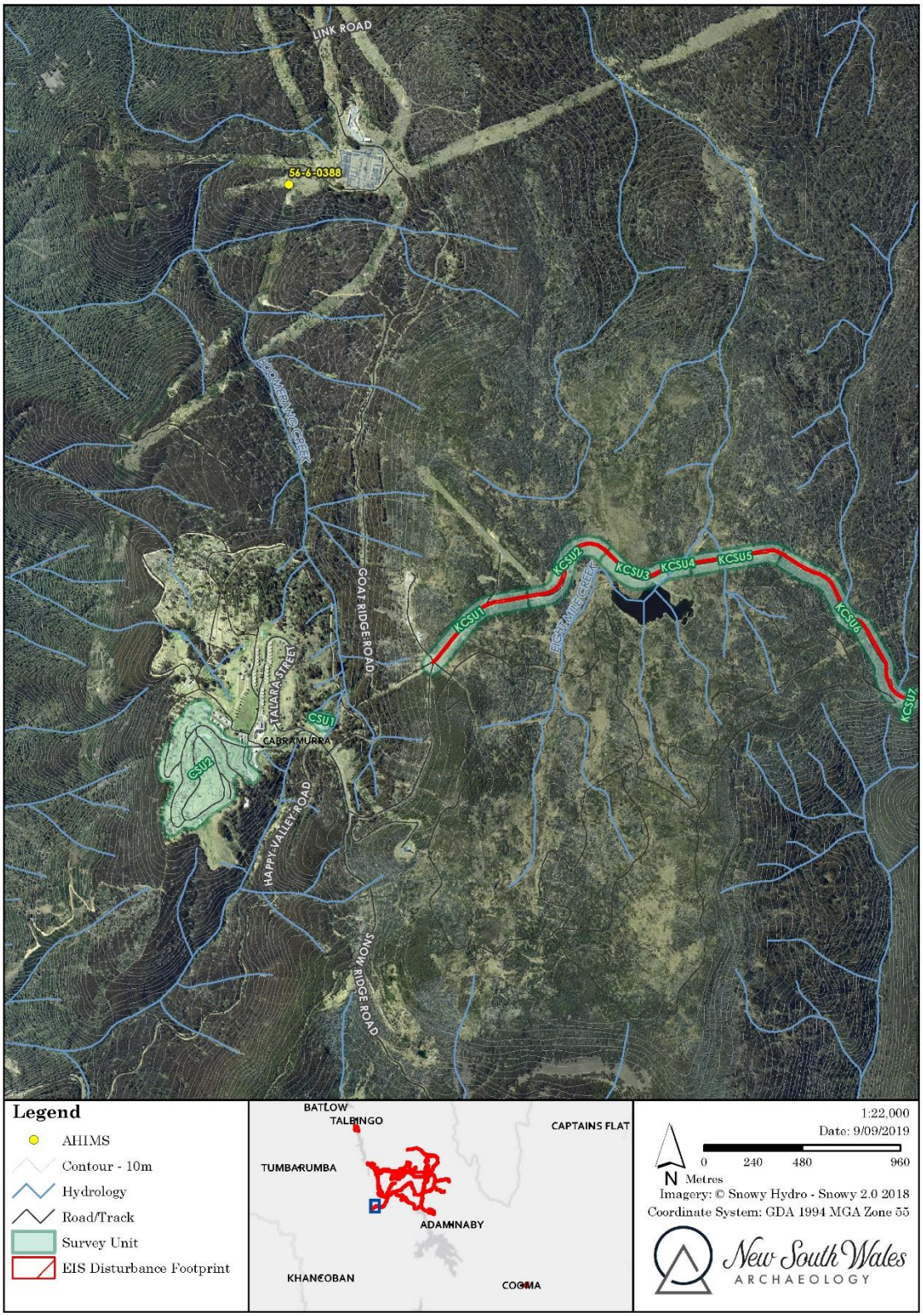
Map 34


NCTSU10/L4
NCTSU10/L1
NCTSU10/L2
NCTSU10/L3
NCTSU10
NCTSU11
NCTSU9
NCTSU8/L1
NCTSU37
NCTSU8
NCTSU7
NCTSU6
NCTSU5
NCTSU4/L3
NCTSU4
NCTSU4/L2
NCTSU4/L1
NCTSU3
NCTSU2/L1
NCTSU2
NCTSU1/L1
NCTSU1
NCTSU27/L1
NCTSU25
NCTSU26
NCTSU27
NCTSU29
NCTSU31
NCTSU32
NCTSU33
TANDANDRA CREEK
BOGGY CAMP CREEK
Legend
AHIMS
Contour - 10m
Hydrology
Road/Track
Survey Unit
EIS Disturbance Footprint
BATLOW
TALBINGO
CAPTAINS FLAT
TUMBARUMBA
ADAMINABY
KHANCOBAN
COOMA
1:25,000
Date: 9/09/2019
0 270 540 1,080
N Metres
Imagery: © Snowy Hydro - Snowy 2.0 2018
Coordinate System: GDA 1994 MGA Zone 55
New South Wales
ARCHAEOLOGY

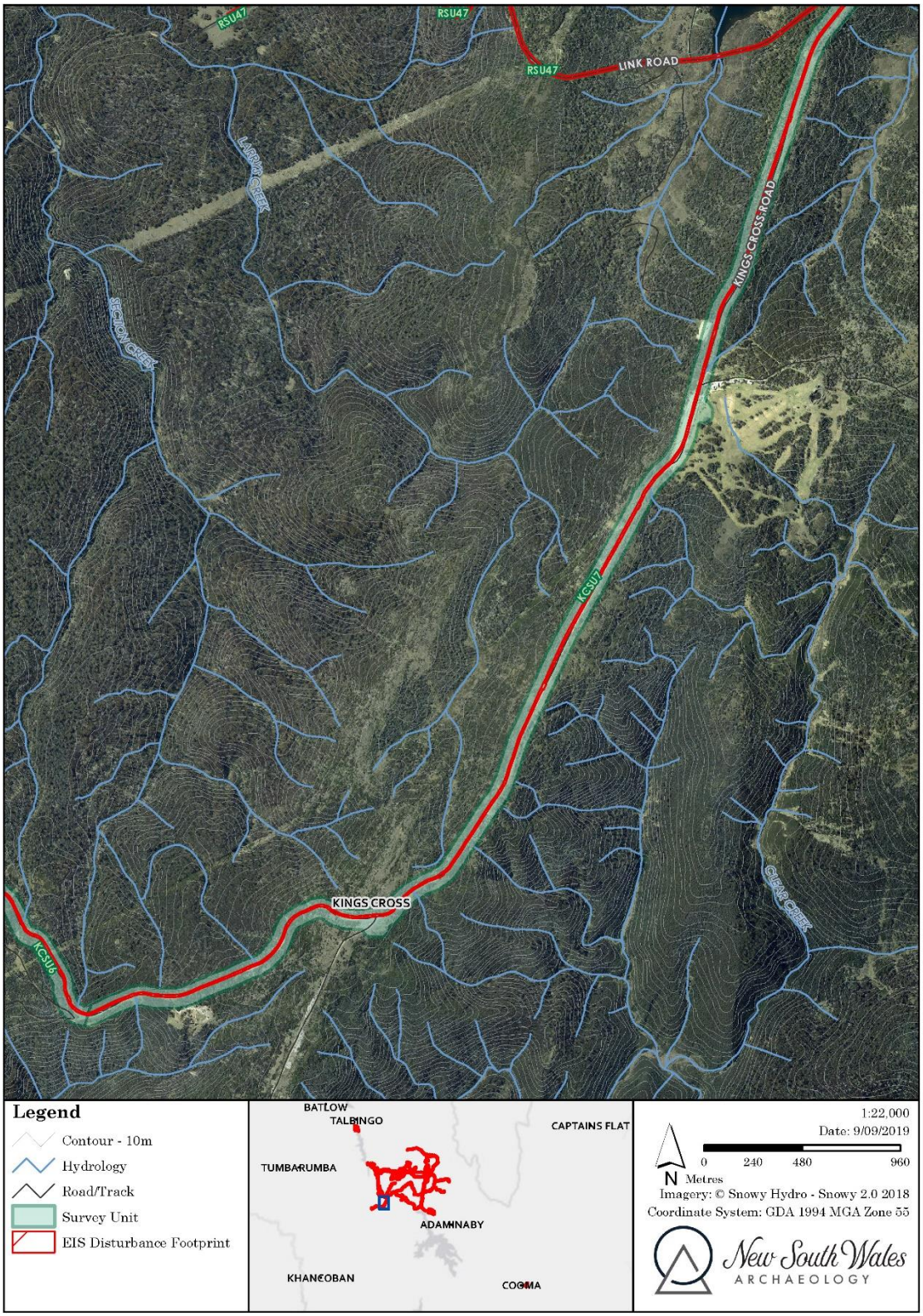
Map 35


Tantangara Road SU1/L2
TTxSU30
TTxSU29
TTxSU28
TTxSU27
TTxSU27
TTxSU27
TTxSU25
TTxSU24
Tantangara Road SU1/L1
TTxSU24/L1
TTxSU23
TANTANGARA
TTxSU22
SSU1
SSU2
SSU3
SSU4
SSU5
SSU6
SSU7
SSU8
SSU9
SSU10
SSU10/L1
SSU10/L2
NUNGAR CREEK
TTxSU21/L1
TTxSU21
NCTSU30
TTxSU20
TTxSU19
NCTSU36
TTxSU18/L1
TTxSU18
TTxSU17
TTxSU17/L1
TRdSU1
TTxSU16/L1
NCTSU34
NCTSU32
NCTSU33
TTxSU16
TTxSU15
TTxSU14
Tantangara Road SU1/L7
TTxSU14/L1
57-4-0161
TTxSU13
TTxSU13
Legend
AHIMS
Contour - 10m
Hydrology
Road/Track
Survey Unit
EIS Disturbance Footprint
BATLOW
TALBINGO
CAPTAINS FLAT
TUMBARUMBA
ADAMINABY
KHANCOBAN
COOMA
1:22,000
Date: 9/09/2019
0
240
480
960
N
Metres
Imagery: © Snowy Hydro - Snowy 2.0 2018
Coordinate System: GDA 1994 MGA Zone 55
New South Wales
ARCHAEOLOGY

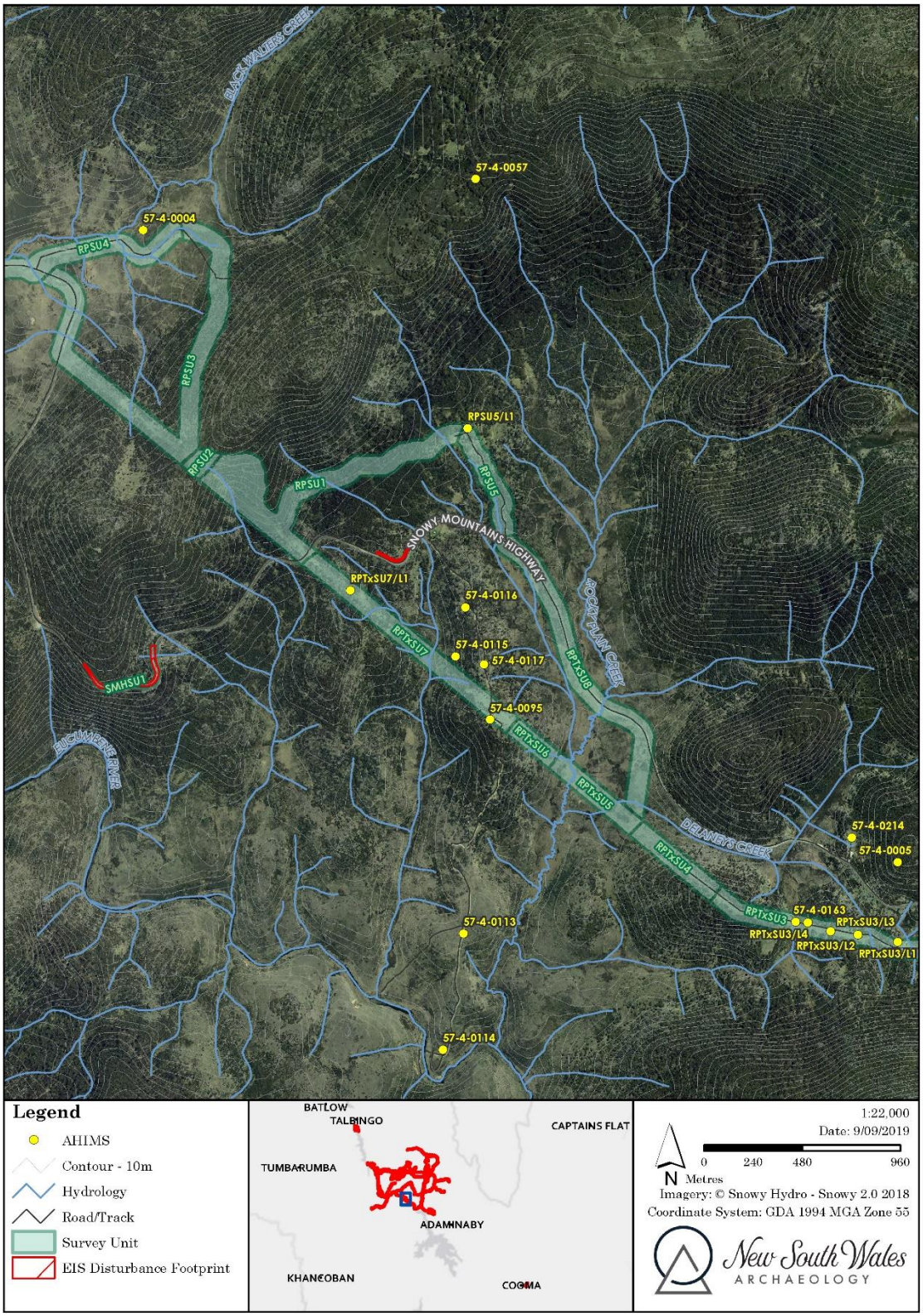
Map 36


LINK ROAD
56-6-0388
BOOMERANG CREEK
GOAT RIDGE ROAD
KCSU1
KCSU2
KCSU3
KCSU4
KCSU5
KCSU6
KCSU7
EIGHT MILE CREEK
ATALARA STREET
CSU1
CSU2
CABRAMURRA
HAPPY VALLEY ROAD
SNOW RIDGE ROAD
Legend
AHIMS
Contour - 10m
Hydrology
Road/Track
Survey Unit
EIS Disturbance Footprint
BATLOW
TALBINGO
CAPTAINS FLAT
TUMBARUMBA
ADAMINABY
KHANCOBAN
COOMA
1:22,000
Date: 9/09/2019
0 240 480 960
N Metres
Imagery: © Snowy Hydro - Snowy 2.0 2018
Coordinate System: GDA 1994 MGA Zone 55
New South Wales ARCHAEOLOGY

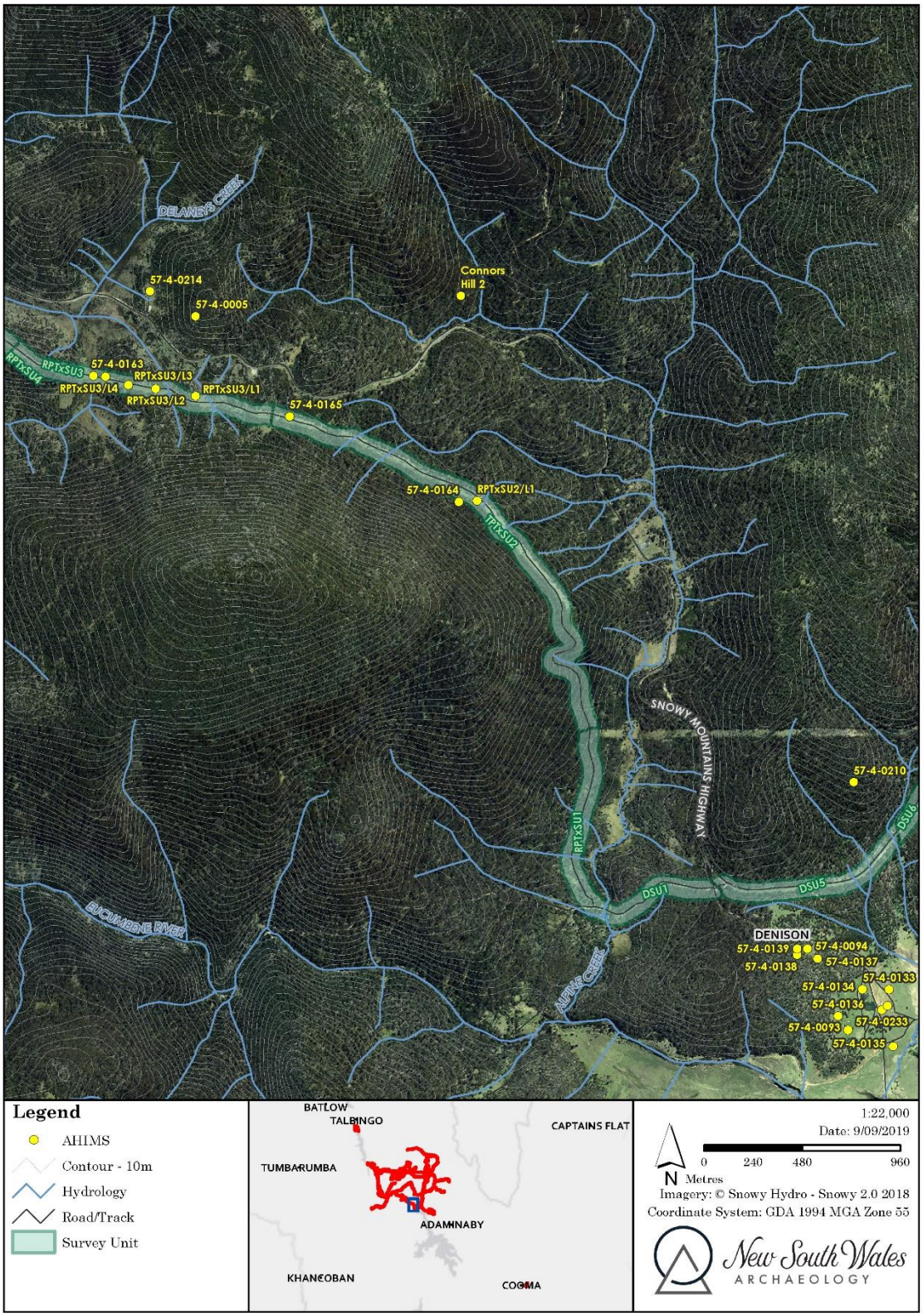
Map 37


RSU47
RSU47
RSU47
LINK ROAD
LARRY'S CREEK
KINGS CROSS ROAD
SECTION CREEK
KCSU7
KINGS CROSS
KCSU6
GILMAN CREEK
Legend
Contour - 10m
Hydrology
Road/Track
Survey Unit
EIS Disturbance Footprint
BATLOW
TALBINGO
CAPTAINS FLAT
TUMBARUMBA
ADAMINABY
KHANCOBAN
COOMA
1:22,000
Date: 9/09/2019
0 240 480 960
N Metres
Imagery: © Snowy Hydro - Snowy 2.0 2018
Coordinate System: GDA 1994 MGA Zone 55
New South Wales
ARCHAEOLOGY

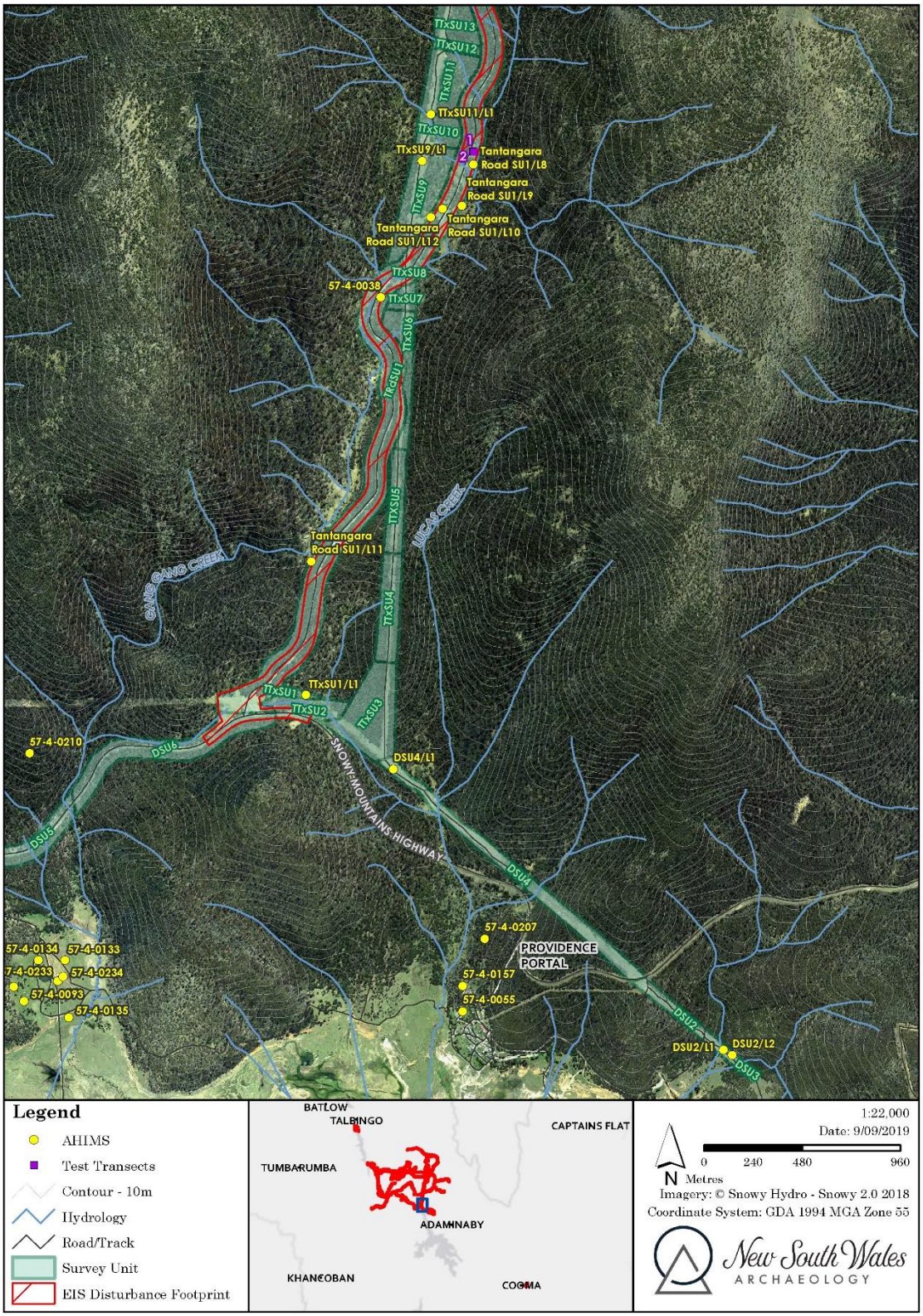
Map 38


BLACK WATERS CREEK
57-4-0057
57-4-0004
RPSU4
RPSU3
RPSU5/L1
RPSU2
RPSU1
RPSU5
SNOWY MOUNTAINS HIGHWAY
ROCKY PLAIN CREEK
RPTxSU7/L1
57-4-0116
RPTxSU7
57-4-0115
57-4-0117
RPTxSU8
SMHSU1
57-4-0095
RPTxSU6
BIGGUMBERRIE RIVER
RPTxSU5
57-4-0214
57-4-0005
DELANEYS CREEK
RPTxSU4
RPTxSU3
57-4-0163
RPTxSU3/L3
RPTxSU3/L4
RPTxSU3/L2
RPTxSU3/L1
57-4-0113
57-4-0114
Legend
AHIMS
Contour - 10m
Hydrology
Road/Track
Survey Unit
EIS Disturbance Footprint
BATLOW
TALBINGO
CAPTAINS FLAT
TUMBARUMBA
ADAMINABY
KHANCOBAN
COOMA
1:22,000
Date: 9/09/2019
0 240 480 960
N Metres
Imagery: © Snowy Hydro - Snowy 2.0 2018
Coordinate System: GDA 1994 MGA Zone 55
New South Wales ARCHAEOLOGY

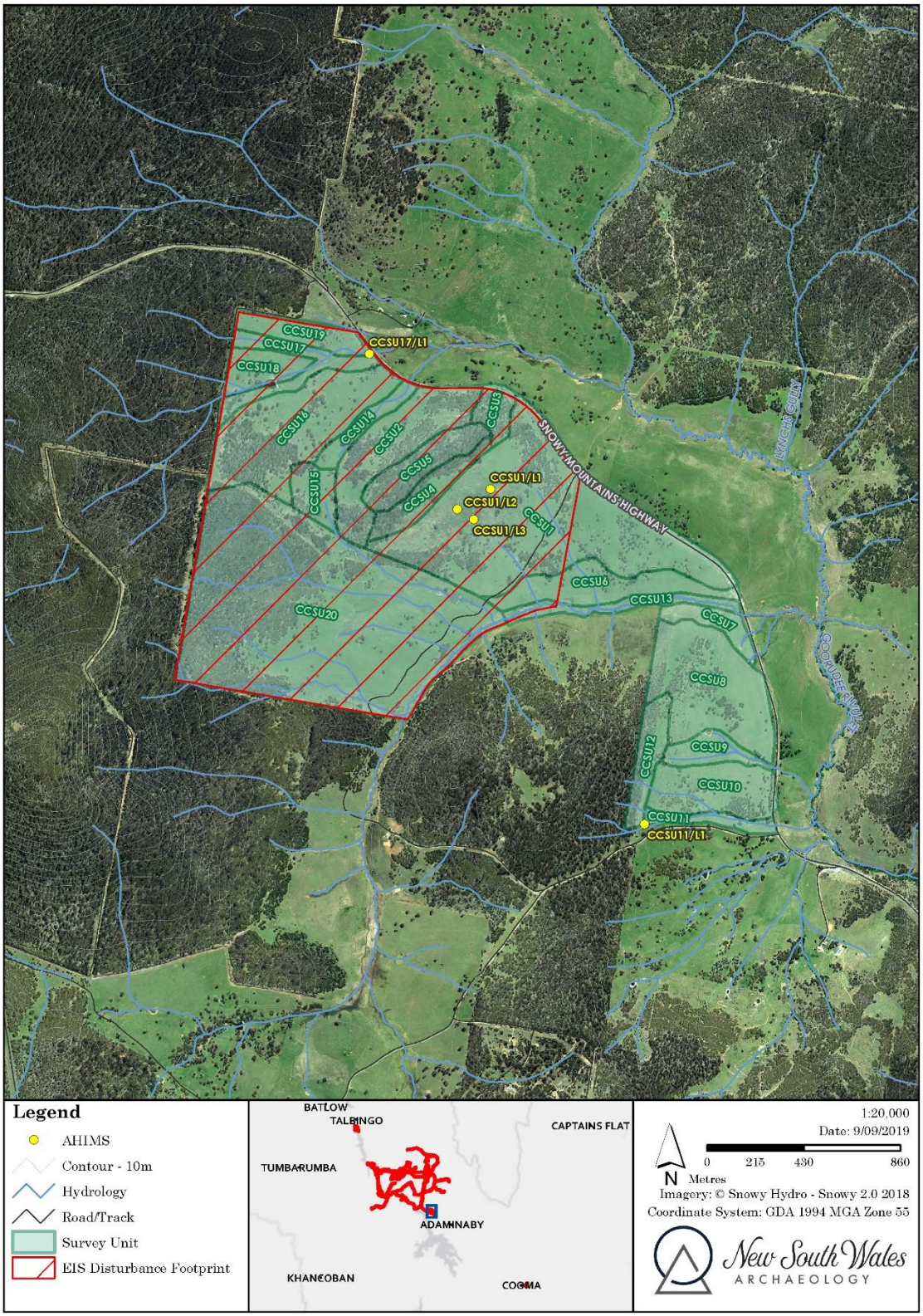
Map 39


DELANEYS CREEK
Connors Hill 2
57-4-0214
57-4-0005
RPTxSU4
RPTxSU3
57-4-0163
RPTxSU3/L3
RPTxSU3/L4
RPTxSU3/L2
RPTxSU3/L1
57-4-0165
57-4-0164
RPTxSU2/L1
TPTXSU2
SNOWY MOUNTAINS HIGHWAY
57-4-0210
RPTXSU1
DSU6
DSU5
DSU1
BUCUMBENE RIVER
ALPINE CREEK
DENISON
57-4-0139
57-4-0094
57-4-0138
57-4-0137
57-4-0133
57-4-0134
57-4-0136
57-4-0233
57-4-0093
57-4-0135
Legend
AHIMS
Contour - 10m
Hydrology
Road/Track
Survey Unit
BATLOW
TALBINGO
CAPTAINS FLAT
TUMBARUMBA
ADAMINABY
KHANCOBAN
COOMA
1:22,000
Date: 9/09/2019
0 240 480 960
N Metres
Imagery: © Snowy Hydro - Snowy 2.0 2018
Coordinate System: GDA 1994 MGA Zone 55
New South Wales ARCHAEOLOGY

Map 40


TTxSU13
TTxSU12
TTxSU11
TTxSU11/L1
TTxSU10
TTxSU9/L1
Tantangara Road SU1/L8
Tantangara Road SU1/L9
TTxSU9
Tantangara Road SU1/L10
Tantangara Road SU1/L12
TTxSU8
57-4-0038
TTxSU7
TTxSU6
TTxSU1
TTxSU5
LUCAS CREEK
Tantangara Road SU1/L11
GANG GANG CREEK
TTxSU4
TTxSU1/L1
TTxSU1
TTxSU2
TTxSU3
57-4-0210
DSU6
DSU4/L1
SNOWY MOUNTAINS HIGHWAY
DSU5
DSU4
57-4-0207
PROVIDENCE PORTAL
57-4-0134
57-4-0133
57-4-0233
57-4-0234
57-4-0093
57-4-0135
57-4-0157
57-4-0055
DSU2
DSU2/L1
DSU2/L2
DSU3
Legend
AHIMS
Test Transects
Contour - 10m
Hydrology
Road/Track
Survey Unit
EIS Disturbance Footprint
BATLOW
TALBINGO
CAPTAINS FLAT
TUMBARUMBA
ADAMINABY
KHANCOBAN
COOMA
1:22,000
Date: 9/09/2019
0 240 480 960
N Metres
Imagery: © Snowy Hydro - Snowy 2.0 2018
Coordinate System: GDA 1994 MGA Zone 55
New South Wales ARCHAEOLOGY

Map 41


CCSU19
CCSU17
CCSU18
CCSU17/L1
CCSU16
CCSU14
CCSU12
CCSU3
SNOWY MOUNTAINS HIGHWAY
LYNCHS GULLY
CCSU5
CCSU15
CCSU4
CCSU1/L1
CCSU1/L2
CCSU1/L3
CCSU1
CCSU6
CCSU13
CCSU7
CCSU20
COOKS GAP RIVULET
CCSU8
CCSU12
CCSU9
CCSU10
CCSU11
CCSU11/L1
Legend
AHIMS
Contour - 10m
Hydrology
Road/Track
Survey Unit
EIS Disturbance Footprint
BATLOW
TALBINGO
CAPTAINS FLAT
TUMBARUMBA
ADAMINABY
KHANCOBAN
COOMA
1:20,000
Date: 9/09/2019
0 215 430 860
N
Metres
Imagery: © Snowy Hydro - Snowy 2.0 2018
Coordinate System: GDA 1994 MGA Zone 55
New South Wales
ARCHAEOLOGY

ANNEXURE 4 EXCAVATION DATA

Lobs Hole Ravine
Survey Unit: 3
Test Transect: 1
Description: The transect is orientated east/west approximately 15 metres south of the creek and between two parallel informal vehicle tracks; six Test Squares were excavated. The east end is c. 15 metres south and adjacent to an old bridge crossing. The ground is covered with a consistent cover of grass and four saplings occur on the northern extent. The ground surface is gently undulating possibly from previous mechanical grading. Two holes on the surface are possibly burrows. The area to the north of the transect is used for modern camping. An old concrete and brick feature (H#), possibly a ?SMA hearth, is located c. 5 metres north between Squares 4 and 5 at the west end of the transect. A sparse scatter of stone artefacts area is visible in ground exposures in the adjacent vehicle tracks.

The excavation has revealed a generally disturbed context. The earth is heavily bioturbated. Burrows (consistent with rabbit activity) were evident in Squares 2, 4 and 6. Cicada and ant activity is extensive, with cicadas developing vertical burrows and, ants moving along horizontal planes. A small amount of mortar was found in Square 5, possibly associated with a historic concrete and brick feature, c. 5 metres to the north. Squares 5 and 6 had mixed and disturbed recompacted earth in the top 30 cm. The ground below 30cm appeared to be an original lower context, bleached and compacted horizon. These observations suggest previous erosion or mechanical grading of original upper deposits and redepositing of more recent sediments on older truncated horizons. The horizontal ant activity seemed to be following the interface between the upper redeposited earth and the lower compacted horizon.

Square locations:

Square #	Easting	Northing
1	627700	6038077
2	627699	6038081
3	627689	6038082
4	627688	6038085
5	627684	6038088
6	627677	6038089

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1a: 0-5	Medium grey brown compacted silty loam; becomes drier and paler with depth
Spit 1b: 5-10	Medium grey brown compacted silty loam; lighter grey brown slightly gravelly grey brown silty loam with depth
Spit 2: 10-20	Compacted light yellow brown slightly gravelly mottled silty soil
Spit 3: 20-30	Highly compacted light-yellow brown gravelly pebbly mottled silt; highly compacted light-yellow brown very pebbly cobbly silt [combination of more angular fragments and waterworn pieces]
Spit 4: 30-40	Highly compacted light-yellow brown pebbly mottled silt; highly compacted light-yellow brown pebbly mottled silt with reduced pebble content

Square	Stratigraphic Log
Square 2	
Spit 1: 0-10	Medium grey brown compacted silty loam; very small pebble content and sparse charcoal noted in southwest corner
Spit 2: 10-20	Medium grey brown compacted silty loam; lighter grey brown slightly gravelly grey brown silty loam with depth
Spit 3: 20-30	Compacted light yellow brown slightly gravelly mottled silty soil
Spit 4: 30-38	Highly compacted light yellow brown pebbly mottled silt
Square 3a	Square 3: a lens of pebbles and cobbles of assorted sizes occurs at an approximate depth of 20cm down to 30cm (?a flood deposit). Artefact distribution begins below this layer.
Spit 1: 0-10	Medium brown compacted silty loam; becoming a lighter grey brown slightly gravelly grey brown silty loam with depth; many fine grass rootlets; sparse charcoal; small tree roots running vertically through spit 1 and into spit 2
Spit 2: 10-20	Compacted lighter yellow brown slightly gravelly mottled silty soil; some bioturbation
Spit 3: 20-30	Highly compacted light yellow brown gravelly pebbly mottled silt [combination of more angular fragments and waterworn pieces]; occasional rounded pebbles ≤ 80mm; compaction increasing with depth
Spit 4: 30-40	Highly compacted light yellow brown pebbly mottled silt; highly compacted light yellow brown pebbly mottled silt with reduced pebble content
Spit 5: 40-50	Slightly darker yellow brown pebbly mottled silt; compaction decreasing; many small rounded gravels with the occasional flat pebble ≤ 20mm
Square 3b	Located directly to the south of 3a
Spit 1: 0-10	Medium grey brown compacted silty loam; becoming a lighter grey brown slightly gravelly grey brown silty loam with depth; some bioturbation
Spit 2: 10-20	Compacted lighter yellow brown slightly gravelly mottled silty soil increased gravel content at base [combination of more angular fragments and waterworn pieces]
Spit 3: 20-30	Highly compacted light yellow brown gravelly pebbly mottled silt
Spit 4: 30-40	Highly compacted light yellow brown gravelly pebbly mottled silt occasional rounded pebbles ≤ 50mm; compaction increasing with depth
Spit 5: 40-50	Slightly darker yellow brown pebbly mottled silt; compaction decreasing; many small rounded gravels with the occasional flat pebble ≤ 20mm
Square 4	
Spit 1: 0-10	Light to medium grey brown slightly compacted mottled silty loam; occasional charcoal
Spit 2: 10-20	Compacted light grey brown slightly gravelly mottled silty soil; small tree roots appearing at base
Spit 3: 20-30	Compacted light yellowing grey brown mottle gravelly silt; some rabbit burrow/root intrusion along western wall with a darker soil content
Spit 4: 30-40	Compact light yellow brown gravelly silt with pale mottling

Square	Stratigraphic Log
Spit 5: 40-50	Highly compacted light yellow brown gravelly silt; becoming a light yellow brown slightly pebbly gravelly silt with slightly less compaction
Square 5	Square 5 and 6 appears to cut disturbed soil (at least for first 20cm) as mixed and compacted
Spit 1: 0-10	Medium grey brown weakly compacted silty loam; becoming a mixed lighter grey brown slightly gravelly grey brown silty loam with depth; bioturbation
Spit 2: 10-20	Compacted light grey brown slightly gravelly mottled silty soil; small tree roots appearing at base
Spit 3: 20-30	Compacted light grey brown slightly gravelly mottled silty soil; small tree roots appearing at base
Spit 4: 30-36	Highly compacted light yellow brown mottled silt; large rock appearing in northwest corner
Square 6	Square 5 and 6 appears to cut disturbed soil (at least for first 20cm) as mixed and compacted
Spit 1: 0-10	Compacted medium grey brown silty soil
Spit 2: 10-20	Compacted 'clumpy/pellety' light yellow brown mottled silty soil
Spit 3: 20-30	Highly compacted lightning mottled light yellow brown 'clumpy' silt; heavy bioturbation (ants and cicadas) throughout last 15cm



Looking 270° towards Transect 1



West section of Square 3b showing pebble lens

Artefact Retrieval:

Square 1	Square 2	Square 3a	Square 3b	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0
Spit 3: 0	Spit 3: 0	Spit 3: 3	Spit 3: 1	Spit 3: 8	Spit 3: 0	Spit 3: 2
Spit 4: 0	Spit 4: 1	Spit 4: 2	Spit 4: 4	Spit 4: 3	Spit 4: 2	
		Spit 5: 0	Spit 5: 0	Spit 5: 0		

Visual representation of artefact retrieval:

Sq 1
-

Sq 2
1

Sq 3	Sq 3b
5	5

Sq 4
11

Sq 5
2

Sq 6
2

Discussion: 26 artefacts. The horizontal artefact distribution reflects a relatively consistent scatter across the test area. Artefacts were found exclusively in lower spits (Sps 3 & 4), but none were retrieved from Spit 5. It is considered possible, if not

likely, that the original upper levels may have been removed by flood events or human actions. The extant upper levels may be post settlement alluvial deposits and this would be consistent with the absence of artefacts in these layers.

Lobs Hole Ravine
Survey Unit: 3
Test Transect:2
Description: The transect is orientated east/west approximately 20 metres south of the creek and three metres south of an informal vehicle track. Five Test Squares were excavated in a short transect between thick vegetation at the east end and obvious disturbance at the west end.

The ground is covered with a consistent cover of grass, tussocks and scattered saplings. The ground surface is gently undulating. The site has been used for modern camping; a circular arrangement of stones adjacent (south) to Square 2 appears to be a modern hearth. A sparse scatter of stone artefacts is visible in the ground exposures of the adjacent vehicle track. A small excavation is present c. 5 metres south of Square 3. It measures c. 1.5 x 0.5 x 0.4 (deep); its nature and function is unknown but given its clear form, is likely to be modern.

The excavation revealed a relatively uniform soil context, comparable to that encountered in Transect 1.

Square locations:

Square #	Easting	Northing
1	627742	6038047
2	627743	6038049
3	627747	6038042
4	627753	6038039
5	627756	6038036

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Medium grey brown sandy silty loam; lighter grey brown slightly gravelly grey brown silty loam appearing at base of spit 1; small tree root [25mm diameter] in northeast corner of square continues to base
Spit 2: 10-20	A gravel lens [approx. 50mm thick] extends from 10 to 15cm petering out to a small amount of flat gravels at base; soil becomes a compact light yellow brown gravelly mottled silty soil
Spit 3: 20-30	Highly compacted light yellow brown mottled silt with small amount flat pebbles; some bioturbation and occasional tree root continues
Spit 4: 30-40	Highly compacted light yellow brown pebbly mottled silt; highly compacted light yellow brown pebbly mottled silt with reduced pebble content; occasional large flat pebble ≤ 50mm
Square 2	Square 2b; 2c and 2d are located directly adjacent to Square 2

Square	Stratigraphic Log
Spit 1: 0-10	Medium-light grey brown fine gravelly silty soil. Small tree roots and cicada burrows; increased compacted gravel content at approximately 6-7cm; continues to base
Spit 2: 10-20	Grey brown compacted very gravelly silt to 4cm then abrupt transition to a compacted, comparatively clean light brown silt; tabular cobble 25 x 20cm lying flat at base on eastern side of pit
Spit 3: 20-30	Highly compacted light brown silt; clean, very occasional small tabular smooth pebbles.
Spit 4: 30-40	Light brown/yellow brown highly compacted gravelly silt; very occasional smooth pebble/cobble
Spit 5: 40-50	Highly compacted light brown/yellow brown slightly gravelly silt; very occasional pebbles throughout and at base
Square 2b	Located directly east of Square 2
Spit 1: 0-10	Medium-light grey brown fine gravelly silty soil; transitions to a compacted fine gravelly grey brown silt/very gravelly silt
Spit 2: 10-20	Grey brown compacted very gravelly silt giving onto comparatively clean light brown silt; plentiful small tree roots growing flat along interface and within gravel layer
Spit 3: 20-30	Highly compacted light brown silt; clean, very occasional small tabular smooth pebbles
Square 2c	Located directly north of Square 2
Spit 1: 0-10	Medium-light grey brown fine gravelly silty soil; gravel content increases with depth
Spit 2: 10-20	Grey brown compacted very gravelly silt giving onto comparatively clean light brown silt
Spit 3: 20-30	Highly compacted slightly pebbly light brown silt
Square 2d	Located directly north of Square 2b and directly east of Square 2c
Spit 1: 0-10	Medium grey brown gravelly to very gravelly silty soil; plentiful small tree roots and cicada burrows
Spit 2: 10-20	Medium grey brown compacted very gravelly silt giving onto comparatively clean light brown silt; very occasional tabular waterworn pebbles
Spit 3: 20-30	Highly compacted slightly pebbly light brown silt
Square 3	
Spit 1: 0-10	Medium grey brown fine gravelly silty soil; gravel content increases with depth
Spit 2: 10-20	Grey brown compacted gravelly silt; plentiful small tree roots
Spit 3: 20-30	Highly compacted light brown silt; clean, very occasional pebble; root content decreasing
Spit 4: 30-40	Light brown/yellow brown highly compacted silt; very small amount of gravel content
Square 4	
Spit 1: 0-10	Medium-light grey brown fine gravelly silty soil; small tree root
Spit 2: 10-20	Medium grey brown fine gravelly silty soil; gravel content increases with depth
Spit 3: 20-30	Medium grey brown compacted gravelly silt giving onto comparatively clean light brown silt
Spit 4: 30-40	Light brown/yellow brown highly compacted silt; very small amount of gravel content
Square 5	

Square	Stratigraphic Log
Spit 1: 0-10	Medium-light grey brown fine gravelly silty soil; gravel content increases with depth; many grass rootlets
Spit 2: 10-20	Grey brown compacted gravelly silt; some bioturbation
Spit 3: 20-30	Compacted light brown silt; clean, very occasional pebble; root content decreasing
Spit 4: 30-40	Highly compacted light brown silt; clean, very occasional pebble
Spit 5: 40-46	Highly compacted light brown silt; clean

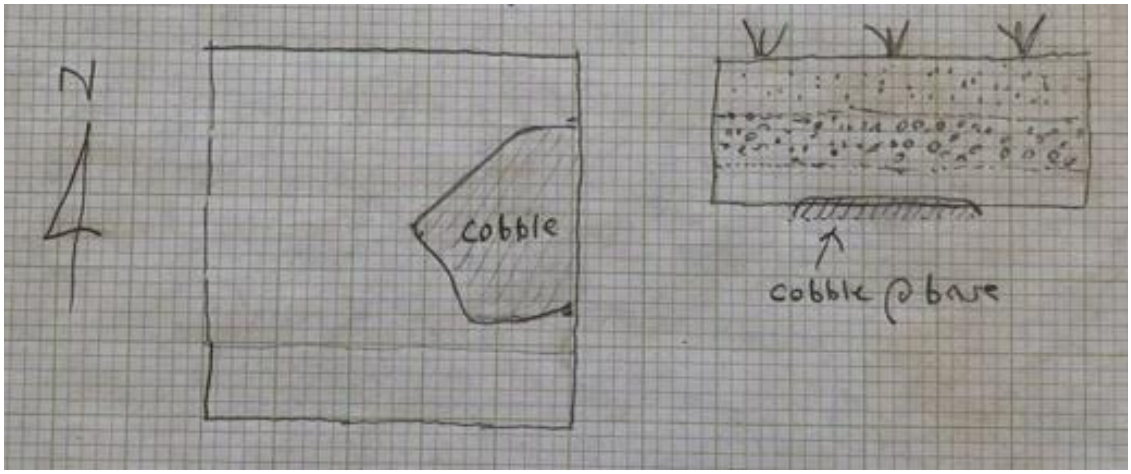


Looking 90° along Transect 2

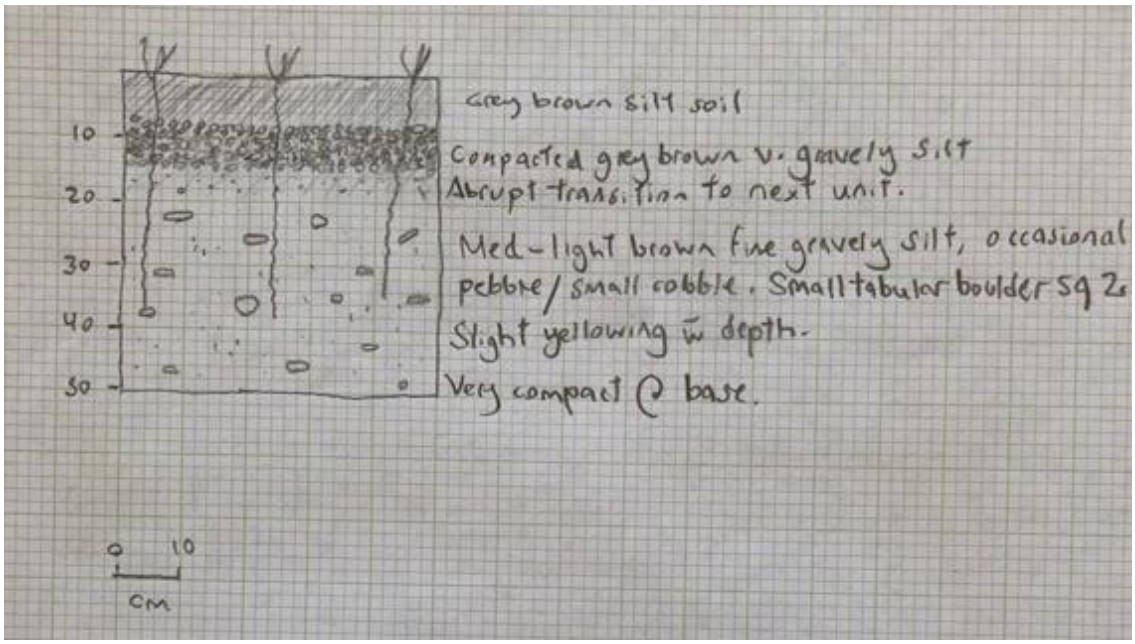


South section of Square 2

Schematic representation of soil profile Survey Unit 3 Transect 2 Square 2 North Section:



Schematic representation of soil profile Survey Unit 3 Transect 2 Square 2 uniform soil profile through 2, 2b,2c and 2d:



pH levels:
0-10 = 5.5
10-20 = 5.5
20-30 = 6
30-40 = 6
40-50 = 6

Artefact Retrieval:

Square 1	Square 2a	Square 2b	Square 2c	Square 2d	Square 3	Square 4	Square 5
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 1	Spit 2: 2	Spit 2: 5	Spit 2: 1	Spit 2: 6	Spit 2: 3	Spit 2: 0	Spit 2: 0
Spit 3: 1	Spit 3: 27	Spit 3: 9	Spit 3: 5	Spit 3: 6	Spit 3:3	Spit 3: 2	Spit 3: 0
Spit 4: 2	Spit 4: 2	Spit 4: 0	Spit 4: 0	Spit 4: 0	Spit 4: 9	Spit 4: 9	Spit 4: 8
						Spit 5: 0	

Visual representation of artefact retrieval:

Sq 1
4

Sq 2	Sq 2b	Sq 2c	Sq 2d	Sq 3
31	14	6	12	15

Sq 4
11

Sq 5
8

Discussion: This transect had 101 artefacts. Artefacts were found exclusively in lower spits (Sps 2, 3 & 4), but none were retrieved from Spit 5. It is considered possible, if not likely, that the original upper levels may have been removed by flood events or human actions. The extant upper levels may be post settlement alluvial deposits and this would be consistent with the absence of artefacts in these layers.

Lobs Hole Ravine

Survey Unit: 3
Test Transect:3
Description: The transect is orientated east/west five metres south of Transect 2. Two Test Squares were excavated. Immediately to the south (2.5 - 3m), the boundary of the flat is demarcated by a steep north facing bank. At c. 5m above the flat a ?road/water race extends east/west.

Square 1 adjacent to the steep bank appears to have an original A_1 horizon buried under what is assumed to be colluvial sediments and gravels likely to have moved downslope from the adjacent bank. This is notable given that elsewhere, A_1 horizons are absent.

Square locations:

Square #	Easting	Northing
1	627740	6038042
2	627737	6038041

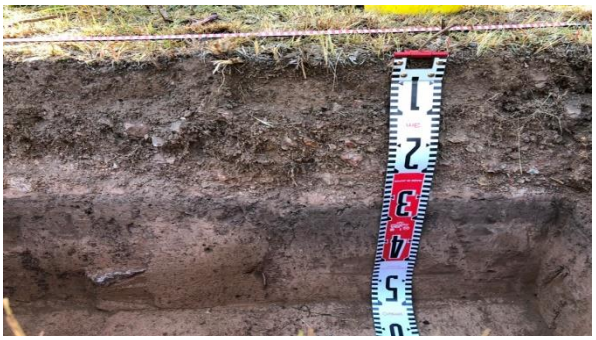
Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Medium brown fine gravelly silty loam to 8cm then abrupt transition to a loose/non compact angular gravel/pebble rubble layer with a very dense rootlet content
Spit 2: 10-20	Coarse gravel/pebble layer continues interspersed with medium brown fine gravelly silty soil; gravels/pebbles range in size from 2mm – 70mm; abrupt change at 18cm becoming a very gravelly grey brown silt
Spit 3: 20-30	At 23cm another abrupt change to a compacted dark grey-brown fine silty soil; gradual change to a uniform light yellow brown compacted slightly gravelly sandy silty loam; small tree roots at base
Spit 4: 30-40	Highly compacted light yellow brown mottled silt with reduced gravel content; some bioturbation continuing
Spit 5: 40-50	Continues as a highly compacted uniform light yellow brown mottled sandy silt with reduced gravel content
Spit 6: 50-65/70	Medium light yellow brown compacted very fine sandy silt; very occasional pebble; mottled at base mainly due to cut gravel content; very fine rootlet penetration to upper component of spit, but not common
Square 1b	Located directly adjacent and north of Square 1a
Spit 1: 0-10	Medium brown weakly compacted silty loam; becoming a mixed lighter grey brown slightly gravelly grey brown silty loam with depth; bioturbation
Spit 2: 10-20	Coarse gravel/pebble layer continues interspersed with medium brown fine gravelly silty soil; decrease in size of gravels/pebbles; sparse charcoal fragments; bioturbation; abrupt change at 18cm becoming a very gravelly grey brown silt; dark grey-brown very fine sandy silty loam appears along west wall at base of spit 2

Square	Stratigraphic Log
Spit 3: 20-30	Becomes a uniform compacted dark grey-brown very fine sandy silty soil; gradual change to a uniform light yellow brown compacted slightly gravelly sandy silty loam; minimal gravels
Spit 4: 30-40	Continues as a highly compacted uniform light yellow brown mottled sandy silt with reduced gravel content
Spit 5: 40-50	Continues as a highly compacted uniform light yellow brown mottled sandy silt with reduced gravel content; small tree root running horizontal across square at base
Square 2a	Located 5m west of Square 1
Spit 1: 0-10	Medium brown fine gravelly silty loam to 8cm then transition to a loose/non-compacted angular gravel/pebble rubble layer with a very dense rootlet content; cluster of cobble rocks dispersed throughout spit extending beyond base
Spit 2: 10-20	Change at 13-15cm to a dark grey brown compacted very gravelly sandy silt giving onto comparatively clean light brown silt at base; gravel content decreasing with depth
Spit 3: 20-30	Highly compacted light brown sandy silt; uniform; occasional small gravels; bioturbation
Spit 4: 30-40	Continues as above
Square 2b	
Spit 1: 0-10	Medium brown fine gravelly silty loam to 5cm then transition to a loose/non compact angular gravel/pebble rubble layer with a very dense rootlet content; occasional sub-rounded quartz pebble
Spit 2: 10-20	Rubble layer continues to 15cm then abrupt transition to grey brown compacted very gravelly sandy silt giving onto comparatively clean light brown silt
Spit 3: 20-30	Highly compacted light brown sandy silt; uniform; occasional small rounded pebble; minimal gravels
Spit 4: 30-40	Continues as above; uniform colour and texture; very compacted light brown sandy silt

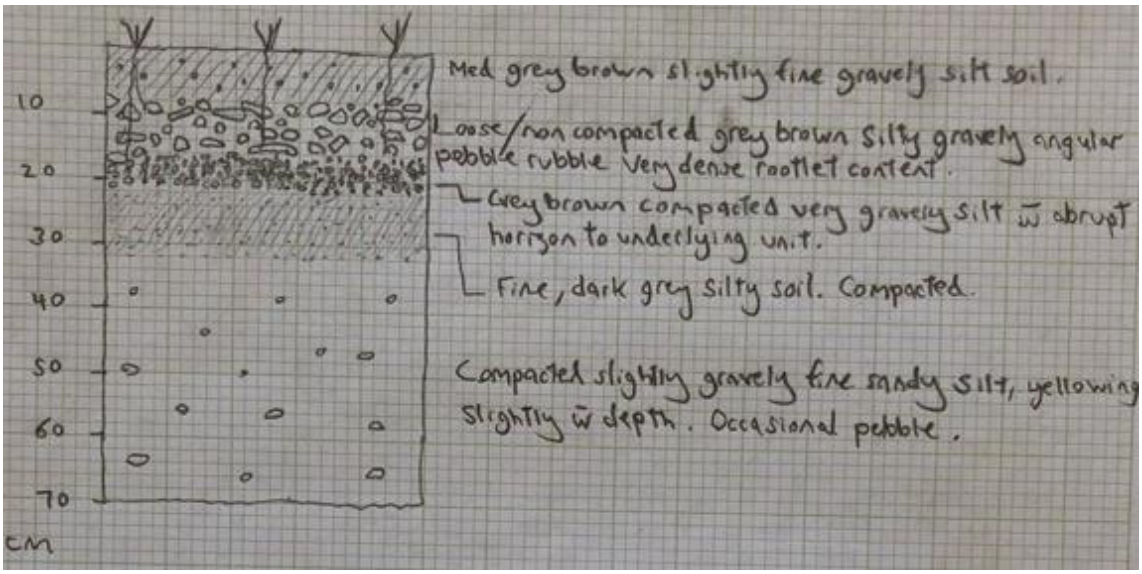


Looking 90° towards Transect 2 and Transect 3. Transect 3 offset to the south of Transect 2



South section of Square 1

Schematic representation of soil profile Survey Unit 3 Transect 3 Square 1:



pH levels:
0-10 = 5.5
10-20 = 6
20-30 = 6
30-40 = 5.5
40-50 = 5.5
50-60 = 6
60-70 = 6

Artefact Retrieval:

Square 1	Square 1b	Square 2a	Square 2b
Spit 1: 1	Spit 1:0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0
Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0
Spit 4: 0	Spit 4: 0	Spit 4: 1	Spit 4: 2

Visual representation of artefact retrieval:

Sq 1a
1

Sq 1b
-

Sq 2a
1

Sq 2b
2

Discussion: This transect had 4 artefacts. The low artefact density in this test area may be due to relatively recent disturbances from the construction of a possible water-race located on the steep slope c.5m above Square 1. The extant upper levels may be post settlement colluvial deposits and this would be consistent with the absence of artefacts in these layers.

Lobs Hole Ravine
Survey Unit: 3
Test Transect:4
Description: The transect is orientated north-northwest/south-southeast approximately 5 metres south of the creek and three metres north of the road. Five

Test Squares (and an additional test square adjacent to Square 2) were excavated in a short transect between thick vegetation at the north end and obvious disturbance at the south end. Immediately to the east a trench has been excavated from the road to the creek.

The ground is covered with a consistent cover of grass, tussocks and scattered saplings. The ground surface is gently undulating. The site has been used for modern camping with modern hearths present.

Square locations:

Square #	Easting	Northing
1	627598	6038117
2	627598	6038118
3	627603	6038112
4	627604	6038108
5	627608	6038099

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Medium grey brown silty soil gradually changing to a light grey brown small pebbly fine sandy silt
Spit 2: 10-20	Light grey brown compacted pebbly fine sandy silt changing to a very pebbly (small to medium size) yellowing slightly light grey brown fine sandy silt.
Spit 3: 20-30	Very pebbly yellowish light grey brown fine sandy silt giving abruptly onto lightly compacted slightly gravelly light yellow brown fine sandy silt
Spit 4: 30-40	Highly compacted slightly gravelly yellow brown fine sandy silt; small tabular boulder embedded at base of spit
Spit 5: 40-50	Compacted slightly gravelly yellow brown fine sandy silt becoming a greying compacted pebbly fine sandy silt; packed medium to large river pebbles appearing towards base, particularly in west corner where tabular small boulder extends through spit and occurs in conjunction with plentiful river pebbles
Square 2	
Spit 1: 0-10	Medium brown silty soil changing to a paler yellow brown gravelly fine sandy silt
Spit 2: 10-20	Compacted yellow brown very gravelly/small pebbly fine sandy silt; some medium sized waterworn pebbles appearing at c.15cm and continue to base
Spit 3: 20-30	Very gravelly/pebbly greying yellow brown fine sandy silt transitioning to a soft grey brown very gravelly fine sandy silt; mostly small pebbles up to 10mm size; lots tabular, waterworn pebbles; rootlets and small tree roots throughout
Spit 4: 30-40	Rapid transition to firmer grey brown fine gravelly fine sandy silt; very occasional small pebble
Square 2b	Located directly southwest of Square 2
Spit 1: 0-10	Medium brown silty soil changing to a paler yellow brown gravelly fine sandy silt

Square	Stratigraphic Log
Spit 2: 10-20	Compacted yellow brown very gravelly/small pebbly fine sandy silt; some medium sized waterworn pebbles towards base
Spit 3: 20-30	Very gravelly/pebbly greying yellow brown fine sandy silt transitioning to a soft grey brown very gravelly fine sandy silt; mostly small pebbles up to 10mm size; lots tabular, waterworn, has the appearance of an alluvial wash zone; plentiful rootlets and root penetration; one small boulder embedded through spit to base
Spit 4: 30-40	Rapid transition to firmer grey brown fine gravelly fine sandy silt; very occasional small pebble
Square 3	
Spit 1: 0-10	Medium brown silty soil changing to a paler yellow brown gravelly fine sandy silt; angular to sub-angular small gravels; occasional charcoal fragment appearing at base of spit
Spit 2: 10-20	Compact light brown gravelly very fine sandy silt; some bioturbation; occasional flat pebble
Spit 3: 20-30	As above; uniform
Spit 4: 30-40	transition to firmer grey brown fine gravelly fine sandy silt; very occasional small pebble; bioturbation continues
Square 4	
Spit 1: 0-10	Medium brown silty soil changing to a paler yellow brown gravelly fine sandy silt
Spit 2: 10-20	Compacted yellow brown very gravelly/small pebbly fine sandy silt; tree root in southeast corner
Spit 3: 20-30	Compacted yellow brown very gravelly/small pebbly fine sandy silt continues
Spit 4: 30-40	Highly compacted yellow brown very gravelly/small pebbly fine sandy silt
Square 5	
Spit 1: 0-10	Medium brown very fine sandy silty soil becoming a fine gravelly slightly coarser sandy silt
Spit 2: 10-20	Changing to a very compact paler yellow brown gravelly fine sandy silt; occasional small pebbles; tabular, waterworn appearance
Spit 3: 20-30	Continues as a very compact paler yellow brown gravelly fine sandy silt; occasional small pebbles; tabular, waterworn appearance; bioturbation
Spit 4: 30-40	As above

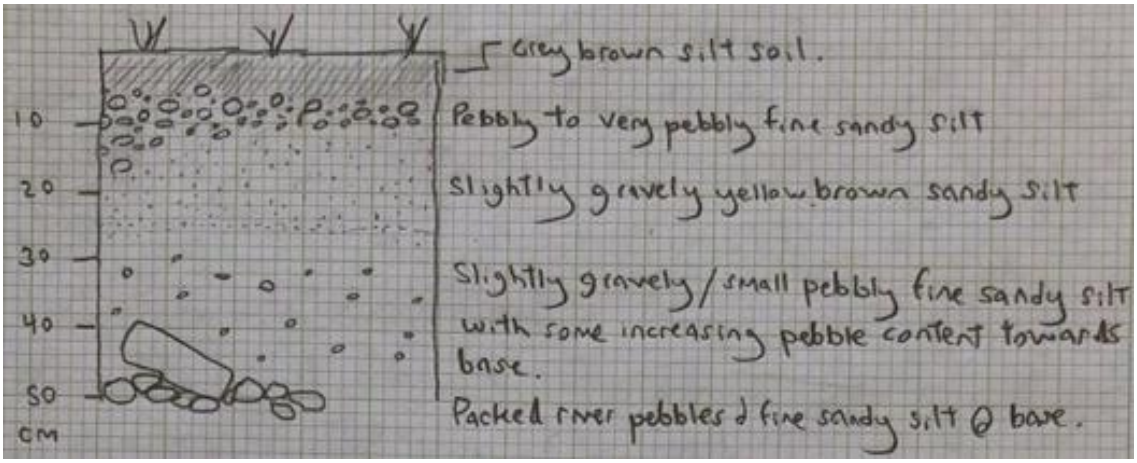


Looking 110° along Transect 4; note modern hearth in foreground



West northwest section of Square 1

Schematic representation of soil profile Survey Unit 3 Transect 4 Square 1 West Section:



pH levels:
0-10 = 5.5
10-20 = 5.5
20-30 = 5
30-40 = 5
40-50 = 5

Artefact Retrieval:

Square 1	Square 2	Square 2b	Square 3	Square 4	Square 5
Spit 1:	Spit 1:7	Spit 1:3	Spit 1:	Spit 1: 1	Spit 1:
Spit 2:	Spit 2: 3	Spit 2:	Spit 2:	Spit 2: 2	Spit 2:
Spit 3:	Spit 3:	Spit 3:	Spit 3:	Spit 3:	Spit 3:
Spit 4:	Spit 4:	Spit 4:	Spit 4: 3	Spit 4: 1	Spit 4:
Spit 5:					

Visual representation of artefact retrieval:

Sq 1

Sq 2	Sq 2b	Sq 3
10	3	3

Sq 4
4

Sq 5

Discussion: This transect had 20 artefacts. Squares 1 and 2 situated in the northwest and closest to the creek contained abundant small flat pebbles while the other squares did not. Square 1 had two separate deposits of these (the bottom of spit 1 and spit 3) while Square 2 has one single deposit. These are fluvial events could be modern and if so the artefacts at the top of Square 2 are likely to be redeposited in subsequent silty depositional events. Squares 3, 4 and 5 were relatively uniformly compacted silty sediments and devoid of artefacts except for Square 3 which had 2 artefacts in spit 4 and Square 4 had 1 in Spit 4. These may well be *in situ* in original lower profile context. It is concluded that Transect 4 is highly disturbed.

Lobs Hole Ravine
Survey Unit: 5
Test Transect:1

Description: The transect is orientated northeast/southwest and located on a relatively narrow [c. 50m] upper terrace flat. The main vehicle track travels through Survey Unit 5 and artefacts are visible along the existing track. Further unformed tracks and minor drainage lines traverse this landform. To the west of the test area lies a wide band of regrowth adjacent to the creek. The western extent this landform is highly disturbed from prior mining up the Lickhole Creek. The original Square 1 was expanded to 1sqm.

Square locations:

Square #	Easting	Northing
1	626782	6038369
2	626778	6038365
3	626773	6038361
4	626769	6038359
5	626766	6038355
6	626763	6038353

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Medium-light grey brown gravelly fine sandy silt; occasional gravel/pebble
Spit 2: 10-20	As above; increasing pebble content and compaction
Spit 3: 20-30	Highly compacted light brown silt; occasional waterworn pebble
Spit 4: 30-40	Highly compacted light brown silt; a change at base onto a bed of waterworn pebbles/cobbles in a silty gravel matrix
Square 1b	
Spit 1: 0-10	Medium-light grey brown gravelly fine sandy silt; frequent grass rootlets to 4cm then decreasing; occasional rounded pebble
Spit 2: 10-20	As above; increasing pebble content and compaction; ant bioturbation
Spit 3: 20-30	As above; increasing compaction
Spit 4: 30-40	Highly compacted light brown silt; a change at base onto a bed of waterworn pebbles/cobbles in a silty gravel matrix
Square 1c	
Spit 1: 0-10	Medium-light grey brown gravelly fine sandy silt; occasional gravel/pebble
Spit 2: 10-20	As above; increasing pebble content and compaction
Spit 3: 20-30	Highly compacted light brown silt; occasional waterworn pebble; tree roots
Spit 4: 30-40	Highly compacted light brown silt; occasional waterworn pebble
Square 1d	
Spit 1: 0-10	Medium-light grey brown gravelly fine sandy silt; occasional pebble
Spit 2: 10-20	As above; tree roots
Spit 3: 20-30	Highly compacted light brown silt; occasional waterworn pebble; increasing tree roots
Spit 4: 30-40	Highly compacted light brown silt; decreasing pebble content
Square 2	
Spit 1: 0-10	Medium-light grey brown gravelly fine sandy silt; rootlets and insect burrow penetration throughout

Square	Stratigraphic Log
Spit 2: 10-20	Compacted gravelly mottled medium-light grey brown fine sandy silt; bioturbation/rootlets throughout
Spit 3: 20-30	Compacted med-light grey brown gravelly fine sandy silt
Spit 4: 30-40	Compacted medium-light grey brown gravelly fine sandy silt; change to a very compacted very gravelly light brown silt giving onto waterworn pebble and cobble gravelly silt level at 40cm
Spit 5: 40-50	Pebble/cobble/small boulder bed with plentiful gravelly silt matrix
Spit 6: 50-65	Pebble/cobble/boulder bed with silty gravel matrix; alluvial waterworn gravels
Square 3	
Spit 1: 0-10	Light brown loamy silt; moderate compaction; occasional rounded and subangular pebbles
Spit 2: 10-20	As above; increasing pebble content and compaction
Spit 3: 20-30	Compacted medium-light grey brown gravelly fine sandy silt; change to a very compacted very gravelly light brown silt giving onto waterworn pebble and cobble gravelly silt at base
Square 4	
Spit 1: 0-10	Light brown loamy silt; abundant grass rootlets; soft to moderate compaction
Spit 2: 10-20	As above with increasing compaction
Spit 3: 20-30	Slightly gravelly light brown fine sandy silt; becomes very compacted at base
Spit 4: 30-35	Highly compacted light brown fine sandy silt
Square 5	
Spit 1: 0-10	Medium brown fine silty loam; dry; crumbly; medium compaction
Spit 2: 10-20	Gradual change at 15cm to a lighter brown fine silty loam
Spit 3: 20-30	Light brown fine silty loam; increasing compaction
Spit 4: 30-40	Brown silty loam; highly compacted
Square 6	
Spit 1: 0-10	Medium brown fine silty loam; dry; crumbly; medium compaction
Spit 2: 10-20	Continues as above
Spit 3: 20-30	Brown silty loam; becoming slightly lighter with depth; increasing compaction
Spit 4: 30-35	Brown silty loam; highly compacted



Looking 210° towards SU5 Transect 1



Northwest section of Square 2

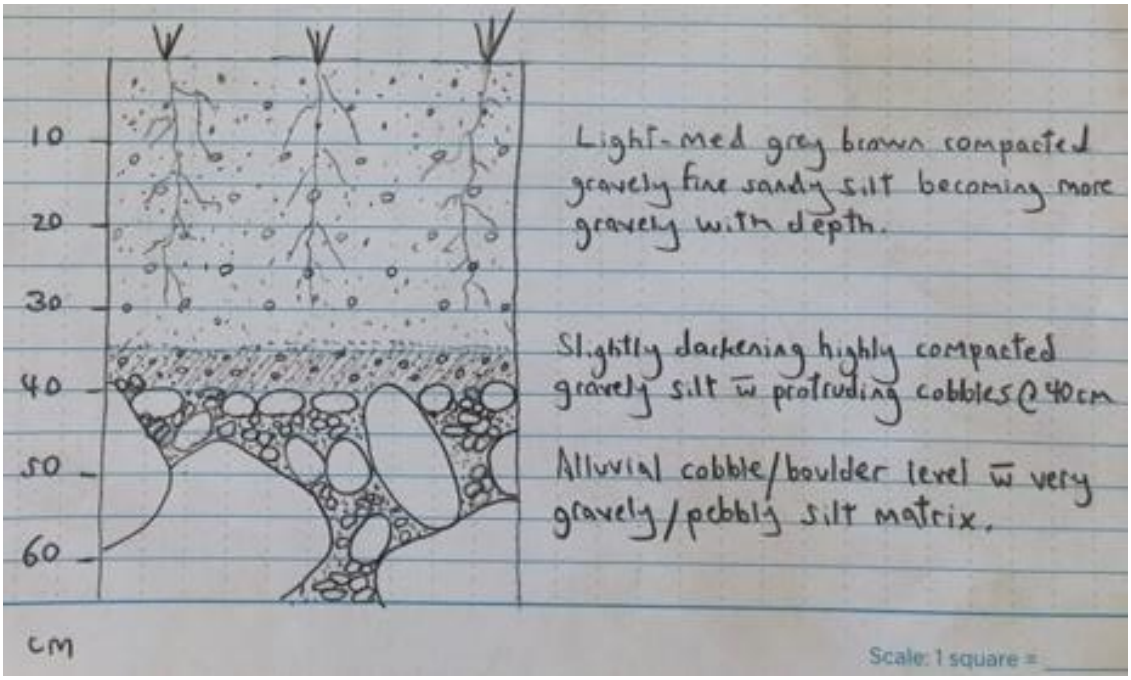


Square 1

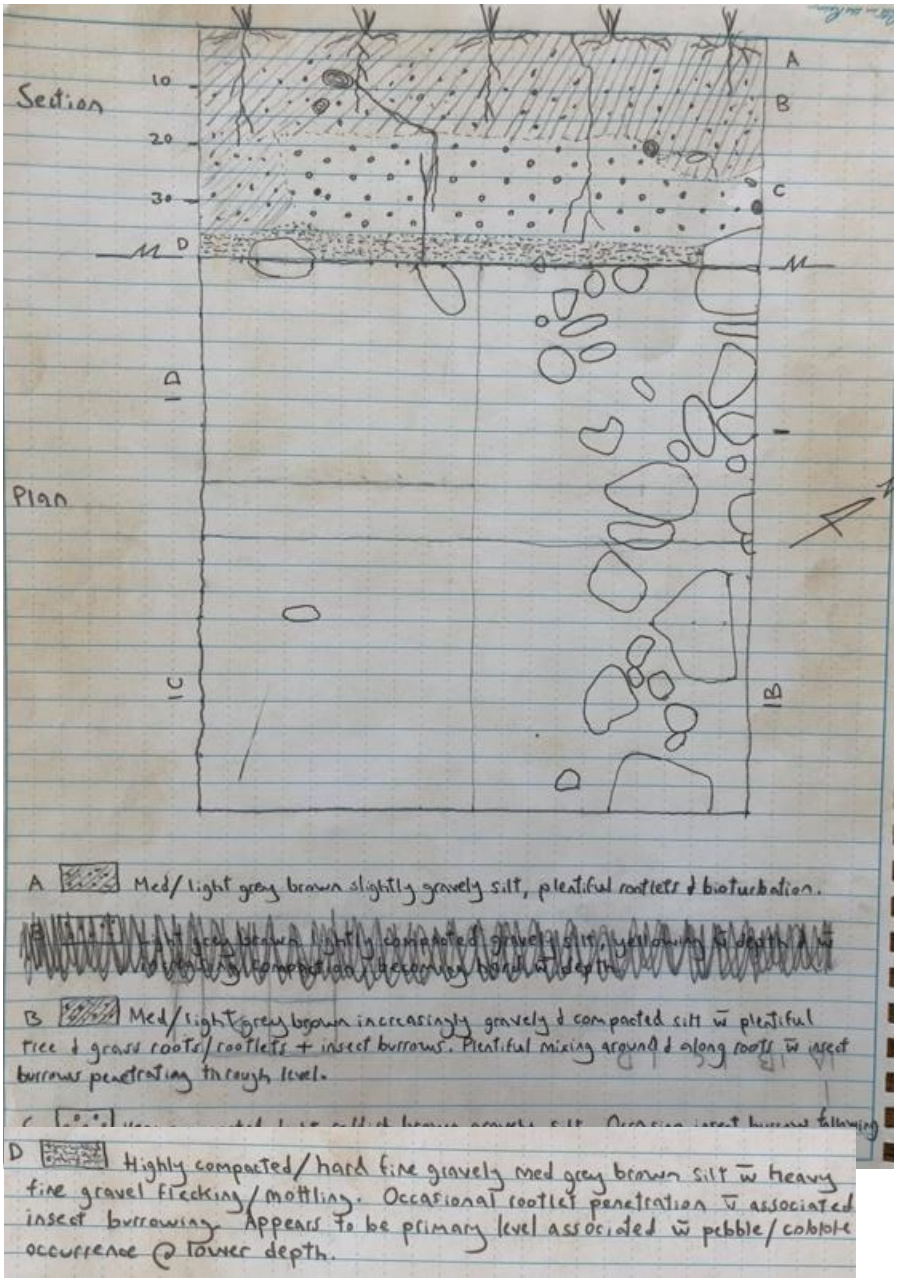


North-northeast section of Square 1

Schematic representation of soil profile Survey Unit 5 Transect 1 Square 2 West northwest Section:



Schematic representation of soil profile Survey Unit 5 Transect 1 Square 1, 1b, 1c and 1d: Section Overview:



Artefact Retrieval:

Square 1	Square 1b	Square 1c	Square 1d	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 8	Spit 1: 7	Spit 1: 4	Spit 1: 9	Spit 1: 13	Spit 1: 7	Spit 1: 2	Spit 1: 2	Spit 1: 1
Spit 2: 15	Spit 2: 4	Spit 2: 10	Spit 2:10	Spit 2: 9	Spit 2: 9	Spit 2: 2	Spit 2: 3	Spit 2: 0
Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 1	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0
Spit 4: 3	Spit 4: 0	Spit 4: 0	Spit 4: 0	Spit 4: 0	Spit 4: 0	Spit 4: 0	Spit 4: 0	Spit 4: 0
				Spit 5: 0				
				Spit 6: 0				

Visual representation of artefact retrieval:

Sq 1	Sq 1b	Sq 1c	Sq 1d

Sq 2		Sq 3		Sq 4		Sq 5		Sq 6

26	11	14	20		22		16		4		5		1

Discussion: This transect had 119 artefacts. All artefacts were retrieved from the upper spits besides Square 1 spit 4 which had 3 artefacts. The artefact distribution is consistent across the test area suggesting subsurface disturbance on this upper terrace landform is negligible.

Lobs Hole Ravine
Survey Unit: 5
Test Transect: 2
Description: The transect is situated on a flat narrow upper terrace landform and offset 20 metres to the northwest from SU5 Transect 1. Four squares were excavated along this transect. Squares 1 & 5 were not excavated due to these areas being extensively disturbed. The soils became indurated and highly compacted with depth.

Square locations:

Square #	Easting	Northing
2	626775	6038374
3	626770	6038371
4	626765	6038368
6	626756	6038362

Excavation details:

Square	Stratigraphic Log
Square 2	
Spit 1: 0-10	Light-medium grey brown compacted slightly pebbly [angular] silty loam
Spit 2: 10-20	Light-medium grey brown compacted slightly pebbly silty loam; becoming gravellier and yellowing slightly with depth
Spit 3: 20-30	Light yellow brown gravelly silt; highly compacted
Spit 4: 30-40	Light yellow brown gravelly silt; highly compacted to point of induration; occasional angular pebbles
Square 3	
Spit 1: 0-10	Light brown moderately compacted slightly pebbly [angular] silty loam
Spit 2: 10-20	Light-medium grey brown compacted slightly pebbly silty loam
Spit 3: 20-30	Gradual change to an indurated gravelly silt; one very large river cobble [30cm] probing from the eastern wall
Spit 4: 30-38	Highly compacted indurated gravelly silt
Square 4	
Spit 1: 0-10	Light-medium grey brown compacted slightly gravelly silty loam; plentiful grass rootlets throughout
Spit 2: 10-20	Light-medium grey brown slightly gravelly silt becoming more compacted with depth; yellowing slightly with greater gravel content and mottling at base
Spit 3: 20-30	Medium yellow brown gravelly silt becoming very compacted to stiff with depth; occasional rough pebble protruding at bas
Square 6	
Spit 1: 0-10	Grey brown slightly gravelly silty loam

Square	Stratigraphic Log
Spit 2: 10-20	Medium grey brown slightly gravelly silty loam becoming compacted and lightening to a slight yellowish grey brown; occasional small pebble at base; strong brown mottling by 20cm
Spit 3: 20-30	Compacted brown mottled gravelly medium yellow brown silty loam
Spit 4: 30-35	Medium yellow brown very compacted and gravelly silt; occasional pebble

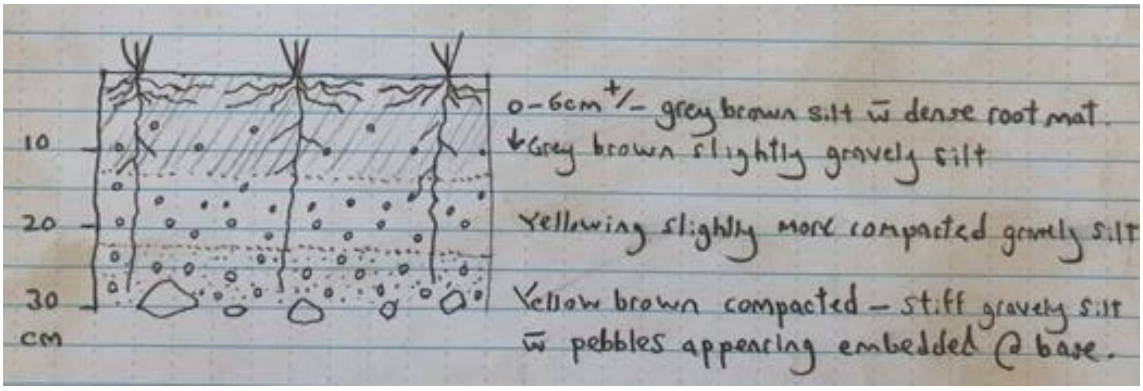


Looking 300° along SU5 Transect 2



North-northeast section of Square 4

Schematic representation of soil profile Survey Unit 5 Transect 2 Square 4 North section:



pH levels:
0-10 = 5
10-20 = 5
20-30 = 5

Artefact Retrieval:

Square 2	Square 3	Square 4	Square 6
Spit 1: 3	Spit 1: 11	Spit 1: 3	Spit 1: 1
Spit 2: 5	Spit 2: 14	Spit 2: 2	Spit 2: 2
Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0
Spit 4: 0	Spit 4: 0		Spit 4: 0

Visual representation of artefact retrieval:

Sq 2
8

Sq 3
25

Sq 4
5

Sq 6
3

Discussion: This transect had 41 artefacts.

Lobs Hole Ravine
Survey Unit: 5
Test Transect:3
Description: The transect is orientated 140/320°.

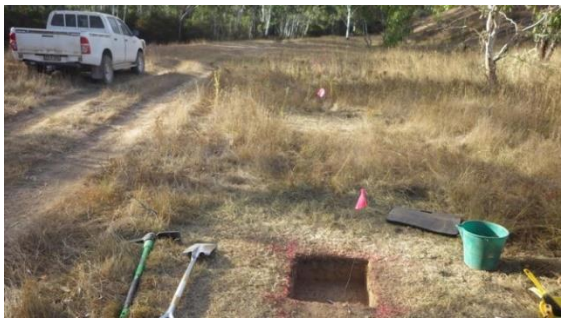
Square locations:

Square #	Easting	Northing
1	626776	6038359
2	626778	6038356
3	626772	6038352
4	626783	6038348
5	626788	6038348
6	626790	6038337

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Mixed brown silty loam; appears to be disturbed; grass rootlets
Spit 2: 10-20	Becoming a lighter brown compacted silty loam
Spit 3: 20-30	Highly compacted light brown slightly gravelly sandy silt; ant bioturbation
Square 2	
Spit 1: 0-10	Light/medium grey brown slightly gravelly silty loam; lightly compacted at base
Spit 2: 10-20	Grey brown slightly gravelly silty loam changing to a yellowing light brown gravelly compact loam; insect bioturbation and grass rootlet penetration
Spit 3: 20-30	Compacted light yellow gravelly silt
Square 3	Located adjacent to an old fence line
Spit 1: 0-10	Medium brown fine sandy silty loam; gradual change to light brown slightly gravelly sandy silt; occasional small flat tabular pebbles and sparse charcoal chunks
Spit 2: 10-20	Light orangey brown compacted sandy silt; some flat tabular gravels/pebbles; occasional charcoal fleck; bioturbation at base
Spit 3: 20-30	As above; bioturbation continues; charcoal ceases
Square 4	
Spit 1: 0-10	Light/medium grey brown slightly gravelly silty loam; plentiful rootlets
Spit 2: 10-20	Light medium grey brown [yellowing with depth] compacted slightly gravelly silt
Spit 3: 20-30	Light reddening yellow brown compacted gravelly silt; bioturbation from insects to base
Square 5	
Spit 1: 0-10	Light-medium yellowish grey brown silty loam; developing mild compaction with depth
Spit 2: 10-20	Medium/light yellowish grey brown slightly gravelly silt; compacted and mottled at base
Spit 3: 20-30	Medium/light yellowish grey brown slightly gravelly silt; insect bioturbation continues to base

Square	Stratigraphic Log
Square 6	
Spit 1: 0-10	Light-medium yellowish grey brown silty loam; developing mild compaction with depth
Spit 2: 10-20	Medium/light yellowish grey brown slightly gravelly silt; compacted and mottled at base
Spit 3: 20-30	Medium/light yellowish grey brown slightly gravelly silt; insect bioturbation continues to base



Looking 140° along SU5 Transect 3 from Square 1



Northwest section of Square 2



Overview of Square 6



Southwest section of Square 6

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 11	Spit 1: 9	Spit 1:	Spit 1:	Spit 1:	Spit 1:
Spit 2: 7	Spit 2: 12	Spit 2: 2	Spit 2:	Spit 2: 1	Spit 2: 2
Spit 3:	Spit 3:	Spit 3:	Spit 3:	Spit 3:	Spit 3:

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
18	21	2		1	2

Discussion: This transect had 44 artefacts. All artefacts were retrieved from the upper spits.

Lobs Hole Ravine

Survey Unit: 5
Test Transect: 4
Description: The transect is orientated 135°/315° and situated on a flat narrow [c.50m] upper terrace northeast of the main vehicle track. Square 2 was not excavated as the position was directly atop an historical feature. The original Square 3 was expanded to 1.5 sqm.

Square locations:

Square #	Easting	Northing
1	626783	6038368
3	626787	6038356
4	626790	6038354
5	626793	6038350
6	626799	6038343

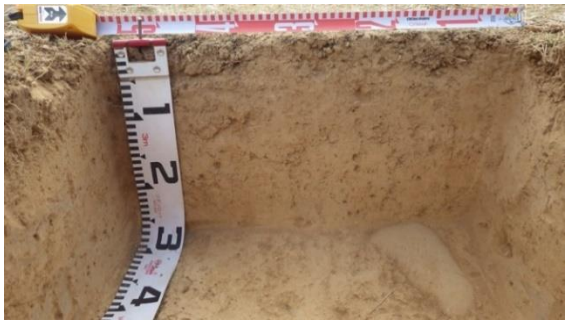
Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Light brown silty loam; soft compaction; moderate bioturbation; some small rounded pebbles
Spit 2: 10-20	Increasing compaction; light brown silty loam; decreasing bioturbation; some waterworn pebbles
Spit 3: 20-30	At 25cm a gradual change onto an almost indurated clayey silt layer; highly cemented; one large river cobble at base
Square 3	
Spit 1: 0-10	Light grey loamy silt; compacted; ant bioturbation; grass rootlets
Spit 2: 10-20	Light brown loamy silt; compacted; occasional river pebbles
Spit 3: 20-30	Increasing compaction; light brown loamy silt; large cobble at base
Spit 4: 30-40	Extremely hard compacted light brown silt; one large boulder in corner of pit
Square 3b	
Spit 1: 0-10	Light grey loamy silt; compacted; ant bioturbation; grass rootlets
Spit 2: 10-20	Light brown loamy silt; compacted; occasional river pebbles
Spit 3: 20-30	Highly compacted light brown loamy silt
Square 3c	
Spit 1: 0-10	Light grey loamy silt; compacted; ant bioturbation; grass rootlets
Spit 2: 10-20	Light brown loamy silt; compacted; occasional river pebbles
Spit 3: 20-30	Highly compacted light brown loamy silt
Square 3d	
Spit 1: 0-10	Light grey loamy silt; compacted; ant bioturbation; grass rootlets
Spit 2: 10-20	Light brown loamy silt; compacted; occasional river pebbles
Spit 3: 20-30	Highly compacted light brown loamy silt
Square 3e	
Spit 1: 0-10	Light grey loamy silt; compacted; ant bioturbation; grass rootlets
Spit 2: 10-20	Light brown loamy silt; compacted; occasional river pebbles
Square 3f	
Spit 1: 0-10	Light grey loamy silt; compacted; ant bioturbation; grass rootlets
Spit 2: 10-20	Light brown loamy silt; compacted; occasional river pebbles
Square 4	

Square	Stratigraphic Log
Spit 1: 0-10	Light brown loamy silt; moderate compaction; frequent small pebbles from 5cm; grass rootlets
Spit 2: 10-20	Abrupt change past the pebble layer which resumes to the light brown loamy silt with no pebbles; increasing compaction
Spit 3: 20-30	Highly compacted light brown loamy silt; large river cobble at base
Square 5	
Spit 1: 0-10	Light grey loamy silt; moderately compacted; grass rootlets
Spit 2: 10-20	Light brown loamy silt; compacted; occasional river pebbles
Spit 3: 20-30	Highly compacted light brown loamy silt; two large rive cobbles at base
Square 6	
Spit 1: 0-10	Light grey loamy silt; moderately compacted; grass rootlets
Spit 2: 10-20	Light brown loamy silt; compacted; occasional river pebbles
Spit 3: 20-30	Highly compacted light brown loamy silt; one large river cobble at base



Looking 135° towards Survey Unit 5 Transect 4



Northwest section of Square 4



Overview of Square 3



Northeast section of Square 3

Artefact Retrieval:

Square 1	Square 3	Square 3b	Square 3c	Square 3d	Square 3e	Square 3f	Square 4	Square 5	Square 6
Spit 1: 25	Spit 1: 0	Spit 1: 4	Spit 1: 25	Spit 1: 13	Spit 1: 15	Spit 1: 9	Spit 1: 6	Spit 1: 4	Spit 1: 9
Spit 2: 2	Spit 2: 6	Spit 2: 3	Spit 2: 6	Spit 2: 2	Spit 2: 6	Spit 2: 2	Spit 2: 4	Spit 2: 2	Spit 2: 7
Spit 3: 0	Spit 3: 1	Spit 3: 1	Spit 3: 1	Spit 3: 0			Spit 3: 0	Spit 3: 0	Spit 3: 1
	Spit 4: 0								

Visual representation of artefact retrieval:

Sq 1	Sq 3	Sq 3b	Sq 3c	Sq 3d	Sq 3e	Sq 3f	Sq 4	Sq 5	Sq 6
27	7	8	32	15	21	11	10	6	17

Discussion: This transect had 154 artefacts. Square 3 contained what appears to be a quartz knapping event. The original square was expanded to clarify this and to retrieve more of the event.

Lobs Hole Ravine
Survey Unit: 5
Test Transect:5
Description: The transect is orientated 140°/320°. This transect continues in a straight line from Transect 4 Square 6 in a southeast direction.

Square locations:

Square #	Easting	Northing
1	626798	6038338
2	626800	6038334
3	626802	6038328
4	626805	6038321
5	626806	6038316
6	626810	6038312

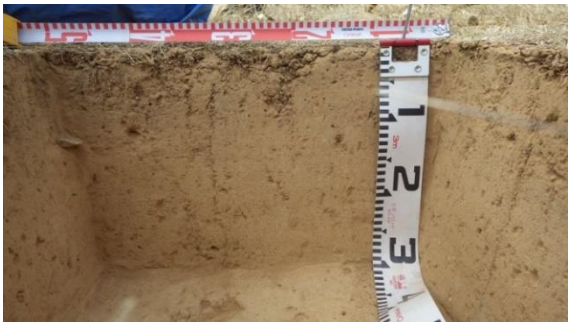
Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Light yellow brown compacted gravelly silt
Spit 2: 10-20	Light yellow brown compacted gravelly silt; lightening with depth and with decreasing gravel content
Spit 3: 20-30	Highly compacted light yellow brown silt; greatly reduced gravel content at base
Square 1b	Directly southeast of Square 1
Spit 1: 0-10	Light yellow brown compacted gravelly silt
Spit 2: 10-20	Light yellow brown compacted gravelly silt; lightening with depth and with decreasing gravel content
Square 2	
Spit 1: 0-10	Compacted light yellowish grey brown silt
Spit 2: 10-20	Compacted light yellowish grey brown gravelly silt; plentiful gravel and bioturbation mottling at base
Square 3	
Spit 1: 0-10	Highly compacted light yellow brown gravelly silt; occasional pebble-sized fragment; grass rootlets throughout
Spit 2: 10-20	Highly compacted light yellowish brown heavily gravelled mottled silt; insect burrows at base
Spit 3: 20-30	Highly compacted light yellow brown silt; greatly reduced gravel content at base; waterworn small boulder and cobble embedded at base
Square 4	
Spit 1: 0-10	Compacted light yellow brown gravelly silt; occasional waterworn pebble
Spit 2: 10-20	Compacted light yellow brown gravelly silt; bioturbation and grass roots at base
Spit 3: 20-30	Compacted light yellow brown gravelly silt; insect burrows
Square 5	

Square	Stratigraphic Log
Spit 1: 0-10	Light brown gravelly silt
Spit 2: 10-20	Light brown gravelly silt with increasing compaction
Spit 3: 20-30	As above; one large river cobble at base
Square 6	
Spit 1: 0-10	Light brown gravelly silt; occasional river pebble/cobble
Spit 2: 10-20	Light brown gravelly silt with increasing compaction; occasional river pebble/core but
Spit 3: 20-30	As above; cobbles and boulders to base and beyond



Looking 140° along SU5 Transect 5



Northeast section of Square 4

Artefact Retrieval:

Square 1	Square 1b	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 19	Spit 1: 25	Spit 1: 6	Spit 1: 17	Spit 1: 5	Spit 1: 8	Spit 1: 4
Spit 2: 20	Spit 2: 1	Spit 2: 13	Spit 2: 1	Spit 2: 0	Spit 2: 3	Spit 2: 3
Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0

Visual representation of artefact retrieval:

Sq 1	Sq1b
39	26

Sq 2
20

Sq 3
18

Sq 4
5

Sq 5
11

Sq 6
7

Discussion: This transect had 126 artefacts. All artefacts were retrieved from the upper spits.

Lobs Hole Ravine
Survey Unit: 6
Test Transect: 1
Description: The transect is oriented southeast – northwest, located on a north facing crest and has a gentle gradient. The crest has areas of regrowth Eucalypts, small clearings and a covering of native grasses and heath. There are cobbles in road [cobble origin possibly from an eroded conglomerate or old river bed - same as previous crest].

Square locations:

Square #	Easting	Northing
1	626496	6038509
2	626498	6038520
3	626498	6038531
4	626503	6038539

5	626503	6038546
6	626499	6038550

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Moderately compacted slightly gravelly light grey/pale grey loamy silt; rootlets and bioturbation
Spit 2: 10-20	Increasing gravel content and compaction with depth; occasional larger angular gravel piece
Spit 3: 20-30	Light/pale grey loamy silt; gravels also increasing in size; occasional river pebble; roots continue
Spit 4: 30-40	Gravel content forming an almost unbreakable level; uniform colour and texture to base; roots continue
Square 2	
Spit 1: 0-10	Pale grey gravelly fine silty loam; ant and tree root bioturbation
Spit 2: 10-20	Very gravelly pale grey silty loam; bioturbation continues; increasing compaction
Spit 3: 20-30	Highly compacted; as above
Spit 4: 30-40	Highly compacted pale grey gravelly silt with occasional pebble
Square 3	
Spit 1: 0-10	Light grey/whitish gravelly fine sandy silt; quickly becomes compacted
Spit 2: 10-20	Very light grey angular gravelly silt (compacted, breaks into a pancake flour with digging ie. powdery); tree rootlets and bioturbation
Spit 3: 20-30	Compacted, very gravelly pale grey silt becoming slightly darker (but not much) and with larger coarser gravel to small pebble size at base
Spit 4: 30-40	Compacted, very gravelly pale grey silt becoming pinkish with depth; larger angular pebbles occasional at base
Spit 5: 40-50	Highly compacted and very gravelly pinkish grey silt; changes to a light orange brown mottled very gravelly silt; hard deposit; lools like edge of regolith/saprolite zone
Square 3b	Located directly east of Square 3
Spit 1: 0-10	Light grey slightly gravelly silt
Spit 2: 10-20	Light grey gravelly silt
Spit 3: 20-30	Medium/light compacted angular gravelly silt
Square 4	
Spit 1: 0-10	Light grey brown slightly gravelly silty loam; tree roots; bioturbation
Spit 2: 10-20	As above
Spit 3: 20-30	Light grey gravelly silt; compaction increasing with depth
Spit 4: 30-40	Compacted light grey angular gravelly silt
Square 5	
Spit 1: 0-10	Moderately compacted slightly gravelly light grey/pale grey loamy silt; rootlets and bioturbation
Spit 2: 10-20	Increasing gravel content and compaction with depth; frequent grass rootlets and tree/shrub roots throughout
Spit 3: 20-30	As above; a diffused boundary change onto a brown/red clayey silt layer with frequent gravel inclusions

Square	Stratigraphic Log
Spit 4: 30-40	As above with increasing compaction
Square 6	
Spit 1: 0-10	Light grey highly compacted angular gravelly silt; yellowing at base; plentiful tree rootlets
Spit 2: 10-20	Light yellowing grey brown highly compacted angular gravelly/pebbly silt developing light pinkish brown hue with depth
Spit 3: 20-30	Light pinkish brown very gravelly compacted silt changing to a light brown highly compacted very gravelly silt; gravels angular up to large pebble/cobble size

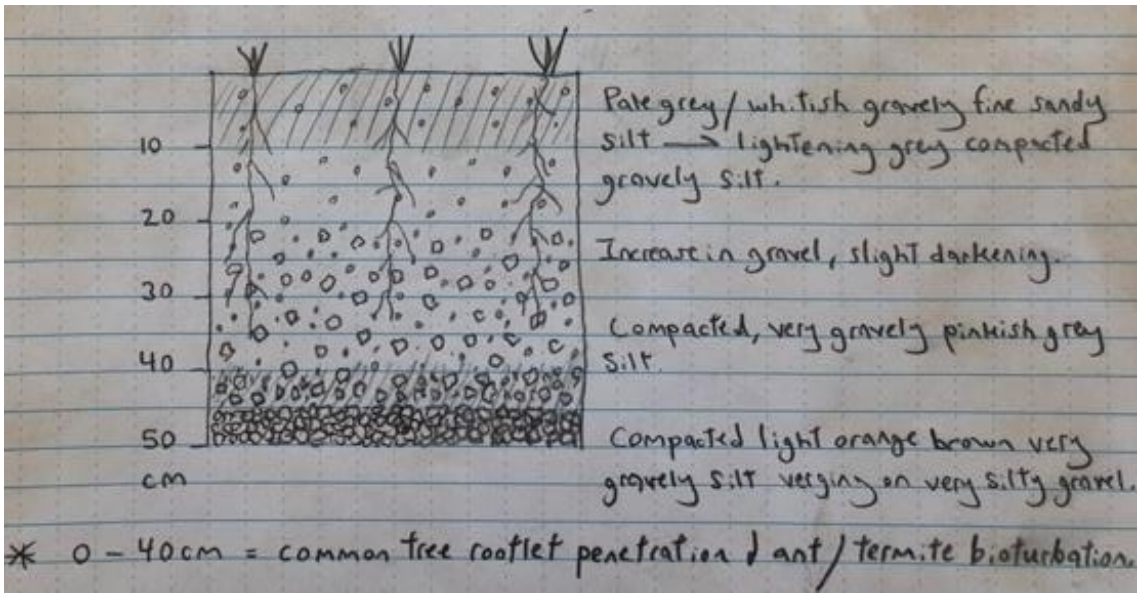


Looking SE along SU6 Transect 1



South section of Square 3

Schematic representation of soil profile Survey Unit 6 Transect 1 Square 3 West section:



Artefact Retrieval:

Square 1	Square 2	Square 3	Square 3b	Square 4	Square 5	Square 6
Spit 1: 23	Spit 1: 11	Spit 1: 10	Spit 1: 21	Spit 1: 6	Spit 1: 3	Spit 1: 12
Spit 2: 18	Spit 2: 13	Spit 2: 19	Spit 2: 18	Spit 2: 8	Spit 2: 2	Spit 2: 1
Spit 3: 4	Spit 3: 1	Spit 3: 2	Spit 3: 0	Spit 3: 1	Spit 3: 3	Spit 3: 0
Spit 4: 0	Spit 4: 2	Spit 4: 0		Spit 4: 0	Spit 4: 0	
		Spit 5: 0				

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 3b	Sq 4	Sq 5	Sq 6
45	27	31	39	15	8	13

Discussion: This transect had 178 artefacts. Artefacts were recovered from spit 1 through to spit 5 in Squares 1 to 4. An alluvial deposit appears in spit 4 to spit 5 and coincides with reduced artefact numbers. Squares 5 & 6 are situated in a low depression and have deposit consistent with waterlogging. Squares 5 & 6 were devoid of artefacts.

Lobs Hole Ravine
Survey Unit: 6
Test Transect: 2
Description: The transect is oriented northeast – southwest, located on same crest as SU6 transect 1. Transect 1 & 2 are a cross formation, intersecting at Transect 1 Square 3 sitting mid Squares 2 and 3 in Transect 2. Transect 2 Square 2 not excavated as adjacent to an historic feature. Squares 1 & 3 were individually expanded to 0.5sqm.

Square locations:

Square #	Easting	Northing
1	626500	6038535
3	626512	6038546
4	626514	6038547
5	626519	6038552

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Moderately compacted light brown loamy silt; rootlets and bioturbation
Spit 2: 10-20	Gradual change to a light/pale grey silty loam; increasing gravels
Spit 3: 20-30	As above
Spit 4: 30-38	At about 35cm there is a gradual change to a brown red clayey silt with high gravel content
Square 1b	
Spit 1: 0-10	Moderately compacted light brown loamy silt; rootlets and bioturbation
Spit 2: 10-20	Gradual change to a light/pale grey silty loam; increasing gravels
Spit 3: 20-30	As above
Spit 4: 30-35	At about 35cm there is a gradual change to a brown red clayey silt with high gravel content
Square 3	
Spit 1: 0-10	Very light grey gravelly silt; plentiful tree rootlets; loosely compacted
Spit 2: 10-20	Very compacted light grey gravelly silt; occasional pebbles
Spit 3: 20-30	As above; increasing compaction
Spit 4: 30-40	Gradual change to a brown red clayey silt with high gravel content
Square 3b	

Square	Stratigraphic Log
Spit 1: 0-10	Very light grey gravelly silt; plentiful tree rootlets; loosely compacted
Spit 2: 10-20	Very compacted light grey gravelly silt; occasional pebbles; tree roots
Spit 3: 20-30	Increasingly more compact and gravellier; becoming reddish brown silt verging on hard gravel/silt ad-mixture at c.25cm
Square 4	
Spit 1: 0-10	Very light grey gravelly silt; plentiful tree rootlets
Spit 2: 10-20	Very compacted light grey gravelly silt
Spit 3: 20-30	Looser, light pinkish grey very gravelly silt; some pebble sized clasts in gravel
Spit 4: 30-40	Increasingly more compact and gravellier; reddish brown silt verging on hard gravel/silt ad-mixture
Square 5	
Spit 1: 0-10	Very light grey gravelly silt; plentiful tree rootlets
Spit 2: 10-20	Very compacted light grey gravelly silt
Spit 3: 20-30	Gradual change to a brown red clayey silt with high gravel content



Looking xx along SU6 Transect 2 NEED PHOTO



Southwest section of Square 1

Artefact Retrieval:

Square 1	Square 1b	Square 3	Square 3b	Square 4	Square 5
Spit 1: 14	Spit 1: 12	Spit 1: 5	Spit 1: 4	Spit 1: 7	Spit 1: 3
Spit 2: 18	Spit 2: 10	Spit 2: 2	Spit 2: 4	Spit 2: 0	Spit 2: 2
Spit 3: 0	Spit 3: 2	Spit 3: 1	Spit 3: 0	Spit 3: 4	Spit 3: 0
Spit 4: 0	Spit 4: 0	Spit 4: 1		Spit 4: 0	

Visual representation of artefact retrieval:

Sq 1	Sq 1b	Sq 3	Sq 3b	Sq 4	Sq 5
32	24	9	8	11	5

Discussion: This transect had 89 artefacts.

Lobs Hole Ravine
Survey Unit: 8

Test Transect: 1
Description: The transect is orientated east/west and situated on a lower flat c.4 metres above current creek channel. Square 6 is at the base of an upper terrace to the east. Several historic features are located within proximity of the transect, apparent in the stone lined race, fruit trees and remnant gardens, and purports the area has possibly endured several post European settlement activities. Square 4 was excavated out to 1 sqm.

Square locations:

Square #	Easting	Northing
1	626266	6038842
2	626253	6038840
3	626250	6038835
4	626250	6038833
5	626249	6038830
6	626246	6038826

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Grey brown fine sandy silty loam; light bioturbation mottling at base
Spit 2: 10-20	Grey brown loam; slightly more compacted; lightening grey brown bioturbation/root mottled fine sandy silty loam
Spit 3: 20-30	Light mottled and compacted fine sandy silty loam; plentiful rootlets and insect action
Spit 4: 30-40	Compacted; light mottled light grey brown fine sandy silty loam; root penetration to base
Square 2	Located on informal vehicle track
Spit 1: 0-10	Light orange brown fine sandy silt; compacted; some small flat tabular pebbles; occasional charcoal flecks appearing at base
Spit 2: 10-20	As above; uniform; charcoal flecks ceased
Spit 3: 20-30	Compacted light orange brown fine sandy silt; occasional flat tabular pebble; tree roots at 20-25cm; uniform deposit
Spit 4: 30-40	Very compacted dry hard fine light orange brown sandy silt; occasional small flat tabular pebbles; one very small piece of charcoal in wall at 30cm
Square 3	
Spit 1: 0-10	
Spit 2: 10-20	
Spit 3: 20-30	
Spit 4: 30-35	
Square 4	
Spit 1: 0-10	Medium grey brown mottled fine sandy silty loam; occasional small pebble
Spit 2: 10-20	Medium grey brown mottled fine sandy silty loam; becoming slightly compacted at base
Spit 3: 20-30	Slightly compacted; compacted grey brown mottled fine sandy silty loam; light grey flecking from fine gravel appearing at base

Square	Stratigraphic Log
Spit 4: 30-40	Compacted slightly lighter grey brown fine sandy silt with pale grey gravel flecking
Square 4b	Situated directly east of Square 4
Spit 1: 0-10	Medium grey brown mottled loam
Spit 2: 10-20	Medium grey brown mottled slightly compacted loam
Spit 3: 20-30	Medium grey brown mottled slightly compacted loam; some gravel in deposit towards base
Square 4c	Located directly north of Square 4b
Spit 1: 0-10	Medium-dark grey brown mottled fine sandy silty loam
Spit 2: 10-20	Medium-dark grey brown mottled fine sandy silty loam becoming more compacted with depth; some very small pebbles/gravel in second half of spit
Spit 3: 20-30	Compacted medium grey brown fine sandy silt; develops into a light grey gravel flecking at approximately 22cm and to base; soil appears to be slightly paler with depth
Square 4d	Directly west of Square 4c and north of Square 4
Spit 1: 0-10	Medium-dark grey brown mottled fine sandy silty loam; large broken waterworn pebble; rootlet penetration and mottling throughout
Spit 2: 10-20	Medium-dark grey brown mottled and compacted fine sandy silt; rootlets and insect burrowing throughout
Spit 3: 20-30	Compacted; lightening grey brown fine sandy silt with fine grey gravel fleck
Spit 4: 30-40	Compacted medium grey brown fine sandy silt with fine grey gravel fleck
Spit 5: 40-50	Compacted light medium grey brown fine sandy silty with pale grey fine gravel fleck becoming dense at base; small pebbles occasional and becoming more frequent at base
Spit 6: 50-60	Mottled flecked lightly compacted gravelly/slightly pebbly grey brown silt
Spit 7: 60-70	Mottled light-medium grey brown slightly pebbly fine gravely silt; becomes a yellowing grey brown sandy loam; very occasional charcoal fragment
Spit 8: 70-80	Yellowish grey-flecked brown sandy loam; increase charcoal fragments [up to 1cm²] deposit is firm
Spit 9: 80-90	Yellowish grey brown sandy loam with occasional charcoal fragment; increasing greying (charcoal stained?) sandy loam; becoming a darker, more compacted and flecked at base; concentration of river pebbles in southwest corner at base
Spit 10: 90-100	Grey brown slightly pebbly sandy loam giving abruptly onto a packed river pebble/gravel sandy silt; rootlets and fine rootlets from grass and sedges penetrates to base with considerable presence in gravel bed at base
Square 5	
Spit 1: 0-10	Dark brown fine silty loam; many grass rootlets continue to base
Spit 2: 10-20	Very fine dark brown sandy silty loam; some bioturbation; occasional small flat tabular pebbles

Square	Stratigraphic Log
Spit 3: 20-30	Gradual change to a very fine clayey silt with many very small flat tabular pebbles [almost gravel]; light brown highly compacted; small amount of bioturbation and occasional charcoal fleck in wall
Square 6	
Spit 1: 0-10	Medium-dark grey brown fine sandy loam
Spit 2: 10-20	Medium-dark grey brown mottled very fine sandy loam; one flat waterworn pebble
Spit 3: 20-30	Medium-dark grey brown fine gravelly loam; heavily mottled and compacted at base; occasional pebble appearing at base



Looking ° towards SU8 Transect 1



North section of Square 1

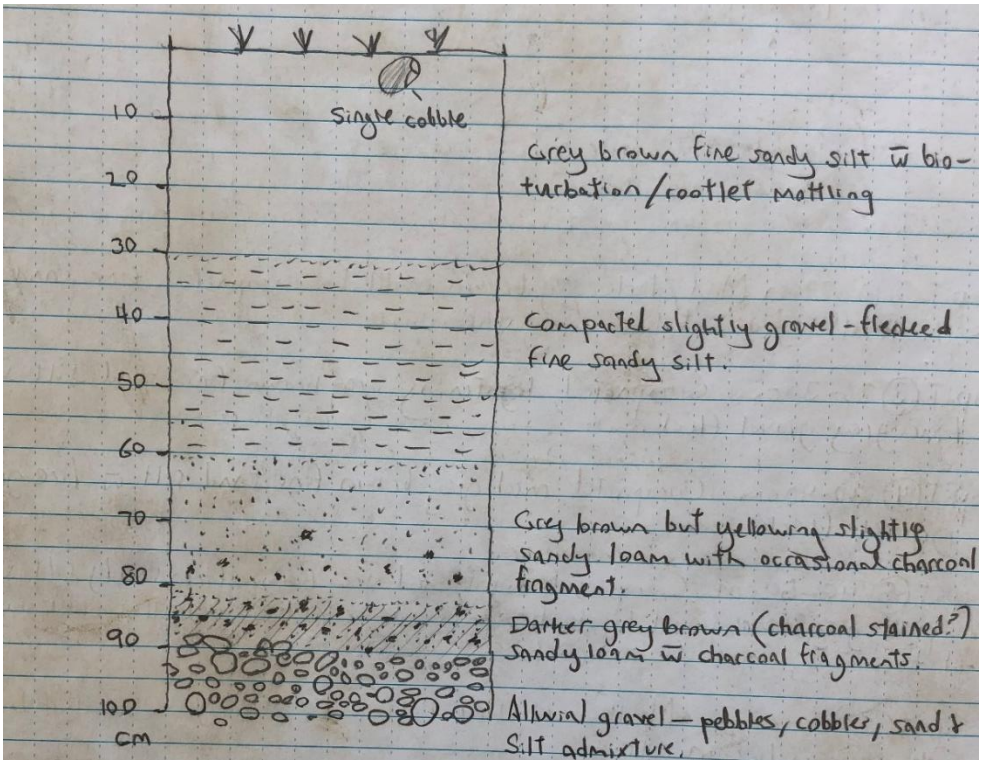


Overview of Square 4



North section of Square 4

Schematic representation of soil profile Survey Unit 8 Transect 1 Square 4d: North section:



Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 4b	Square 4c	Square 4d	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 2	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0
Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0
Spit 4: 0	Spit 4: 0	Spit 4: 0	Spit 4: 0			Spit 4: 0		
						Spit 5: 0		
						Spit 6: 0		
						Spit 7: 0		
						Spit 8: 0		
						Spit 9: 0		
						Spit 10: 1		

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 4b	Sq 4c	Sq 4d	Sq 5	Sq 6
-	-	-	-	-	2	1	-	-

Discussion: This transect had 3 artefacts. The low artefact density in this test area may be due to relatively recent disturbances from the construction of a possible water-race located on the steep slope c.xxm west of Square 6.

Lobs Hole Ravine
Survey Unit: 8
Test Transect: 2

Description: The transect is situated on an upper terrace and to the west of SU8 transect 1. Square 1 is closest to the edge of the stone lined water race and two small trees lie to the east c.5m. A vehicle track travels between Squares 2 and 3.

Square locations:

Square #	Easting	Northing
1	626243	6038817
2	626240	6038813
3	626235	6038805
4	626231	6038801
5	626229	6038797
6	626226	6038793

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Highly disturbed by pigs for entire spit; medium brown sandy silty loam; loose and dry; rootlets; changes to a compacted fine sandy silt at base
Spit 2: 10-20	Compacted medium brown fine sandy silt; lightening towards base
Spit 3: 20-30	Light orangey brown fine sandy silt; compacted; abrupt change at c.25cm to a gravelly [angular]/pebbly/waterworn cobbly band in a darker orangey brown moist clayey sandy silt
Spit 4: 30-40	Increasing river cobbles and pebbles; pebbles flat and rounded in a coarser medium brown loose sandy silt matrix; base is a bed of large river cobbles and pebbles; assorted sizes
Square 2	
Spit 1: 0-10	Highly disturbed by pigs for entire spit; medium brown sandy silty loam; loose and dry; rootlets; changes to a compacted fine sandy silt at base
Spit 2: 10-20	Compacted medium brown fine sandy silt; lightening towards base
Spit 3: 20-30	Light orangey brown fine sandy silt; compacted; abrupt change at c.25cm to a gravelly [angular]/pebbly/waterworn cobbly band in a darker orangey brown moist clayey sandy silt
Spit 4: 30-40	Increasing river cobbles and pebbles; pebbles flat and rounded in a coarser medium brown loose sandy silt matrix; base is a bed of large river cobbles and pebbles; assorted sizes
Square 3	
Spit 1: 0-10	Medium brown silty loam; rootlets
Spit 2: 10-20	Light brown silty loam
Spit 3: 20-30	Light brown silty loam becoming slightly compacted with depth; occasional small pebbles appearing at base
Spit 4: 30-40	Light brown silty slightly compacted loam; increasing pebbles but not abundant; pebble size up to c.1cm²
Square 4	
Spit 1: 0-10	Light brown sandy silty loam; occasional gravel and grass rootlets
Spit 2: 10-20	becomes a gravelly [very small] light orangey brown sandy silty loam; increasing gravels and compaction with depth
Spit 3: 20-30	Changes at base to a bed of small gravels in a matrix of darker orangey brown sandy silt

Square	Stratigraphic Log
Spit 4: 30-42	Gravel bed with coarse grained sandy silt continues; gravel bed includes flat tabular pebbles and rounded river pebbles; firmly packed
Square 5	
Spit 1: 0-10	Medium brown loose silty loam; rootlets
Spit 2: 10-20	Medium brown silty loam becoming slightly compacted with depth; occasional small pebbles appearing at base
Spit 3: 20-30	Becoming a lighter brown silty loam; increasing compaction
Spit 4: 30-40	Compacted yellowing brown silt with occasional small pebbles
Square 6	
Spit 1: 0-10	Dark brown loosely compacted very fine sandy silty loam; many grass rootlets
Spit 2: 10-20	Becomes a slightly gravelly compacted brown very fine sandy silt with some flat pebbles appearing at base; bioturbation
Spit 3: 20-30	Changes to a very gravelly light orangey brown very fine sandy silt with occasional waterworn and flat tabular pebbles
Spit 4: 30-40	As above; increasing compaction with depth



Looking southwest along SU8 Transect 2



Southwest section of Square 4

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0
Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
-	-	-	-	-	-

Discussion: This transect had no artefacts recovered. The occasional depressions suggest the area may have been subject to ploughing, most likely related to the European settlement of Ravine. The absence of artefacts within this transect is likely related to the high level of disturbance.

Lobs Hole Ravine
Survey Unit: 8
Test Transect: 3

Description: The transect is located on a flat and a slight rise orientated east/west rise runs through Squares 2 & 3. Squares 5 & 6 are in a slight [< 0.5m] depression. Square 2 and Square 3 were individually excavated out to 0.5 sqm. A vehicle track is located to the north of transect three.

Square locations:

Square #	Easting	Northing
1	626307	6038754
2	626302	6038750
3	626301	6038749
4	626298	6038747
5	626295	6038743
6	626292	6038738

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Light grey brown mottle fine sandy loam; occasional pebble
Spit 2: 10-20	As above; increasing pebble content
Spit 3: 20-30	Light grey brown slightly gravelly fine sandy silty loam; occasional rounded pebble
Spit 4: 30-40	Light grey brown very gravelly/ pebbly fine sandy silt
Square 2	
Spit 1: 0-10	Light grey brown gravelly fine sandy silty loam
Spit 2: 10-20	Light grey brown gravelly to pebbly fine sandy silty loam; large pebbles small cobbles at base
Spit 3: 20-30	Light grey brown sandy silt; river pebble gravel with occasional large cobble
Spit 4: 30-40	Light grey brown fine sandy silt; river pebble gravel with occasional large cobble [continues as above]; plentiful to dense rootlet penetration at base, throughout gravel
Spit 5: 40-50	Light grey brown sandy silt/pebbly gravel bed; abrupt change onto a yellowing clean slightly gravelly very fine sandy silt [verging on a silty fine sand]
Square 2b	Located directly west of Square 2
Spit 1: 0-10	Light grey brown gravelly fine sandy silty loam
Spit 2: 10-20	Light grey brown gravelly fine sandy silt with increasing gravel and pebble content
Spit 3: 20-30	Light grey brown fine sandy silt/river pebble gravel; occasional cobble
Spit 4: 30-40	Light grey brown fine sandy silt/river pebble gravel ad-mixture continues; occasional cobble/large cobble
Spit 5: 40-50	Light grey brown sandy silt/river pebble gravel giving onto slightly gravelly, yellowing clean very sandy silt
Spit 6: 50-60	Yellow brown very sandy silt with darker brown mottling; higher compaction and some gravel content at base; tree root or burrow 10cm in diameter runs north-south along west side of pit
Spit 7: 60-70	Compacted yellow brown slightly gravelly [including small pebbles] very fine sandy silt

Square	Stratigraphic Log
Spit 8: 70-80	Compacted yellow brown gravelly fine sandy silt becoming increasingly gravellier/pebblier towards base; occasional large pebble/cobble at base; very occasional charcoal fragment
Spit 9: 80-90	Compacted gravelly pebbly sandy silt; comparatively loose alluvial gravel: sand, gravel, pebble, cobble ad-mixture; looks like a soil forming on this material level
Square 3	
Spit 1: 0-10	Light grey brown mottle fine sandy loam; occasional pebble
Spit 2: 10-20	As above; increasing pebble content
Spit 3: 20-30	Light grey brown slightly gravelly fine sandy silty loam; occasional rounded pebble
Spit 4: 30-40	Light grey brown very gravelly/ pebbly fine sandy silt
Spit 5: 40-50	Light grey brown fine sandy silt/river pebble gravel ad-mixture continues; occasional cobble/large cobble
Square 3b	Directly west of Square 3
Spit 1: 0-10	Medium brown slightly gravelly sandy silty loam; gravel content increasing with depth; rootlets at base
Spit 2: 10-20	Clear change at 15cm to at light orangey brown gravelly sandy silt
Spit 3: 20-30	Becoming a darker orangey brown gravelly sandy silt; very occasional rounded pebble appearing at base
Spit 4: 30-40	Becoming a lighter grey brown very gravelly very fine sandy silt; many small flat tabular pebbles; loosely compacted
Spit 5: 40-50	Changes to larger waterworn pebbles and cobbles in a matrix of gravelly fine sandy silt; continues to base
Square 4	
Spit 1: 0-10	Medium brown sandy silty loam; at 8cm changes to a medium brown gravelly very sandy silt
Spit 2: 10-20	Becoming very gravelly and slightly darker medium brown fine sandy silt; compaction increasing with depth
Spit 3: 20-30	Very gravelly orangey brown coarse silty sand; very compacted with pockets of looser material [ant bioturbation] very occasional small flat tabular pebbles
Spit 4: 30-40	At 32cm an abrupt change to an alluvial river cobble/pebble seam; assorted sizes from 0.5 to 10cm and continues to base; rootlets continue
Square 5	
Spit 1: 0-10	Light brown loose silty loam; rootlets
Spit 2: 10-20	As above
Spit 3: 20-30	Becoming a darker brown very hard compact silty loam
Spit 4: 30-40	Highly compacted very dark brown silty loam
Square 6	
Spit 1: 0-10	Light grey very dry silty loam
Spit 2: 10-20	As above; increasing compaction
Spit 3: 20-30	At c. 25cm a gradual change onto a dark brown and very compacted silty loam
Spit 4: 30-40	Highly compacted dark brown silty loam



Looking 210° towards SU8 Transect 3



South section of Square 3

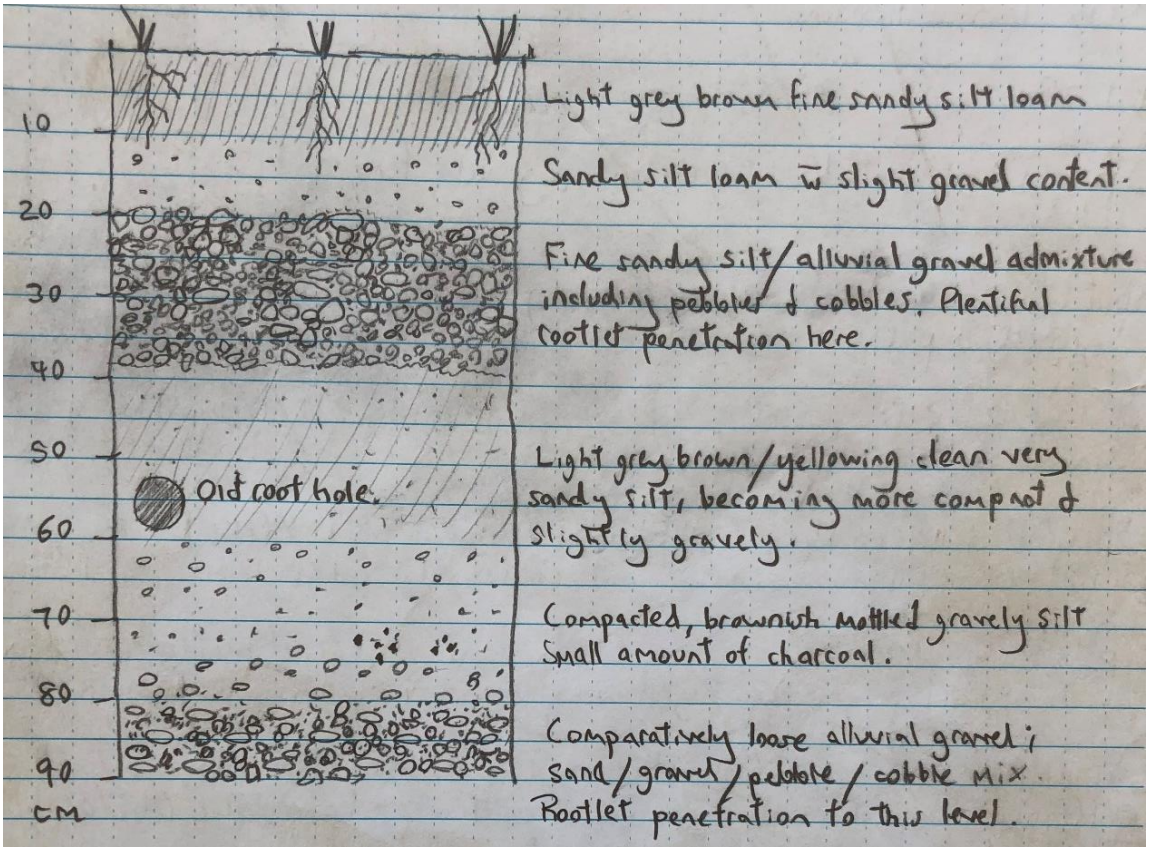


Overview of Square 3



Southeast section of Square 5

Schematic representation of soil profile Survey Unit 8 Transect 3 Square 2b: West section:



Artefact Retrieval:

Square 1	Square 2	Square 2b	Square 3	Square 3b	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 1	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 1	Spit 2: 1	Spit 2: 0	Spit 2: 3	Spit 2: 1	Spit 2: 1	Spit 2: 0	Spit 2: 0
Spit 3: 3	Spit 3: 0	Spit 3: 0	Spit 3: 2	Spit 3: 0	Spit 3: 1	Spit 3: 0	Spit 3: 0
Spit 4: 2	Spit 4: 0	Spit 4: 0	Spit 4: 0	Spit 4: 1	Spit 4: 0	Spit 4: 0	Spit 4: 0
	Spit 5: 1	Spit 5: 1	Spit 5: 31	Spit 5: 21			
		Spit 6: 0					
		Spit 7: 0					
		Spit 8: 0					
		Spit 9: 0					

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 2b	Sq 3	Sq 3b	Sq 4	Sq 5	Sq 6
6	2	1	37	23	2	-	-

Discussion: This transect had 71 artefacts. Artefacts were recovered from spit 1 through to spit 5 in Squares 1 to 4. An alluvial deposit appears in spit 4 to spit 5 and coincides with reduced artefact numbers. Squares 5 & 6 are situated in a low depression and have deposit consistent with waterlogging. Squares 5 & 6 were devoid of artefacts.

Lobs Hole Ravine
Survey Unit: 8
Test Transect: 4
Description: The transect is situated on a flat landform; Squares 1 & 2 are slightly elevated above Square 3. Squares 4, 5 and 6 are located within a low-lying area [c.0.5m below Squares 1 & 2] and were not excavated. Area has been subjected to recent pig diggings.

Square locations:

Square #	Easting	Northing
1	626319	6038734
2	626317	6038733
3	626313	6038729

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Light brown silty loam; soft compaction; rootlets; some bioturbation
Spit 2: 10-20	As above; occasional waterworn pebble appears at base of spit
Spit 3: 20-30	Light grey silty loam; very pebbly/cobbly; pebbles/cobbles increasing in size and quantity with depth
Spit 4: 30-40	Abundant waterworn pebbles and cobbles in a light grey gravelly silty loam matrix
Square 2	
Spit 1: 0-10	Light grey silty loam; soft compaction; rootlets
Spit 2: 10-20	As above; increasing compaction
Spit 3: 20-30	At c.29cm gradual change to a mottle gravelly grey silty loam

Square	Stratigraphic Log
Spit 4: 30-40	Highly compacted gravelly grey silty loam
Square 3	
Spit 1: 0-10	Light grey silty loam; soft compaction; rootlets; some bioturbation
Spit 2: 10-20	As above; increasing compaction
Spit 3: 20-30	At c.25cm a gradual change to very firm dark silty loam like that found in SU8 transect 3 at same distance from the creek
Spit 4: 30-35	As above; increasing compaction; soil becomes almost impenetrable



Looking 200° along SU8 Transect 4



East southeast section of Square 1

Artefact Retrieval:

Square 1	Square 2	Square 3
Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 0	Spit 2: 1
Spit 3: 1	Spit 3: 0	Spit 3: 0
Spit 4: 1		

Visual representation of artefact retrieval:

Sq 1
2

Sq 2
-

Sq 3
1

Discussion: This transect had 3 artefacts.

Lobs Hole Ravine
Survey Unit: 10
Test Transect: 1
Description: The transect is situated on a crest that is elevated c.20m above the flats and river. The north end of the crest drops very steeply to the flat, slope is covered with thick Eucalypt regrowth. Historic ruins are located xx metres to the northwest of Square 1. The landform extends south to just beyond main road where it is interested by a drainage line; around road the area is highly disturbed by road works. The site has been used for modern camping; a circular arrangement of stones adjacent (east) to Square 6 appears to be a modern hearth. A well-used vehicle track and some shrubbery lie directly northeast of Square 1, six Test Squares were excavated. The crest is highly eroded with only skeletal soils remaining, most likely occurring post European clearing, mining and settlement of the area. Shale bedrock exposed on track and area immediately south of vehicle track, includes high level

shale shatter as cobbles and gravels. Historic rubble covering an area 10 x 10m as a low mound of rock, brick, wire, metal, crushed brick and crockery, is situated immediately adjacent to road. A small excavation is present c. xx metres xx of Square xx. It measures c. 1.5 x 1.0 metres; its nature and function is unknown but given its clear form, is likely to be modern. Sparse grass (*Themeda*), occasional shrubs and shrub thickets, saplings as Eucalypt regrowth at south end. A copse of ?Slippery Elm and an occasional briar shrub cover to the north. A sparse scatter of stone artefacts area is visible in ground exposures in the adjacent vehicle track that is in places eroded to the shale bedrock.

Square locations:

Square #	Easting	Northing
1	626103	6038937
2	626102	6038934
3	626096	6038929
4	626095	6038929
5	626090	6038925
6	626083	6038920

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Medium brown very fine sandy silty loam with abundant shale shatter; comes down to a shaley bedrock base
Square 2	
Spit 1: 0-10	Medium brown fine sandy silty loam changing to a sandy silty loam with angular bedrock gravels [including waterworn pebbles and cobbles]
Spit 2: 10-20	Broken shaley bedrock/regolith with brown fine sandy silt and gravel; looks like roots and moisture have followed fracture/bedding planes in the rock and caused soil penetration and formation within broken bedrock
Square 3	
Spit 1: 0-10	Medium brown sandy silty loam; rootlets; occasional angular gravels; gradual change at 5cm to a light yellowing brown fine sandy silt; angular gravels increasing at base
Spit 2: 10-20	Light yellow brown fine sandy silt; begins to become a band of river pebbles, river cobbles; angular gravels and occasional angular boulders from top of spit
Spit 3: 20-30	Bed of river stone continues in western corner to base of spit; shale bedrock appearing in eastern corner and a light yellow brown clayey silt patch in the southern corner.
Square 4	
Spit 1: 0-10	Grey brown/pale yellow brown compacted slightly gravelly fine sandy silt
Spit 2: 10-20	Pale yellow brown compacted gravelly silt transitioning to a compacted very silty waterworn pebble/cobble bed
Spit 3: 20-30	Waterworn pebble/cobble bed with reddening yellow brown fine sandy silt

Square	Stratigraphic Log
Spit 4: 30-40	Pebble/cobble bed giving abruptly onto light reddening yellow brown sandy silt with occasional waterworn large pebble; changes to a yellow shaley bedrock base
Square 5	
Spit 1: 0-10	Light brown loose sandy silty loam; gradual change at 8cm to a lighter yellowing brown fine sandy silt; compaction increasing with depth
Spit 2: 10-20	Light yellow brown fine sandy silt becoming gravelly/pebbly and cobbly increased shale shatter and decreasing pebbles and cobbles with depth
Spit 3: 20-30	Reddening yellow brown fine sandy silt; shaley bedrock base; occasional river cobble
Square 6	
Spit 1: 0-10	Light grey brown sandy silt; yellowing grey brown gravelly sandy silt; changes to a yellowing grey brown gravelly sandy silt; occasional large waterworn pebble/cobble; small boulder in northwest corner
Spit 2: 10-20	Yellow brown gravelly/pebbly fine sandy silt; plentiful waterworn pebble and cobbles
Spit 3: 20-30	Yellow brown gravelly/pebbly fine sandy silt transitioning to a medium yeloow brown darker reddish brown mottled gravelly slightly clayey silt; pebble content notably reduced



Looking 200° along SU10 Transect 1



Base of Square 1

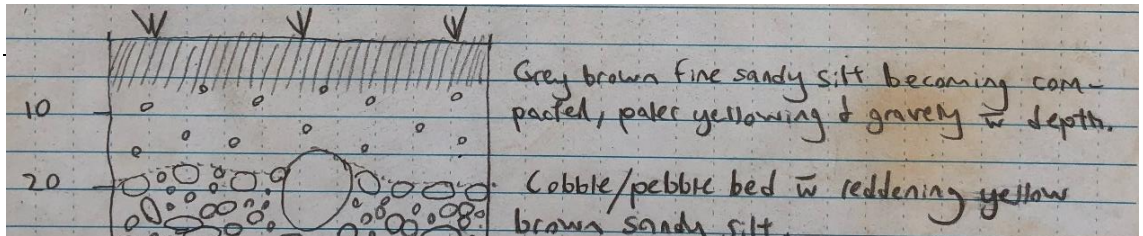


South section Square 3



Base of Square 3

Schematic representation of soil profile Survey Unit 10 Transect 1 Square 4 South section:



Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 1	Spit 1: 5	Spit 1: 6	Spit 1: 26	Spit 1: 10	Spit 1: 33
	Spit 2: 0	Spit 2: 5	Spit 2: 6	Spit 2: 51	Spit 2: 9
		Spit 3: 4	Spit 3: 0	Spit 3: 2	Spit 3: 0
			Spit 4: 1		

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
1	5	15	33	63	42

Discussion: This transect had 159 artefacts. Much of the soil has eroded from the crest thus the remaining artefacts were all retrieved from the upper spits above the bedrock base apart from one artefact recovered from spit 4 in Square 4. The presence of waterworn pebble and cobbles on the crest is indicative of ……

Lobs Hole Ravine
Survey Unit: 10
Test Transect: 2
Description: The transect is situated on the crest 10 metres from SU10 Transect 1, therefore the landform variables are the same as for SU10 Transect 1. The possible modern hearth is c.5m west from Squares 3 & 4. A well-used vehicle track and some shrubbery lie northeast of Square 1, six Test Squares were excavated. Another shrub is adjacent to Squares 5 & 6. Areas of exposed bedrock and skeletal soils persist. A sparse scatter of stone artefacts area is visible in ground exposures in the adjacent vehicle track that is in places eroded to the shale bedrock.

Square locations:

Square #	Easting	Northing
1	626104	6038923
2	626099	6038918
3	626096	6038915
4	626091	6038912
5	626081	6038909
6	626083	6038906

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Light brown silty loam; waterworn cobbles up to 30cm length at or near surface; abundant small shatter; loose loam to c.8cm
Square 2	
Spit 1: 0-15	Medium brown sandy silty loam with dense roots; gradual change to a bed of river pebbles and cobbles in a light brown very gravelly very fine sandy silt matrix
Square 3	
Spit 1: 0-10	Grey brown very rocky [waterworn pebbles /cobbles] fine sandy silt
Spit 2: 10-25	Very cobble base; uneven depth/deeper penetration at base of spit; grey brown fine sandy silt/cobble, pebble, small boulder mixture; rocky waterworn matrix
Square 4	
Spit 1: 0-10	Light brown silty loam with waterworn pebbles and shale shatter increasing with depth at base [decomposing shale bedrock]
Square 5	
Spit 1: 0-10	Medium brown sandy silty loam grading to a light yellowing brown fine compact sandy silt with some river pebbles, small tree roots and occasional larger waterworn cobble
Spit 2: 10-25	Roots continue; deposit as above; increasing river cobbles and pebbles coming down onto bedrock shatter [shale] at base
Square 6	
Spit 1: 0-10	Yellow brown fine sandy silt with occasional waterworn cobbles changing to compacted pale yellow brown mottled sandy silt with occasional waterworn cobbles embedded a t base
Spit 2: 10-20	Pale yellow brown compacted fine sandy silt with frequent waterworn cobbles and small boulders
Spit 3: 20-30	Very gravelly/pebbly/cobbly compacted pale yellow brown fine sandy silt



Looking 270° along SU10 Transect 2



East section of Square 6

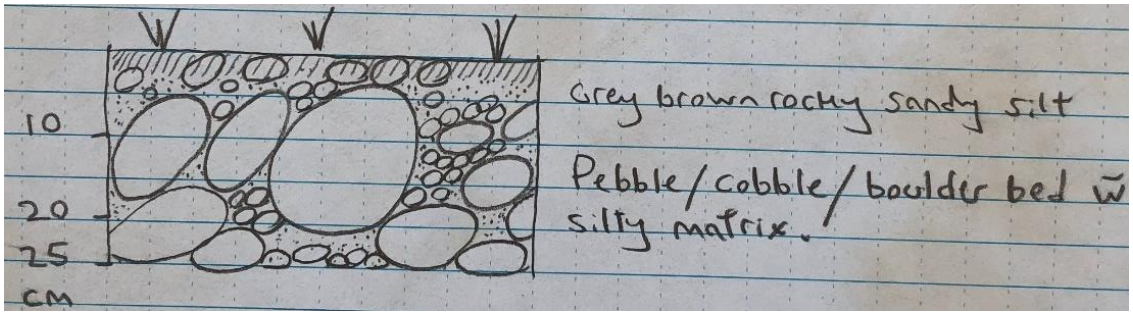


Base of Square 6



East section of Square 3

Schematic representation of soil profile Survey Unit 10 Transect 2 Square 3: East section:



Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 18	Spit 1: 4	Spit 1: 4	Spit 1: 12	Spit 1: 6	Spit 1: 12
		Spit 2: 3		Spit 2: 13	Spit 2: 4
					Spit 3: 0

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
18	4	7	12	19	16

Discussion: This transect had 76 artefacts.

Lobs Hole Ravine
Survey Unit: 11
Test Transect: 1
Description: The transect is situated on a flat with scattered shrubs at the northwest end. The ground is gently undulated and has a thick cover of native grasses. Five Test Squares were excavated. Square 6 was located on a slope of an upper terrace and was not excavated.

Square locations:

Square #	Easting	Northing
1	625882	6038884
2	625887	6038883
3	625891	6038880
4	625894	6038876

Square #	Easting	Northing
5	625898	6038874

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Medium grey brown very fine sandy silty loam [?alluvial]; rootlets; a lot of ant bioturbation
Spit 2: 10-20	Grey brown slightly gravelly fine sandy silty loam; small gravels increasing with depth
Spit 3: 20-30	Slightly yellowing grey brown compacted gravelly sandy silty loam; rootlets and bioturbation
Spit 4: 30-40	As above; increasing compaction with depth
Square 2	
Spit 1: 0-10	Medium grey brown very fine sandy silty loam [?alluvial]; rootlets
Spit 2: 10-20	Compacted slightly yellowing brown mottled fine sandy silty loam
Spit 3: 20-30	Medium/light mottled compacted yellow grey brown fine sandy silty loam
Square 3	
Spit 1: 0-10	Medium grey brown very fine sandy silty loam
Spit 2: 10-20	Medium grey brown fine sandy silty loam transitioning to a compacted light grey brown mottled fine sandy silty loam; occasional waterworn pebbles
Spit 3: 20-30	Medium/light mottled lightly compacted grey brown fine sandy silty loam
Spit 4: 30-40	Mottled light grey brown lightly compacted fine sandy silty loam with one waterworn large pebble at top of spit; changes to a slightly light looser silty sand; includes small fragments of tabular shale in matrix; sandy loam/sand
Spit 5: 40-50	Medium grey brown lightly compacted silty sand/sandy loam; plenty of bioturbation root and rootlet penetration
Square 4	
Spit 1: 0-10	Medium grey brown fine sandy silty loam transitioning to a compacted light grey brown mottled fine sandy silty loam
Spit 2: 10-20	Grey brown slightly gravelly fine sandy silty loam; small gravels increasing with depth; bioturbation
Spit 3: 20-30	Grey brown very gravelly fine sandy silt; uniform; bioturbation continues
Spit 4: 30-40	Grey brown sandy silt; decreasing gravels; occasional waterworn river pebble; lightly compacted at base
Square 5	
Spit 1: 0-10	Light grey brown very fine sandy silty loam
Spit 2: 10-20	Light grey brown fine sandy silty loam; transitioning to a mottled compacted slightly yellowing light grey brown fine sandy silty loam
Spit 3: 20-30	Light yellowing grey brown fine sandy silt becoming very pebble through to base; waterworn pebble, some cobbles and gravels throughout
Spit 4: 30-40	Densely packed alluvial gravel [waterworn pebbles gravel and sand] with a light brown silty content

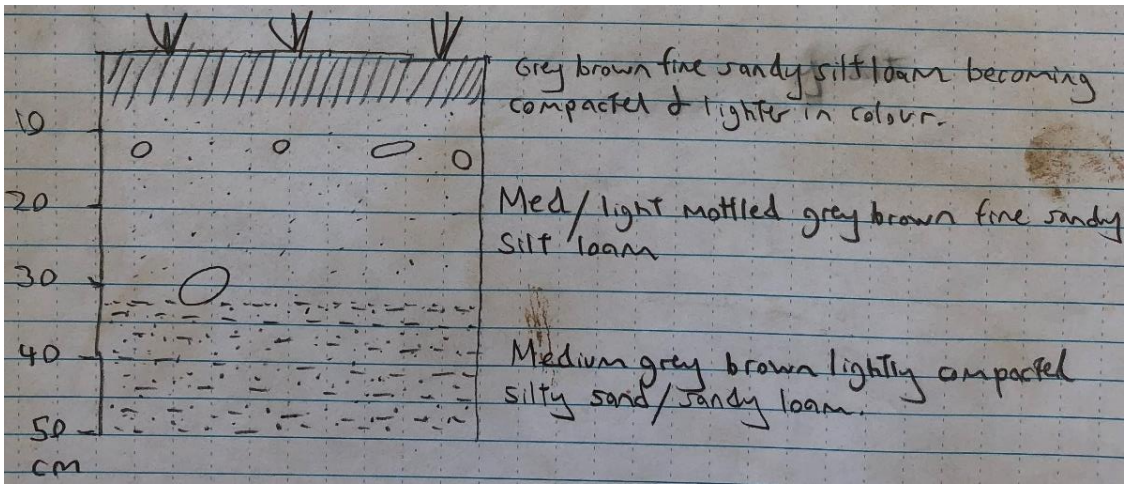


Looking 260° towards SU11 Transect 1

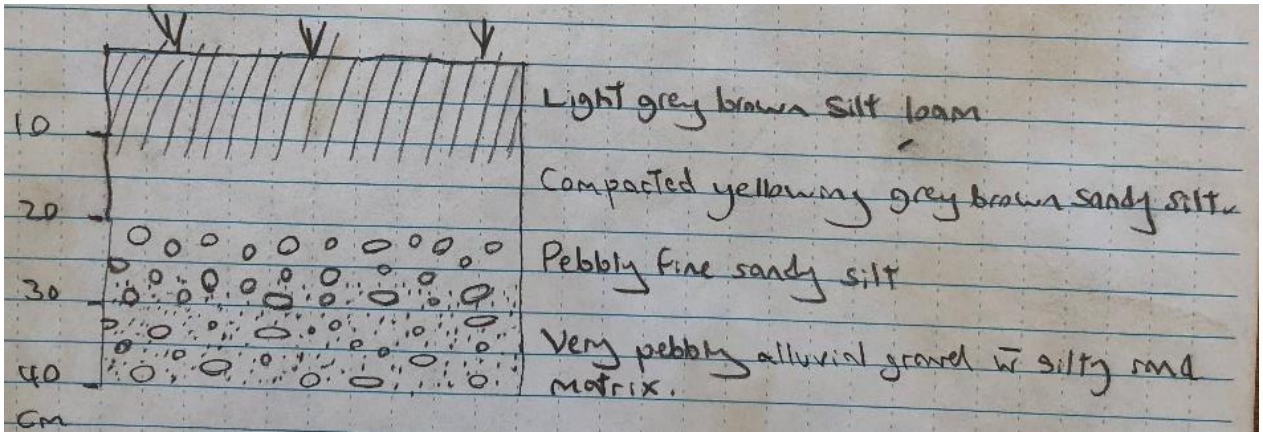


South southwest section of Square 3

Schematic representation of soil profile Survey Unit 11 Transect 1 Square 3 South-Southwest section:



Schematic representation of soil profile Survey Unit Transect 1 Square 5 South-Southwest section:



Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5
Spit 1: 1	Spit 1: 4	Spit 1: 0	Spit 1: 1	Spit 1: 0

Spit 2: 15	Spit 2: 4	Spit 2: 6	Spit 2: 0	Spit 2: 0
Spit 3: 0	Spit 3: 0	Spit 3: 9	Spit 3: 13	Spit 3: 0
Spit 4: 0		Spit 4: 0	Spit 4: 0	Spit 4: 0
		Spit 5: 0		

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5
16	8	15	14	-

Discussion: This transect had 53 artefacts.

Lobs Hole Ravine
Survey Unit: 11
Test Transect: 2
Description: The transect is situated on a flat with scattered shrubs at the northwest end. The ground is gently undulated and has a thick cover of native grasses. Five Test Squares were excavated. Square 6 was located on a slope of an upper terrace and was not excavated.

Square locations:

Square #	Easting	Northing
1	625868	6038878
2	625872	6038875
3	625877	6038872
4	625880	6038869
5	625884	6038865
6	625887	6038860

Excavation details:

Square	Stratigraphic Unit
Square 1	
Spit 1: 0-10	Medium grey brown very fine sandy silty loam
Spit 2: 10-20	Medium grey brown fine sandy silty loam transitioning to a compacted light grey brown mottled fine sandy silty loam; occasional waterworn pebbles
Spit 3: 20-30	Medium/light mottled lightly compacted grey brown fine sandy silty loam; occasional large waterworn cobbles
Square 2	
Spit 1: 0-10	Highly disturbed by pig diggings down to base [soil turned]; light grey brown sandy silty loam; ant bioturbation
Spit 2: 10-20	Light grey brown slightly gravelly very fine sandy silt; some shrubbery roots; very uniform to base
Spit 3: 20-30	Transitioning to a yellowing light brown slightly gravelly very fine sandy silt; mottling and loose soil patches from ant activity; shrub roots
Spit 4: 30-40	Highly compacted yellow brown fine sandy silt; ant bioturbation; occasional waterworn pebble

Square	Stratigraphic Unit
Square 3	
Spit 1: 0-10	Light grey brown mottled and compacted silty loam; shrub roots and some charcoal fragments
Spit 2: 10-20	Highly compacted yellowing grey brown fine sandy silty loam
Spit 3: 20-30	Highly compacted mottled grey brown fine sandy silty loam changing to a compacted light brown sandy silt with pale grey flecking; large shrub root at base
Spit 4: 30-40	Highly compacted brown slightly gravelly silt; small gravels; occasional grey tabular pebble
Square 4	
Spit 1: 0-10	Medium grey brown compacted sandy silty loam; one waterworn cobble centre bottom of spit
Spit 2: 10-20	Compacted grey brown fine sandy silt; becoming slightly paler with depth
Spit 3: 20-30	Compacted pale yellowing brown fine sandy silt
Spit 4: 30-40	Compacted yellow brown grey flecked fine sandy silt; small amount of fine tabular pebbles throughout spit [small, almost gravel]
Square 5	
Spit 1: 0-10	Medium grey brown very fine sandy silty loam; transitioning to a compacted light grey brown mottled fine sandy silt
Spit 2: 10-20	Light grey brown fine sandy silt; becoming more compacted with depth; ant bioturbation
Spit 3: 20-30	Compacted pale yellowing brown fine sandy silt
Spit 4: 30-40	Compacted yellow brown grey flecked fine sandy silt; small amount of tabular pebbles throughout spit
Square 6	
Spit 1: 0-10	Medium grey brown very fine sandy silty loam
Spit 2: 10-20	Compacted yellowing grey brown slightly gravelly fine sandy silt
Spit 3: 20-30	Highly compacted yellow brown fine sandy silt
Spit 4: 30-35	Highly compacted yellow brown slightly gravelly silt; small gravels; occasional grey tabular pebble



Looking 290° towards SU11 Transect 2



West section of Square 6

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 1	Spit 1: 1
Spit 2: 0	Spit 2: 0	Spit 2: 3	Spit 2: 1	Spit 2: 0	Spit 2: 0

Spit 3: 3	Spit 3: 0	Spit 3: 0	Spit 3: 2	Spit 3: 0	Spit 3: 0
Spit 4: 0		Spit 4: 0	Spit 4: 2	Spit 4: 0	Spit 4: 0
		Spit 5: 0			

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
3	-	3	5	1	1

Discussion: This transect had 13 artefacts.

Lobs Hole Ravine
Survey Unit: 11
Test Transect: 3
Description: The transect is situated on an upper terrace flat. On north side of flat, drops steeply to river bed [c.3m]. On west side of flat the ground drops down to a lower flat and is highly disturbed by modern camping. The transect is dissected by an informal vehicle track situated between Squares 3 & 4, six Test Squares were excavated.

Square locations:

Square #	Easting	Northing
1	625968	6039025
2	625965	6039031
3	625968	6039038
4	625970	6039042
5	625970	6039046
6	625972	6039050

Excavation details:

Square	Stratigraphic Unit
Square 1	
Spit 1: 0-10	Medium/light yellow brown compacted fine sandy silt; plenty of rootlets and bioturbation
Spit 2: 10-20	Compacted light yellow brown fine sandy silt; ant bioturbation to base
Spit 3: 20-30	Highly compacted light yellow brown fine sandy silt; developing a slight fine gravel content towards base
Spit 4: 30-40	Hard light yellow brown slightly grey flecked silt; single large [?sedimentary]cobble at base and in east wall
Square 2	
Spit 1: 0-10	Medium/light yellow brown compacted fine sandy silt; plenty of rootlets and bioturbation
Spit 2: 10-20	Compacted light yellow brown fine sandy silt; ant bioturbation to base
Spit 3: 20-30	Highly compacted light yellow brown fine sandy silt; some light grey flecking
Square 3	
Spit 1: 0-10	Compacted light yellow brown mottle silt; bioturbation
Spit 2: 10-20	Highly compacted light yellow brown fine sandy silt

Square	Stratigraphic Unit
Spit 3: 20-30	Highly compacted light yellow brown fine sandy silt; some light grey flecking
Square 4	
Spit 1: 0-10	Medium grey brown compacted sandy silty loam; one waterworn cobble centre bottom of spit
Spit 2: 10-20	Compacted grey brown fine sandy silt; becoming slightly paler with depth
Spit 3: 20-30	Highly compacted pale yellowing brown fine sandy silt
Square 5	
Spit 1: 0-10	Medium light yellow brown fine sandy silt; tree roots and bioturbation
Spit 2: 10-20	Highly compacted medium/light yellow brown mottled pebbly fine sandy silt; bioturbation and roots
Square 6	
Spit 1: 0-10	Medium light yellow brown fine sandy silt; small tree roots through and at base
Spit 2: 10-20	Medium/light yellow brown mottled pebbly fine sandy silt; small waterworn pebbles; bioturbation and roots

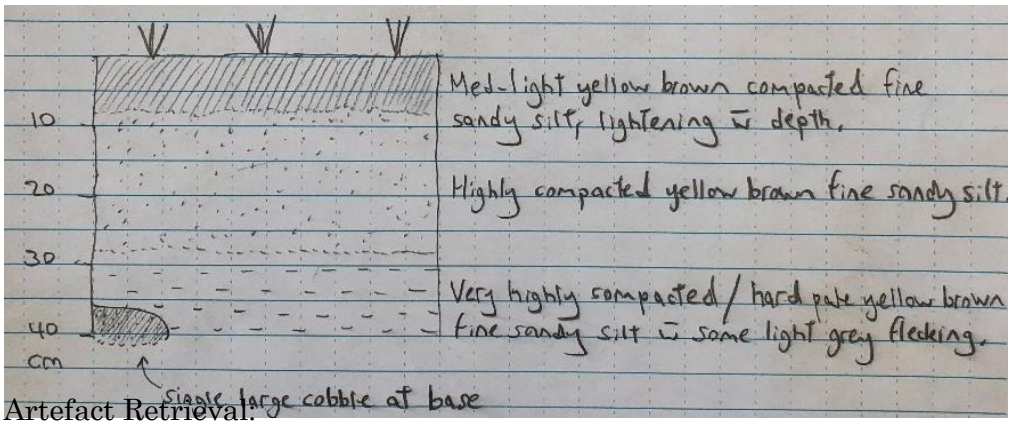


Looking 180° along SU11 Transect 3



South section of Square 4

Schematic representation of soil profile Survey Unit 11 Transect 3 Square 1: South section:



Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1:	Spit 1: 0	Spit 1: 0	Spit 1: 1	Spit 1: 1	Spit 1: 0
Spit 2: 0	Spit 2: 1	Spit 2: 1	Spit 2: 2	Spit 2: 0	Spit 2: 0
Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0		

Spit 4: 0					

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
-	1	1	3	1	-

Discussion: This transect had 6 artefacts. It is possible, if not likely that the artefact bearing soil has been entirely removed – flood, grading, wind.

Lobs Hole Ravine
Survey Unit: 12
Test Transect:1
Description: Transect 1 is on an upper terrace of the flat landform. The transect is oriented 30/210° approximately 32 metres SSW of the road; six Test Squares were excavated. The SSW end is c. 5 metres from the SSW end of the terrace before it drops to the lower part of the river flat. The ground is covered with a consistent cover of grass. The ground surface is very gently undulating and has vehicle tracks depressions, occasional circular shallow depressions but otherwise appears intact. The area to the SSW on the lower flat adjacent to the river is used for modern camping.

The excavation has revealed a relatively undisturbed context. The deposit consists of a shallow, silty loam overlying a cobble rich horizon.

Square locations:

Square #	Easting	Northing
1	625735	6039009
2	625741	6039010
3	625745	6039012
4	625749	6039015
5	625750	6039020
6	625754	6039024

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Medium yellow brown slightly gravelly fine sandy silty soil; 2 waterworn cobbles at base
Spit 2: 10-20	Medium yellow brown slightly gravelly to gravelly fine sandy silty soil; very occasional waterworn small-medium pebble
Spit 3: 20-30	Medium yellow brown gravelly/pebbly fine sandy silt; waterworn pebbles becoming common through spit; gradual change to a highly compacted mottled gravelly yellow brown fine sandy silt; pebble content greatly reduced by base of spit
Spit 4: 30-40	Highly compacted light yellow brown slightly gravelly fine sandy silt
Spit 5: 40-50	Highly compacted light yellow brown slightly gravelly fine sandy silt; slight increase in gravel size with depth; very small smooth pebbles occurring with moderate frequency towards base

Square	Stratigraphic Log
Square 1b	Located directly west of Square 1
Spit 1: 0-10	Medium grey brown slightly gravelly fine sandy silty soil
Spit 2: 10-20	Lightening /yellowing grey brown compacted gravelly fine sandy silt changing to a very pebbly compacted yellow brown fine sandy silt
Spit 3: 20-30	Highly compacted yellow brown pebbly/cobbly fine sandy silt; gradual change to a highly compacted fine sandy silt; pebbles become infrequent at base
Spit 4: 30-40	Highly compacted light yellow brown very slightly small pebbly fine sandy silt
Square 1c	Located directly southwest of Square 1b
Spit 1: 0-10	Medium grey brown slightly gravelly fine sandy silty soil
Spit 2: 10-20	Grey brown compacted gravelly fine sandy silt changing to a very pebbly compacted yellow brown fine sandy silt; occasional cobble
Spit 3: 20-30	Highly compacted light yellowing grey brown pebbly/cobbly fine sandy silt; gradual change to a highly compacted light yellow brown fine sandy silt
Spit 4: 30-40	Highly compacted light yellow brown very slightly fine gravelly fine sandy silt
Square 1d	Located directly southwest of Square 1
Spit 1: 0-10	Medium grey brown slightly gravelly fine sandy silty soil
Spit 2: 10-20	Medium grey brown compacted slightly gravelly fine sandy silt changing to a very compacted yellow brown gravelly/pebbly fine sandy silt
Spit 3: 20-30	Change to a very highly compacted light yellow brown gravelly fine sandy silt; reduced pebble content
Spit 4: 30-40	Very highly compacted light yellow brown gravelly fine sandy silt
Spit 5: 40-50	Very highly compacted light yellow brown gravelly fine sandy silt
Square 2	
Spit 1: 0-10	Medium grey brown slightly gravelly fine sandy silty soil; occasional small pebble
Spit 2: 10-20	Medium grey brown compacted slightly gravelly fine sandy silt changing to a very compacted yellow brown gravelly/pebbly fine sandy silt; bioturbation
Spit 3: 20-30	Change to a very highly compacted light yellow brown gravelly fine sandy silt; increased pebble content
Spit 4: 30-40	Very highly compacted light yellow brown gravelly fine sandy silt; pebbles continue
Square 3	
Spit 1: 0-10	Medium brown slightly gravelly to a lighter yellow brown gravelly fine sandy silty soil; very occasional waterworn small-medium pebble
Spit 2: 10-20	At 15cm, an increase in river pebbles of assorted sizes interspersed with a lighter yellow brown gravelly fine sandy silt to base
Spit 3: 20-30	River pebble content decrease considerably at c.30cm; below this band of pebbles a transition to a more compact fine sandy silt
Spit 4: 30-40	Highly compacted light yellow brown very slightly fine gravelly fine sandy silt; occasional pebble
Square 4	

Square	Stratigraphic Log
Spit 1: 0-10	Medium grey brown slightly gravelly fine sandy silty soil with an occasional small pebble; at c.8cm river pebbles and gravels appear and continue to base
Spit 2: 10-20	At 15cm, an increase in river pebbles of assorted sizes interspersed with a lighter yellow brown gravelly fine sandy silt to base
Spit 3: 20-30	Change to a very highly compacted light yellow brown gravelly fine sandy silt; increased pebble content
Spit 4: 30-40	River pebble content decrease considerably at c.35cm; below this band of pebbles a transition to a highly compacted fine sandy silt
Square 5	
Spit 1: 0-10	Medium grey brown slightly gravelly fine sandy silty soil with an occasional small pebble; abundant rootlets
Spit 2: 10-20	Medium grey brown compacted slightly gravelly fine sandy silt changing to a yellow brown gravelly/pebbly fine sandy silt; occasional larger river pebble
Spit 3: 20-30	Light yellow brown slightly gravelly fine sandy silt; increased amount of very small to large smooth pebbles/cobbles occurring with moderate frequency towards base; small amount of charcoal appearing in southwest wall at c.21cm
Spit 4: 30-40	River pebbles/cobbles continue and still present at base of spit
Square 6	
Spit 1: 0-10	Medium grey brown slightly gravelly fine sandy silty soil with an occasional small flat pebble
Spit 2: 10-20	changing to a very compacted yellow brown gravelly/pebbly fine sandy silt; increased small to medium sized river pebbles
Spit 3: 20-30	Compacted light yellow brown gravelly/pebbly fine sandy silt; decreased pebble content in conjunction with an increase in gravel content
Spit 4: 30-40	As above with an occasional larger rounded river pebble



Looking 210° along SU12 Transect 1



Southern section of Square 1



Base of Square 5 SU12 Transect 1 showing bed of river stones



Overall view of enlarged Square 1 [scale rule at base of southern section]

Schematic representation of soil profile Survey Unit 12 Transect 1 Square 3 West section:

Artefact Retrieval:

Square 1	Square 1b	Square 1c	Square1d	Square 2	Square 3	Square 4	Square 5	Square 6
Spit1: 26	Spit 1:5	Spit 1: 0	Spit 1: 5	Spit 1: 2	Spit 1: 0	Spit 1: 1	Spit 1: 0	Spit 1: 0
Spit 2: 5	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 8	Spit 2: 0	Spit 2: 0	Spit 2: 3
Spit 3: 0	Spit 3: 0	Spit 3: 2	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0
Spit 4: 1	Spit 4: 0	Spit 4: 0	Spit 4: 1	Spit 4: 0	Spit 4: 0	Spit 4: 0	Spit 4: 0	Spit 4: 0
Spit 5: 0								

Visual representation of artefact retrieval:

Sq 1	Sq 1b	Sq 1c	Sq 1d	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
32	5	2	6	2	8	1	-	3

Discussion: This transect had 59 artefacts. Artefacts were found in all spits. 26 related tuff artefacts were retrieved from Square 1, spit 1 with a further 4 found in spit 2. The square was enlarged to one square metre and additional artefacts from the same knapping event were found including the core.

Lobs Hole Ravine
Survey Unit: 12
Test Transect:2
Description: The transect is oriented 30/210° just to the north of a vehicle track; six Test Squares were excavated. The ground is covered with a consistent cover of grass and three saplings occur near the northeast end. The ground surface is gently undulating. The area has possibly been used for cultivation and modern camping. A very sparse scatter of modern glass is visible in the adjacent vehicle track.

Square locations:

Square #	Easting	Northing
1	625747	6038941
2	625754	6038972
3	625761	6038969
4	625763	6038974
5	625766	6038979
6	625771	6038984

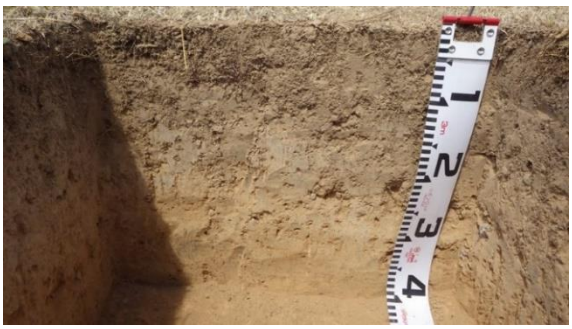
Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Medium brown silty loam; at 2cm gradually changes to a medium grey brown slightly pebbly fine sandy silty loamy soil; bioturbation
Spit 2: 10-20	Medium grey brown slightly gravelly fine sandy silty loamy soil; decreasing bioturbation; occasional small to medium sized river pebbles
Spit 3: 20-30	Yellowing grey brown compacted gravelly fine sandy silt; small medium river pebbles less common towards base of spit; very occasional waterworn cobble
Spit 4: 30-40	Highly compacted slightly gravelly pale yellow brown fine sandy silt; pebbles almost gone
Square 2	
Spit 1: 0-10	Medium grey brown slightly gravelly/pebbly fine sandy silty loamy soil
Spit 2: 10-20	Abrupt change at 12cm to a band of river pebbles and occasional large waterworn cobble; soil becomes a light yellow brown gravelly/pebbly fine sandy silt; continues to base
Spit 3: 20-30	Band of river pebbles continues ceasing at base of spit 3; pebble and gravel band ceases at c.30cm; some bioturbation
Spit 4: 30-40	Becomes a compacted yellowing light brown slightly gravelly very fine sandy silt; minimal pebbles
Square 3	
Spit 1: 0-10	Medium grey brown slightly pebbly fine sandy silty loamy soil
Spit 2: 10-20	Yellowing grey brown compacted gravelly fine sandy silt; small medium river pebbles common; very occasional waterworn cobble
Spit 3: 20-30	Pale yellow brown pebbly/gravelly very fine sandy silt
Spit 4: 30-40	Pale yellow brown pebbly/gravelly very fine sand silt transitioning to a highly compacted slightly gravelly fine sandy silt; pebbles gone
Square 4	
Spit 1: 0-10	Medium brown silty loam

Square	Stratigraphic Log
Spit 2: 10-20	Medium grey brown silty loam becoming a yellowing light grey brown slightly pebbly fine sandy silt; bioturbation
Spit 3: 20-30	Continues as a yellowing light grey brown slightly pebbly fine sandy silt; compaction increasing with depth; large cobble in southwest wall at c.25cm
Spit 4: 30-40	As above
Square 5	
Spit 1: 0-10	Medium grey brown silty loam becoming a yellowing light grey brown slightly gravelly fine sandy silt at base
Spit 2: 10-20	Compacted yellowing light grey brown slightly gravelly fine sandy silt
Spit 3: 20-30	Yellow brown increasingly gravelly and compacted fine sandy silt; occasional pebble
Spit 4: 30-40	Highly compacted yellow brown gravelly silt; occasional pebble continues to base
Square 6	
Spit 1: 0-10	Medium brown silty loam
Spit 2: 10-20	Medium grey brown silty loam becoming a yellowing light grey brown slightly gravelly fine sandy silt
Spit 3: 20-30	Yellow brown increasingly gravelly and compacted fine sandy silt
Spit 4: 30-40	Extremely highly compacted yellow brown gravelly silt; less gravelly with depth



Looking 270° towards SU12 Transect 2



Southeast section of Square 6

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 1	Spit 1: 4
Spit 2: 1	Spit 2: 0	Spit 2: 1	Spit 2: 2	Spit 2: 3	Spit 2: 5
Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 1	Spit 3: 4	Spit 3: 0
Spit 4: 0	Spit 4: 0	Spit 4: 0	Spit 4: 1	Spit 4: 0	Spit 4: 0

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
1	-	1	4	8	9

Discussion: This transect had 23 artefacts. Squares 1, 2 and 3 situated in the southwest and closest to the edge of a terrace, contained abundant small flat pebbles while the other squares did not.

Lobs Hole Ravine
Survey Unit: 12
Test Transect:3
Description: The transect is oriented 50/230° approximately 20 metres east of the river and situated on a lower terrace. Squares 1, 2 & 3 cross two informal vehicle tracks; six Test Squares were excavated. The ground is covered with a consistent cover of grass and three saplings occur near the northwest end. The ground surface is gently undulating. The area has possibly been used for cultivation and modern camping. A very sparse scatter of modern glass is visible in the adjacent vehicle track.

Square locations:

Square #	Easting	Northing
1	625690	6038986
2	625694	6038989
3	625698	6038991
4	625703	6038992
5	625708	6038995
6	625712	6038996

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Medium brown silty loam; at 2cm gradually changes to a medium grey brown slightly pebbly fine sandy silty loamy soil; bioturbation
Spit 2: 10-20	Medium grey brown slightly gravelly fine sandy silty loamy soil; decreasing bioturbation; occasional small to medium sized river pebbles; waterworn cobble embedded in northeast wall
Spit 3: 20-30	Yellowing grey brown compacted gravelly very fine sandy silt; increasing gravels, small to medium river pebbles and occasional cobble
Spit 4: 30-40	Compacted slightly gravelly pale yellow brown fine sandy silt; river pebbles and cobbles continue to base
Square 2	
Spit 1: 0-10	Medium grey brown slightly gravelly/pebbly fine sandy silty loamy soil; bioturbation
Spit 2: 10-20	Yellowing grey brown slightly gravelly fine sandy silty loamy soil; bioturbation; occasional small to medium sized river pebble
Spit 3: 20-30	Highly compacted light yellow brown fine sandy silt; occasional small pebble; ant bioturbation
Spit 4: 30-40	Light yellow brown compacted very pebbly [occasional cobble] fine sandy silt; large cobble embedded in base of spit0
Square 3	
Spit 1: 0-10	Highly compacted grey brown fine sandy silty loamy soil grading to a light yellow brown at base
Spit 2: 10-20	Highly compacted light yellow brown fine sandy silt; very occasional small pebble; ant bioturbation
Spit 3: 20-30	Light yellow brown compacted fine sandy silt; mixing from old rotted tree root through centre of wall into base

Square	Stratigraphic Log
Spit 4: 30-40	Highly compacted light yellow brown fine sandy silt; small waterworn boulder firmly embedded in north corner c. 35cm continues to base and beyond
Square 4	
Spit 1: 0-10	Medium grey brown silty loam becoming a yellowing light grey brown slightly gravelly fine sandy silt at base
Spit 2: 10-20	Compacted yellowing light grey brown slightly gravelly fine sandy silt
Spit 3: 20-30	Yellow brown increasingly gravelly and compacted fine sandy silt; occasional pebble
Spit 4: 30-40	Highly compacted yellow brown gravelly silt; at 35cm an abrupt change to a layer pebbles which continue to base
Square 5	
Spit 1: 0-10	Light grey brown fine sandy silt; yellowing with depth
Spit 2: 10-20	Light yellow brown compacted fine sandy silt
Spit 3: 20-30	Light yellow brown compacted fine sandy silt changing to a light yellow brown compacted pebbly/gravelly fine sandy silt; plentiful small-medium waterworn pebbles and occasional cobble at base
Spit 4: 30-40	Light yellow brown compacted very pebbly [occasional cobble] fine sandy silt transitioning to a compacted yellow brown fine sandy silt; pebbles reduced or mostly absent
Square 6	
Spit 1: 0-10	Light grey brown fine sandy silt; yellowing with depth; ant bioturbation
Spit 2: 10-20	Light yellow brown compacted fine sandy silt; bioturbation
Spit 3: 20-30	Light yellow brown compacted fine sandy silt changing to a light yellow brown compacted pebbly/gravelly fine sandy silt; plentiful small-medium waterworn pebbles and occasional cobble at base
Spit 4: 30-40	Light yellow brown compacted very pebbly [occasional cobble] fine sandy silt transitioning to a compacted yellow brown fine sandy silt



Looking 50° along SU12 Transect 3



Northwest section of Square 4

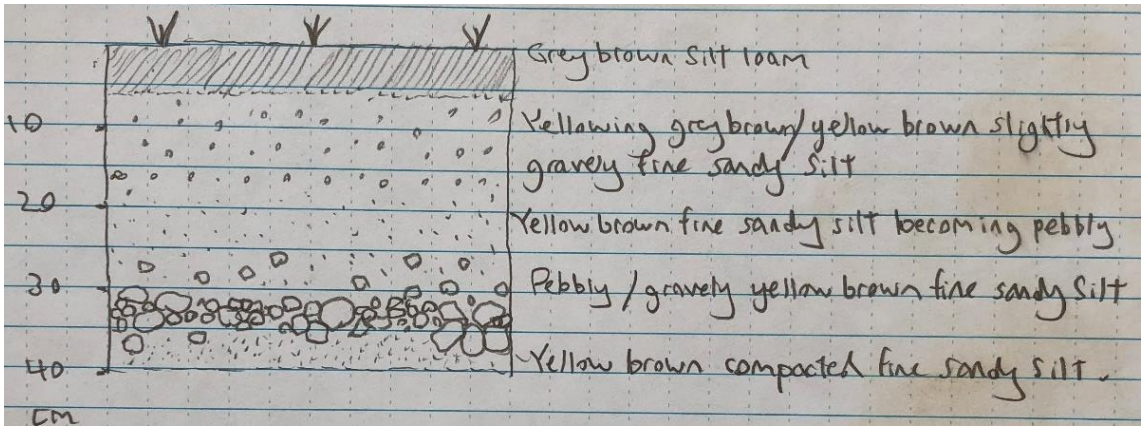


Southwest section of Square 2 showing evidence of a fluvial event



Base of Square 2

Schematic representation of soil profile Survey Unit 12 Transect 3 Square 5 Northwest section:



Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 6	Spit 1:18	Spit 1: 18	Spit 1: 10	Spit 1: 3	Spit 1: 1
Spit 2: 2	Spit 2: 36	Spit 2: 15	Spit 2: 6	Spit 2: 1	Spit 2: 6
Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0
Spit 4: 0	Spit 4: 0	Spit 4: 0	Spit 4: 1	Spit 4: 0	Spit 4: 0

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
8	54	33	17	4	7

Discussion: This transect had 123 artefacts. Squares 1, 2 & 3 situated furthest west and closest to the creek. Artefacts were found almost exclusively in upper spits (Sps 1 & 2), excluding one artefact retrieved from Square 4 Spit 4. The deposit consists of a shallow, silty loam overlying a cobble rich horizon. This data and the generally uniform distribution of artefacts found in the upper spits across Transects 3 and 4 suggests a relatively undisturbed context.

Lobs Hole Ravine
Survey Unit: 12
Test Transect:4

Description: The transect is oriented 50/230° offset 5 metres southeast of Test Transect 3 and situated on a lower terrace. Squares 1, 2 & 3 cross two informal vehicle tracks; six Test Squares were excavated. The ground is covered with a consistent cover of grass. The ground surface is gently undulating. A pile of rocks, mostly pebbles, covering an area of c.4 x 4 metre are located xxx. The area has possibly been used for cultivation and modern camping. A very sparse scatter of modern glass is visible in the adjacent vehicle track.

Square locations:

Square #	Easting	Northing
1	625690	6038987
2	625697	6038991
3	625700	6038993
4	625704	6038995
5	625709	6038994
6	625712	6038995

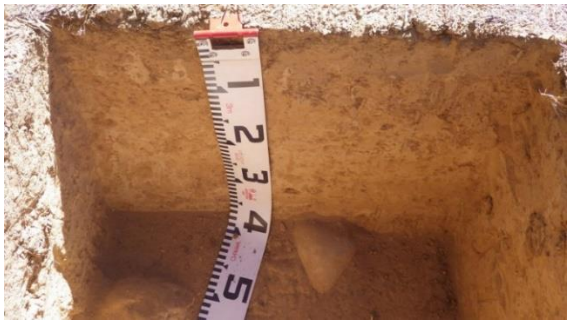
Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Light grey brown very fine sandy silty loamy soil; abundance of gravels appearing at base; bioturbation
Spit 2: 10-20	Light yellow brown gravelly/pebbly fine sandy silt; small pebble and cobble appearing at eastern end of square at base of spit
Spit 3: 20-30	A bed of large cobbles extends from 20cm to 27cm; beneath cobble layer, lies smaller pebbles and gravels; occasional cobble present at base; slight colour change to a lighter yellow brown compacted gravelly fine sandy silt
Square 2	
Spit 1: 0-10	Medium to light grey brown fine sandy silty loamy soil; tree roots mixing soil at base; becoming cleaner and more compact with depth
Spit 2: 10-20	Light yellow brown compacted fine sandy silt; tree roots continue
Spit 3: 20-30	Highly compacted yellow brown fine sandy silt; clean
Spit 4: 30-40	Highly compacted yellow brown fine sandy silt; clean; large cobbles appearing at base
Square 3	
Spit 1: 0-10	Highly compacted medium brown gravelly sandy silty loam; vehicle track crosses over pit along southwestern end; gradual change to a lighter yellow brown at base; sparse charcoal fragments
Spit 2: 10-20	Light yellow brown fine gravelly sandy silt; tree root
Spit 3: 20-30	Light yellow brown increasingly gravelly and compacted fine sandy silt; some bioturbation
Spit 4: 30-40	Extremely highly compacted yellow brown gravelly silt; less gravelly with depth
Square 4	
Spit 1: 0-10	Medium brown silty loam
Spit 2: 10-20	Medium grey brown silty loam becoming a yellowing light grey brown slightly pebbly fine sandy silt; bioturbation; occasional pebble

Square	Stratigraphic Log
Spit 3: 20-30	Yellow brown increasingly gravelly and compacted fine sandy silt; increasing pebble and cobble content
Spit 4: 30-40	Highly compacted yellow brown fine sandy silt; river pebble and large cobbles decrease dramatically by 37cm and soil becomes a compacted yellow brown gravelly silt with an occasional pebble to base
Square 5	
Spit 1: 0-10	Medium grey brown silty loam becoming a yellowing brown fine sandy silt at base; river pebbles at base
Spit 2: 10-20	Compacted yellowing light brown pebbly fine sandy silt
Spit 3: 20-30	Compacted light yellow brown very pebbly/cobbly fine sandy silt
Spit 4: 30-40	Compacted bed of small – large pebbles, cobbles and boulders with a fine sandy silt matrix
Square 6	
Spit 1: 0-10	Medium grey brown silty loam becoming a yellowing brown fine sandy silt at base
Spit 2: 10-20	Compacted light yellow brown fine sandy silt
Spit 3: 20-30	Light yellow brown highly compacted fine sandy silt developing a light greyish gravel mottling
Spit 4: 30-40	Highly compacted yellow brown slightly gravelly fine sandy silt; soft dark soil feature on northeast wall, appears to be infilled burrow or large root hole

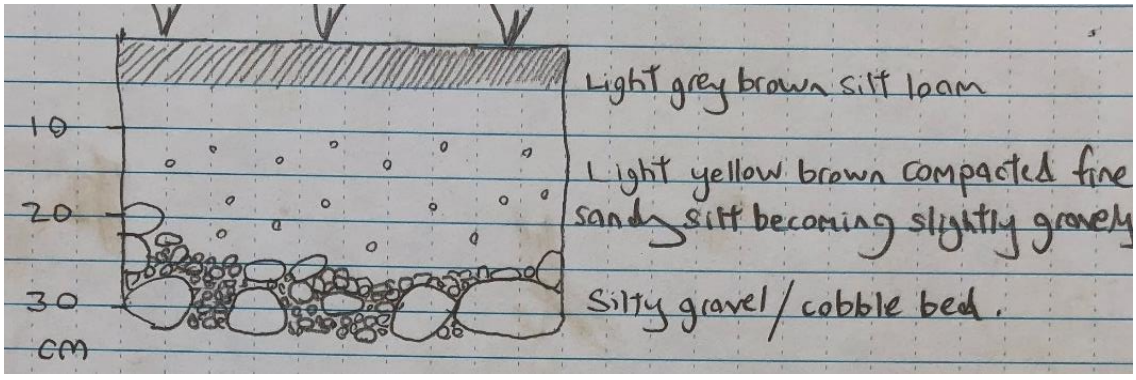


Looking 240° along SU12 Transect 4

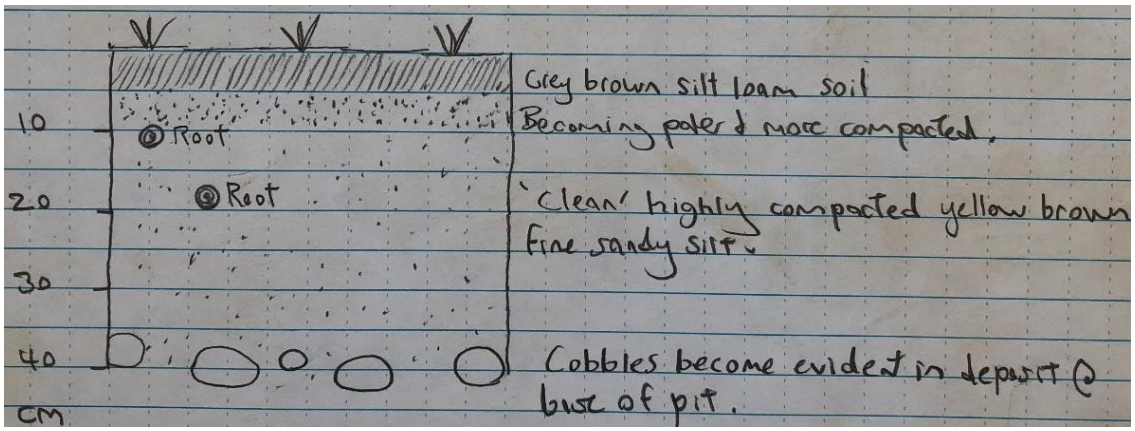


Northwest section of Square 2

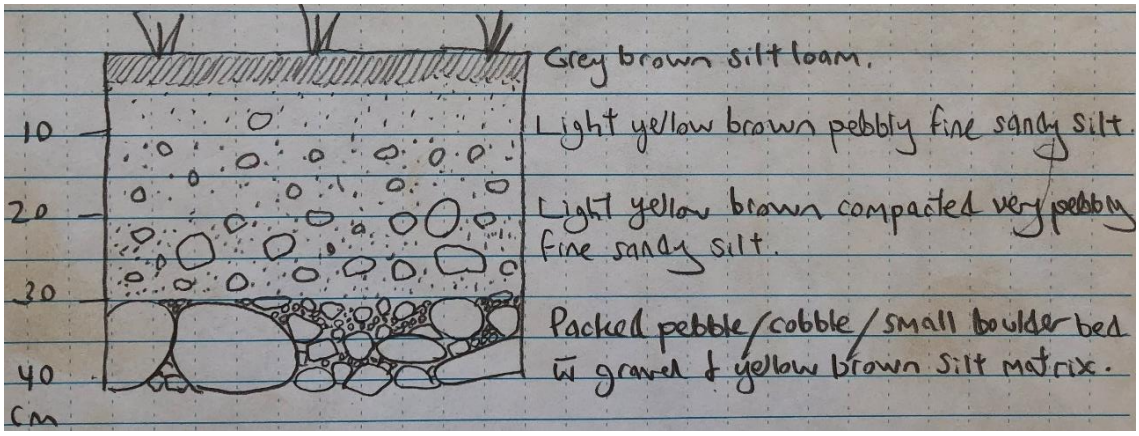
Schematic representation of soil profile Survey Unit 12 Transect 4 Square 1 Northwest section:



Schematic representation of soil profile Survey Unit 12 Transect 4 Square 2 Northwest section:



Schematic representation of soil profile Survey Unit 12 Transect 4 Square 5 Northwest section:



Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 13	Spit 1:32	Spit 1: 10	Spit 1: 0	Spit 1: 1	Spit 1: 0
Spit 2: 2	Spit 2: 9	Spit 2: 21	Spit 2: 2	Spit 2: 1	Spit 2: 0
Spit 3: 1	Spit 3: 0	Spit 3: 2	Spit 3: 1	Spit 3: 1	Spit 3: 0
	Spit 4: 0	Spit 4: 0	Spit 4: 0	Spit 4: 0	Spit 4: 0

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
16	41	33	3	3	-

Discussion: This transect had 96 artefacts. Squares 1, 2 & 3 situated furthest west and closest to the creek contained abundant small flat pebbles while the other squares did not. Most of the artefacts were found in Squares 1, 2 & 3. Squares 4, 5 and 6 were relatively uniformly compacted silty sediments. Square 6 stood devoid of artefacts and only a minimal number of artefacts found in Squares 4 and 5.

Lobs Hole Ravine

Survey Unit: 12
Test Transect:5
Description: The transect is orientated E/W and situated on a lower terrace. Square 1 is just off the edge of the level landform, on a gradient of 3°. An informal vehicle track divides Square 2 from Square 3; Squares 1 & 2 are west of the vehicle track; six Test Squares were excavated. The ground is covered with a consistent cover of grass.

Square locations:

Square #	Easting	Northing
1	625672	6039016
2	625681	6039016
3	625686	6039018
4	625693	6039019
5	625698	6039021
6	625702	6039021

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Compacted light yellow brown very fine sandy silt; fine rootlets; bioturbation
Spit 2: 10-20	Light yellow brown fine sandy silt; ant bioturbation
Spit 3: 20-30	Highly compacted light yellow brown fine sandy silt; uniform; ant bioturbation
Spit 4: 30-40	As above; gradually becoming a yellow brown fine sandy silt at base; highly compacted
Square 2	
Spit 1: 0-10	Compacted light yellow brown very fine sandy silt; fine rootlets
Spit 2: 10-20	Light yellow brown fine sandy silt; some mottling; ant bioturbation
Spit 3: 20-30	Highly compacted light yellow brown fine sandy silt; uniform; ant bioturbation
Spit 4: 30-40	As above; gradually becoming a yellow brown fine sandy silt at base; highly compacted
Square 3	
Spit 1: 0-10	Compacted light yellow brown fine sandy silt
Spit 2: 10-20	Highly compacted clean light yellow brown fine sandy silt
Spit 3: 20-30	Highly compacted light grey brown lightly mottled fine sandy silt
Spit 4: 30-40	Highly compacted light grey brown lightly mottled fine sandy silt
Square 4	
Spit 1: 0-10	Medium brown silty loam gradual change to a yellowing light brown fine sandy silt at base; bioturbation
Spit 2: 10-20	Compact light yellow brown fine sandy silt; some mottling; ant bioturbation
Spit 3: 20-30	At 21cm a gradual change to a highly compacted yellow brown fine sandy silt; bioturbation; uniform to base
Spit 4: 30-40	Highly compacted yellow brown fine sandy silt
Square 5	
Spit 1: 0-10	Medium light grey brown humic brown silty loam

Square	Stratigraphic Log
Spit 2: 10-20	Yellowing light brown fine sandy silt
Spit 3: 20-30	Compacted light yellow brown lightly mottled fine sandy silt; very slightly gravelly at base
Spit 4: 30-40	Compacted light yellow brown gravelly fine sandy silt with small to medium river pebbles; pebble/gravel band ceases at c.36cm and changes to a highly compacted medium yellow brown grey flecked fine sandy silt
Square 6	
Spit 1: 0-10	Medium grey brown lightly compacted fine sandy silty loam; yellowing with depth
Spit 2: 10-20	Light yellowing brown compacted fine sand silt; slight gravel content at base
Spit 3: 20-30	Light yellow brown slightly gravelly fine sandy silt
Spit 4: 30-40	Light yellow brown slightly gravelly highly compacted fine sandy silt; grades to a medium yellow brown grey flecked fine sandy silt

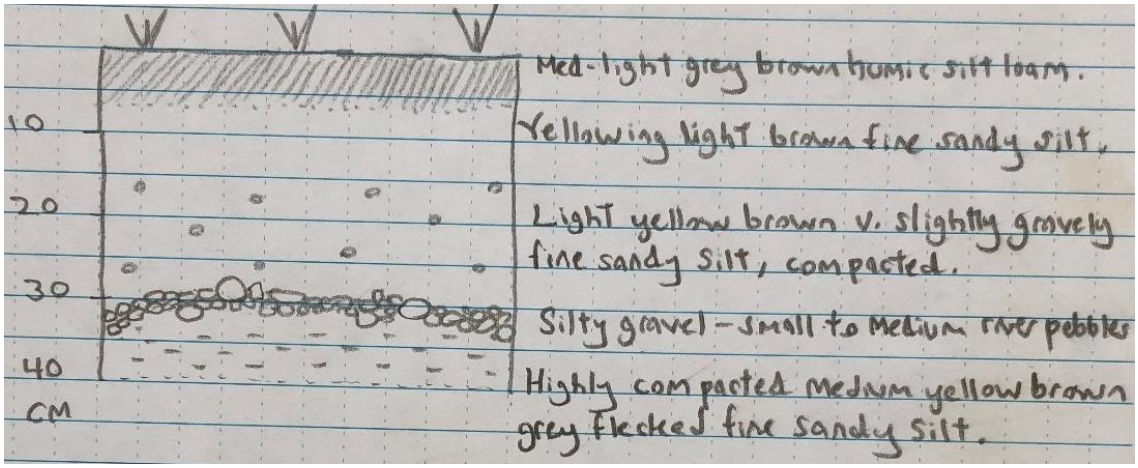


Looking 240° along SU12 Transect 5

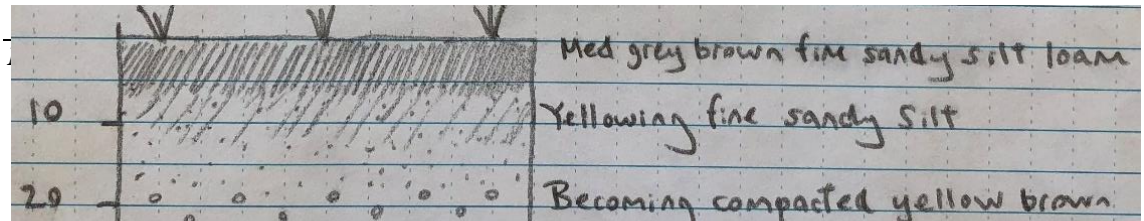


Northeast section of Square 6

Schematic representation of soil profile Survey Unit 12 Transect 5 Square 5 Northeast section:



Schematic representation of soil profile Survey Unit 12 Transect 5 Square 6 Northeast section:



Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 3	Spit 1:3	Spit 1: 1	Spit 1: 1	Spit 1: 1	Spit 1:
Spit 2:	Spit 2: 19	Spit 2: 1	Spit 2: 10	Spit 2:	Spit 2: 1
Spit 3:	Spit 3:	Spit 3:	Spit 3:	Spit 3:	Spit 3:
Spit 4:	Spit 4:	Spit 4:	Spit 4:	Spit 4:	Spit 4:

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
3	22	2	11	1	1

Discussion: This transect had 40 artefacts. Artefacts were found exclusively in upper spits (Sps 1 & 2) and none were retrieved from Spits 3 or 4. It is considered likely that the test area is relatively undisturbed.

Lobs Hole Ravine
Survey Unit: 12
Test Transect: 6
Description: The transect is oriented 80/260°. The distance between Squares 2 & 3 is 10 metres due to trees while the remaining Squares in this transect are 5 metres apart. A formed vehicle track lies to the south of transect; six Test Squares were excavated. The ground is covered with a consistent cover of grass with an open mostly regrowth forest located at the northwest end of the transect affecting Squares 1, 2 & 3. Squares 4, 5 & 6 are situated within the open grassed area.

Square locations:

Square #	Easting	Northing
1	625677	6039108
2	625684	6039106
3	625687	6039104
4	625690	6039103
5	625700	6039103
6	625704	6039101

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	A lot of leaf, bark and stick debris on surface of square; medium brown humic-rich silty loam; gradual change to a yellowing light brown fine sandy silt at base; rootlets; bioturbation
Spit 2: 10-20	Compact yellowing light brown fine sandy silt; ant bioturbation and many tree roots
Spit 3: 20-30	No soil change; increasing tree roots; one large root c.50mm diameter cuts horizontally across spit at a depth of 23cm
Spit 4: 30-40	Compact yellowing light brown fine sandy silt; ant bioturbation and occasional small tree roots continue; small gavels appearing at base
Square 2	
Spit 1: 0-10	Medium brown humic-rich silty loam; gradual change to a yellowing light brown fine sandy silt at base; small tree roots; bioturbation
Spit 2: 10-20	Compact yellowing light brown slightly gravelly fine sandy silt; ant bioturbation and many tree roots
Spit 3: 20-30	As above; decreasing ant activity
Spit 4: 30-40	Compact yellowing light brown fine sandy silt; small tree roots continue to base
Square 3	
Spit 1: 0-10	Compacted light yellow brown fine sandy silty soil; plentiful tree rootlets
Spit 2: 10-20	Fine sandy silty soil gradually changes to a mottled grey brown fine sandy silty loam soil; many tree roots; plentiful bioturbation and loosening around roots
Spit 3: 20-30	Light yellowing brown mottled rooty fine sandy silt
Spit 4: 30-40	Highly compacted slightly darker yellow brown grey flecked fine sandy silt
Square 4	
Spit 1: 0-10	Medium brown fine sandy silty loam; change to a yellowing grey brown fine sandy silt; many chunks of charcoal; ant and tree root bioturbation
Spit 2: 10-20	Increasing compaction with depth; light yellow brown fine sandy silt; many tree roots and ant activity continues; charcoal ceased; soil becoming a lighter yellow brown fine sandy silt at base
Spit 3: 20-30	Compacted light yellowing brown very fine sandy silt; ant and tree root bioturbation continue
Spit 4: 30-40	Highly compacted light yellowing brown very fine sandy silt; uniform; small tree roots continue to base
Square 5	
Spit 1: 0-10	Grey brown silty loam gaining in compaction to grey brown fine sandy silt
Spit 2: 10-20	Light grey brown mottled [bioturbated and rooty] compacted fine sandy silt
Spit 3: 20-30	As above
Spit 4: 30-40	Highly compacted lightly mottled medium grey brown grey flecked fine sandy silt; tree root penetration continues at base
Square 6	

Square	Stratigraphic Log
Spit 1: 0-10	Medium brown silty loam gaining in compaction to grey brown fine sandy silt
Spit 2: 10-20	Light grey brown mottled [bioturbated and rooty] compacted fine sandy silt
Spit 3: 20-30	As above
Spit 4: 30-40	Highly compacted lightly mottled medium grey brown grey flecked fine sandy silt

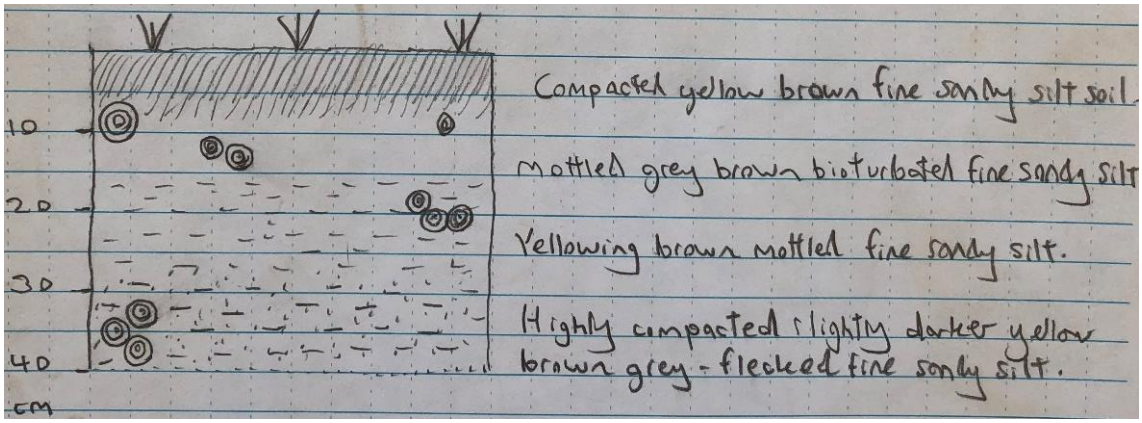


Looking 330° towards SU12 Transect 6

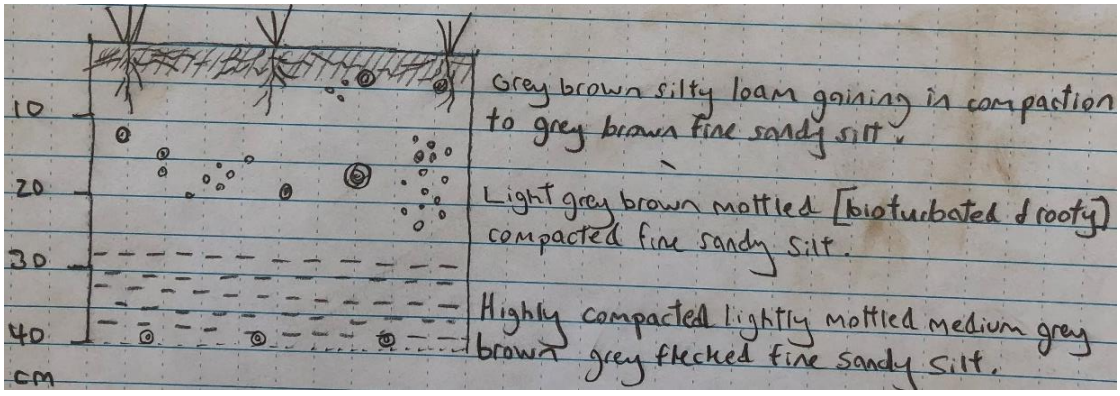


Northwest section of Square 5

Schematic representation of soil profile Survey Unit 12 Transect 6 Square 3 Northwest section:



Schematic representation of soil profile Survey Unit 12 Transect 6 Square 6 Northwest section:



Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 2	Spit 1: 3	Spit 1: 3	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 28	Spit 2: 1	Spit 2: 8	Spit 2: 2	Spit 2: 0
Spit 3: 0	Spit 3: 1	Spit 3: 0	Spit 3: 2	Spit 3: 0	Spit 3: 1
Spit 4: 0	Spit 4: 2	Spit 4: 0	Spit 4: 0	Spit 4: 0	Spit 4: 0

Visual representation of artefact retrieval:

Sq 1

Sq 2
33

Sq 3
4

Sq 4
13

Sq 5
2

Sq 6
1

Discussion: This transect had 53 artefacts. Artefacts were found to be inconsistently distributed across Transect 6 with a concentration of artefacts retrieved from Square 2.

Lobs Hole Ravine
Survey Unit: 12
Test Transect: 7
Description: The transect is oriented 10/190°. The transect is located on a little bedrock terminal spur crest with low elevation directly adjacent to the river and crosses a formed vehicle track and an informal vehicle track; six Test Squares were excavated. The ground is covered with a consistent cover of grass and occasional low bedrock outcropping. The Yarrangobilly River is situated c.30 metres to the east of the transect.

Square locations:

Square #	Easting	Northing
1	625817	6038973
2	625820	6038979
3	625824	6038983
4	625829	6038988
5	625826	6038991
6	625834	6038999

Excavation details:

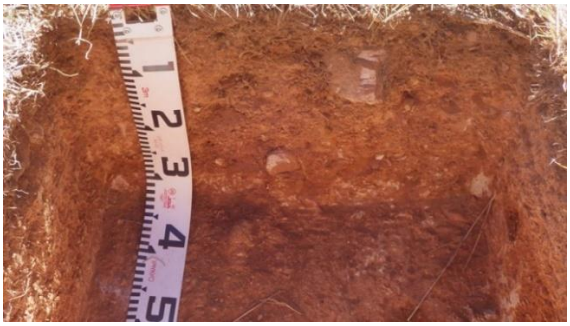
Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Light grey brown very gravelly silt; gravel is angular and up to pebble sized broken bedrock
Spit 2: 10-20	Light grey brown, reddening slightly, highly compacted very gravelly grey mottled fine sandy silt; angular pebbles and cobbles throughout
Spit 3: 20-30	Reddy brown highly compacted very gravelly slightly clayey silt
Spit 4: 30-40	Hard red brown very gravelly saprolitic [decaying bedrock] slightly clayey silt
Square 2	
Spit 1: 0-10	Light grey brown very gravelly silt; gravel is angular and up to pebble sized broken bedrock

Square	Stratigraphic Log
Spit 2: 10-20	Light grey brown, reddening slightly, highly compacted very gravelly grey mottled fine sandy silt; angular pebbles and cobbles throughout
Spit 3: 20-30	Red brown highly compacted very gravelly slightly clayey silt
Spit 4: 30-40	Hard red brown very gravelly saprolitic [decaying bedrock] slightly clayey silt
Square 3	Directly adjacent to vehicle track
Spit 1: 0-10	Light grey brown very gravelly silt; gravel is angular and up to pebble sized broken bedrock
Spit 2: 10-20	Gradual change at 12cm to a light reddy brown gravelly sandy silt; occasional waterworn cobble; compaction increasing with depth; very gravelly and rocky at base
Spit 3: 20-30	Gradually becoming a compacted; darker reddy brown dry slightly clayey gravelly silt; occasional cobbles and pebbles [angular to waterworn]
Spit 4: 30-35	Decomposing saprolitic bedrock at base; no colour change; occasional pebble and cobble
Square 4	Situated on the informal vehicle track
Spit 1: 0-10	Light grey brown rocky [gravelly/pebbly/cobbly] fine sandy silt gradually changing to a yellowing grey brown gravelly fine sandy silt
Spit 2: 10-20	Yellowish grey brown very gravelly fine sandy silt; becoming a red brown highly compacted very gravelly silt; occasional large pebbles and cobbles
Spit 3: 20-30	Highly compacted red brown very gravelly silt; becoming a looser, less gravelly red brown very slightly clayey fine sandy silt; gravels include angular chunks/fragments of shaley material; angular cobbles and outcropping of saprolite at base
Spit 4: 30-40	Heavily compacted red brown very gravelly/rubbly slightly clayey silt; grave/rubble composed of angular shaley rock; occasional waterworn cobble and pebbles
Square 5	
Spit 1: 0-10	Medium brown gravelly sandy silt; angular gravels
Spit 2: 10-20	At 15cm changes to a light reddy brown compact gravelly sandy silt; fine rootlets; gradually becoming a darker reddy brown gravelly fine sandy silt at base
Spit 3: 20-30	Gradual change to a slightly clayey gravelly sandy silt; saprolitic gravels; becoming very compacted at base
Spit 4: 30-40	Hard reddy brown clayey gravelly silt; many angular decomposing saprolitic rock throughout and continues to base
Square 6	
Spit 1: 0-10	Medium brown gravelly sandy silt; angular gravels; some bioturbation
Spit 2: 10-20	Becomes a light yellowing brown compact gravelly sandy silt; fine rootlets; gradually becoming a finer sandy silt at base; large cobble in southeast corner; bioturbation
Spit 3: 20-30	Gradual change to a slightly clayey gravelly sandy silt; becoming very compacted at base; charcoal fragments
Spit 4: 30-40	Gradually becoming a reddy brown slightly gravelly sandy silt; highly compacted

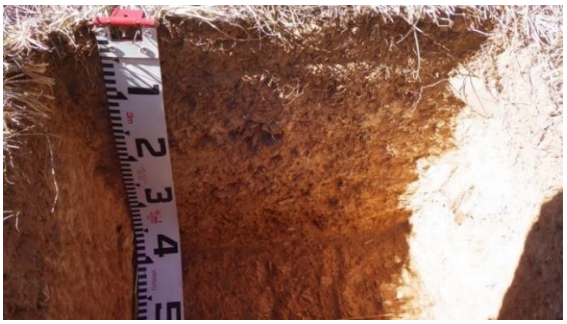
Square	Stratigraphic Log
Spit 5: 40-50	Highly compacted reddy brown sandy silt



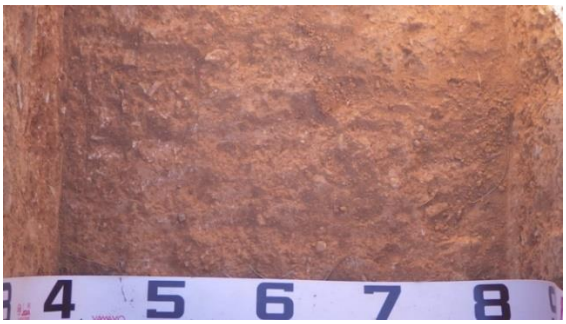
Looking 10° along SU12 Transect 7



North section of Square 2

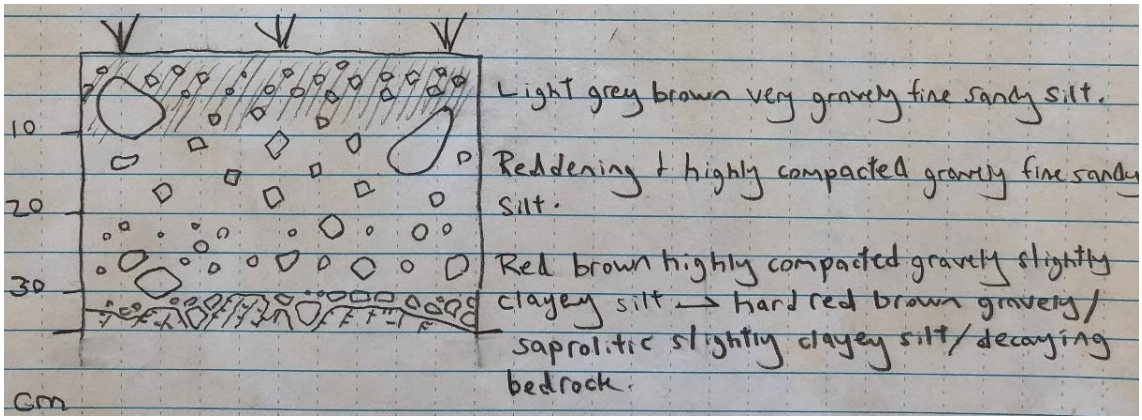


North section of Square 5

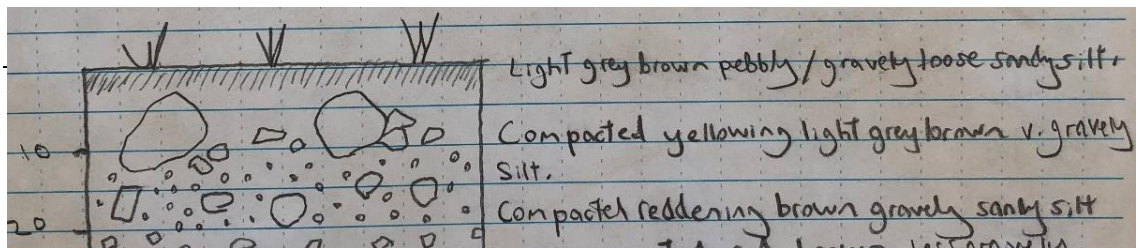


Base of Square 5

Schematic representation of soil profile Survey Unit 12 Transect 7 Square 2 North section:



Schematic representation of soil profile Survey Unit 12 Transect 7 Square 4 North section:



Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 4	Spit 1: 9	Spit 1: 0	Spit 1: 9	Spit 1: 51	Spit 1: 0
Spit 2: 6	Spit 2: 0	Spit 2: 0	Spit 2: 3	Spit 2: 51	Spit 2: 108
Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 21	Spit 3: 43
Spit 4: 0	Spit 4: 0	Spit 4: 0	Spit 4: 0	Spit 4: 8	Spit 4: 3
					Spit 5: 0

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
10	9	-	12	131	154

Discussion: This transect had 316 artefacts.

Lobs Hole Ravine
Survey Unit: 12
Test Transect: 8
Description: The transect is oriented 150/330°. The transect travels across the crest of a small bedrock terminal spur crest of low elevation adjacent to the river. This is part of the same landform as tested in Transect 7, however this is testing the spur crest at a higher elevation. A formed vehicle track lies to the southwest of transect; five Test Squares were excavated including the expansion of Square 2 to the southwest. The ground slopes gently to the southwest.

Square locations:

Square #	Easting	Northing
1	625827	6039026
2	625829	6039021
3	625830	6039016
4	625832	6039011

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Medium grey brown sandy silt; lightening/yellowing notably with depth; small amount of angular gravels appearing at 8cm
Spit 2: 10-20	Light yellow brown slightly gravelly fine sandy silt; compaction increasing with depth; colour uniform
Spit 3: 20-30	As above; becoming slightly more compact
Spit 4: 30-40	Becoming a reddish brown hard slightly gravelly sandy silt; angular gravels; ant bioturbation to base
Square 2	
Spit 1: 0-10	Medium grey brown sandy silty loam transitioning at base to a lighter yellow brown slightly gravelly sandy silt; occasional waterworn cobble
Spit 2: 10-20	Light yellow brown hard very gravelly fine sandy silt; mostly angular coarse gravel; very occasional waterworn pebble/cobble
Spit 3: 20-30	Light yellow brown very gravelly fine sandy silt gradually reddening and becoming a highly compacted to hard yet gravelly very fine sandy silt; gravel content includes angular pebbles and occasional small waterworn pebble
Square 2b	
Spit 1: 0-10	Medium grey brown unconsolidated gravelly fine sandy silt; lightening/yellowing notably with depth
Spit 2: 10-20	Light yellow brown very gravelly fine sandy silt reddening at c.15cm and becoming a highly compacted to hard; gravel content includes angular pebbles and occasional waterworn pebbles/cobbles
Spit 3: 20-30	Reddish brown hard very gravelly fine sandy silt; mostly angular coarse gravel; very occasional waterworn pebble/cobble
Square 3	
Spit 1: 0-10	Medium grey brown unconsolidated gravelly fine sandy silt; lightening/yellowing notably with depth
Spit 2: 10-20	Compacted very gravelly light yellow brown sandy silt; rootlets
Spit 3: 20-30	Highly compacted, reddish brown very gravelly sandy silt; angular gravels; ant bioturbation
Square 4	
Spit 1: 0-10	Medium grey brown unconsolidated gravelly fine sandy silt; lightening/yellowing notably with depth; rootlets and bioturbation
Spit 2: 10-20	Compacted very gravelly light yellow brown sandy silt; rootlets
Spit 3: 20-30	Highly compacted yellow brown gravelly fine sandy silt; mostly angular coarse gravel; very occasional waterworn pebble/cobble



Looking 90° towards SU12 Transect 8



Northwest section of Square 3

Schematic representation of soil profile Survey Unit 12 Transect 8 Square 2b Northwest section:

Artefact Retrieval:

Square 1	Square 2	Square 2b	Square 3	Square 4
Spit 1: 13	Spit 1: 58	Spit 1: 45	Spit 1: 53	Spit 1: 17
Spit 2: 12	Spit 2: 27	Spit 2: 19	Spit 2: 54	Spit 2: 3
Spit 3: 4	Spit 3: 0	Spit 3: 2	Spit 3: 1	Spit 3: 2
Spit 4: 0				

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 2b	Sq 3	Sq 4
29	85	66	108	22

Discussion: This transect had 310 artefacts. Artefacts were found to be consistently distributed across Transect 8 with most artefacts retrieved within the upper 10 cm of deposit. The greatest concentration of artefacts came from Squares 2, 2b and 3. Squares 2 and 2b are located on the crest proper and Square 3 on the north side of the crest overlooking the river flats. Square 1, situated on the south side of crest directly above a formed vehicle track and overlooking the river. Transect 7 Square 6 is flanked by Transect 8 Squares 1 & 2. Transect 7 Square 6 had an artefact count of 154, with most artefacts retrieved from spit 2. It is likely, that the original upper levels of deposit may have been removed by erosion and/or human actions. The exposed bedrock and decomposing saprolite found throughout the excavated squares suggest a highly eroded landform and this would be consistent with the presence of artefacts commencing in spit1.

Gooandra

Survey Unit: 1

Test Transect: 1

Description: The transect is oriented 115/285° situated on a flat elevated landform with an open aspect and approximately one metre south of a drainage line at the closest point, Squares 5 & 6. The area of drainage line directly adjacent to Transect 1 is damp with no flowing water, however, flows further downstream c. 30m and into a wet spring area before continuing. Directly west-southwest of the transect the land is pugged with tussock like islands, consequently, this area would become very boggy and wet at times throughout the year. Small shrubs and trees grow sporadically

along the southern bank of the drainage line and on the higher elevated landform on the northern bank, an open woodland of *White Sallee Eucalypt*, shrubby heath as well as small grassed areas.

Square locations:

Square #	Easting	Northing
1	636664	6039489
2	636668	6039484
3	636674	6039482
4	636678	6039482
5	636681	6039476
6	636685	6039473

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Dark brown sticky silty loam; lighter mottling at base; plentiful tree roots and rootlets throughout
Spit 2: 10-20	As above; stickiness continues; frequent tree roots
Spit 3: 20-30	Dark brown/reddish brown mottle silty loam; gradual change to a reddish-brown firm silty loam with some fine yellowish mottling patches of rock appearing at base
Spit 4: 30-40	Red brown lightly compacted silty loam; occasional small basalt rocks
Spit 5: 40-50	Red brown silty loam yellowing with depth; becoming gravelly/pebbly at base; small boulder and cobbles of basalt also emerging
Square 2	
Spit 1: 0-10	Dark grey brown/brown mottled silty loam; sticky; plentiful grass roots
Spit 2: 10-20	Dark grey brown/brown mottled silty loam; lightening with depth to reddish brown; tree/shrub rootlets throughout
Spit 3: 20-30	Dark brown/reddish brown mottle silty loam; gradual change to a reddish-brown firm silty loam with some fine yellowish mottling patches of rock appearing at base
Spit 4: 30-40	Red brown lightly compacted silty loam; small rounded basalt boulder at base [occupies approx. 25% of base]
Spit 5: 40-50	Red brown silty loam yellowing with depth; becoming gravelly/pebbly at base; small boulder and cobbles of basalt also emerging
Square 3	
Spit 1: 0-10	Very dark brown fine silty loam; sticky; bioturbation
Spit 2: 10-20	As above; stickiness continues; frequent tree roots
Spit 3: 20-30	Gradual change at 21cm to a lighter brown slightly looser fine sandy silty loam; stickiness continues
Square 4	
Spit 1: 0-10	Dark grey brown sticky silty loam; lighter mottling at base; plentiful rootlets throughout
Spit 2: 10-20	Yellowing mottled grey brown silty loam; shrub rootlets through to base

Square	Stratigraphic Log
Spit 3: 20-30	Mottled yellow brown silty loam with rocky surfaces [basalt boulders] emerging at base
Square 5	
Spit 1: 0-10	Very dark brown fine silty loam; sticky; bioturbation
Spit 2: 10-20	Gradual change to a looser dark brown silty loam; becoming slightly lighter with depth; stickiness continues
Spit 3: 20-30	Medium brown silty loam; tree roots; basalt rocks appearing at base
Square 6	
Spit 1: 0-10	Dark grey brown sticky silty loam; plentiful shrub roots throughout
Spit 2: 10-20	Dark grey brown silty loam; gradual change to a yellowing mottling and occasional outcropping of basalt rocks at base
Spit 3: 20-30	Yellow brown mottled sticky silty loam and basalt boulders; shrub roots throughout



Looking 110° towards Transect 1



West section of Square 2

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0
Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0
Spit 4: 0	Spit 4: 0				
Spit 5: 0	Spit 5: 0				

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
-	-	-	-	-	-

Gooandra

Survey Unit: 1

Test Transect: 2

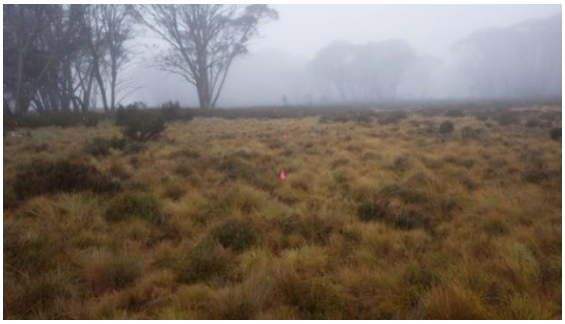
Description: The transect is oriented 115/285° offset south 10 metres from Survey Unit 1 Transect 1. Squares 1 & 2 were the only squares excavated in Transect 2. Transect 2 including the unexcavated squares (Sqs 3, 4, 5 & 6) are situated directly adjacent to the pugged/bog area. A low basalt outcrop is located c. 2 m northeast of Square 2. The subsurface deposit was very similar to Transect 1

Square locations:

Square #	Easting	Northing
1	636659	6039477
2	636664	6039475

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Dark grey brown silty loam; bioturbation/rootlet mottling at base
Spit 2: 10-20	Dark grey brown silty loam; lightening slightly at base; bioturbation/rootlet mottling continues
Spit 3: 20-30	Yellow brown bioturbation/root mottled silty loam; compacted lightly at base
Square 2	
Spit 1: 0-10	Dark grey brown silty loam; bioturbation/rootlet mottling at base
Spit 2: 10-20	Dark grey brown silty loam; yellowing markedly at base
Spit 3: 20-30	Yellow brown bioturbation/root mottled silty loam; compacted lightly at base



Looking 100° along Transect 2



East section of Square 1

Artefact Retrieval:

Square 1	Square 2
Spit 1: 0	Spit 1:0
Spit 2: 0	Spit 2: 0

Visual representation of artefact retrieval:

Sq 1
-

Sq 2
-

Gooandra

Survey Unit: 1

Test Transect: 3

Description: The transect is orientated 30/220° situated on a flattish elevated landform with a south-easterly aspect and part of a much larger broad undulating plateau landform. Transect 3 is on the northern bank of the same drainage line as Transects 1 & 2 are located.

Square locations:

Square #	Easting	Northing

1	636676	6039530
2	636679	6039532
3	636684	6039536
4	636690	6039540
5	636695	6039545
6	636697	6039546

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Very dark almost black brown sticky silty loam
Spit 2: 10-20	As above; stickiness continues
Spit 3: 20-30	Very dark brown/black silty loam; lightly compacted; basalt cobble appearing at base
Spit 4: 30-40	Very dark brown silty loam; lightly compacted; increasing basalt cobble content
Spit 5: 40-50	Gradual change to a reddish dark brown silty loam; several basalt cobbles/small boulders
Square 2	
Spit 1: 0-10	Very dark brown silty loam; grass root penetration throughout; slightly paler in patches at base
Spit 2: 10-20	Very dark brown silty loam; only lightly compacted; sticky; with rootlets; appears to be lightening slightly at base
Spit 3: 20-30	Very dark brown/slightly lightening silty loam; gradual change to dark reddish brown mottled silty loam; several basalt cobbles/small boulders appearing at base
Square 3	
Spit 1: 0-10	Very dark almost black brown sticky silty loam
Spit 2: 10-20	As above; stickiness continues
Spit 3: 20-30	Very dark brown/black silty loam; lightly compacted; basalt cobbles begin appearing c. 25cm and continue to base of spit
Square 4	
Spit 1: 0-10	Dark brown silty loam; grass rootlets throughout
Spit 2: 10-20	Dark brown silty loam; sticky; basalt boulders towards base; grass roots throughout
Spit 3: 20-30	Dark brown silty loam; gradually becoming slightly lighter and slightly compacted silty loam with occasional orange [ish] mottle and basalt boulders throughout
Square 5	
Spit 1: 0-10	Very dark almost black brown sticky silty loam
Spit 2: 10-20	As above; stickiness continues
Spit 3: 20-30	Slightly lighter dark brown slightly gravelly silty loam; lightly compacted; basalt cobbles appear
Square 6	
Spit 1: 0-10	Dark brown silty loam slightly lightening at base; reddish yellowing patched; shrub and grass roots throughout
Spit 2: 10-20	Dark brown silty loam with lighter mottling; gradual change to a paler yellow brown silty loam with single basalt boulder
Spit 3: 20-30	Dark brown mottled/yellow brown lightly compacted silty loam with basalt cobbles and small boulders throughout



Looking 350° towards Transect 3



West-northwest section of Square 4

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 1	Spit 2: 0	Spit 2: 0
Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0
Spit 4: 0					
Spit 5: 0					

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
-	-	-	1	-	-

Discussion – One stone artefact was retrieved from this transect indicated very a very low density and patchy artefact distribution.

Gooandra
Survey Unit: 1
Test Transect: 4
Description: The transect is oriented 30/220° offset 10 metres to the east of SU1 Transect 3.

Square locations:

Square #	Easting	Northing
1	636687	6039522
2	636690	6039525
3	636693	6039529
4	636697	6039530
5	636704	6039533
6	636709	6039536

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Dark brown lightly mottled silty loam; plentiful grass roots and occasional small tree roots
Spit 2: 10-20	Lightly mottled dark brown silty loam; deposit is damp and sticky; plentiful small tree roots throughout

Square	Stratigraphic Log
Spit 3: 20-30	Damp sticky mottled dark brown silty loam with basalt boulders though spit; small tree roots throughout
Square 2	
Spit 1: 0-10	Very dark brown silty loam
Spit 2: 10-20	Very dark brown silty loam; only lightly compacted; sticky
Spit 3: 20-30	Very dark brown/slightly lightening silty loam; several basalt cobbles/small boulders appearing at base
Square 3	
Spit 1: 0-10	Very dark brown silty loam; many grass rootlets; loose and friable
Spit 2: 10-20	At 12cm deposit becomes sticky; decreasing grass rootlets and other organic matter; occasional small tree root; small basalt cobble appearing at base
Spit 3: 20-30	Very dark brown/black silty loam; lightly compacted; a bed of basalt cobbles at base
Square 4	
Spit 1: 0-10	Very dark almost black brown silty loam
Spit 2: 10-20	As above; basalt cobbles begin to appear at base of spit
Spit 3: 20-30	Slightly lighter dark brown silty loam lightening at base; lightly compacted; basalt cobbles increasing
Square 5	
Spit 1: 0-10	Medium dark grey brown silty loam; plentiful grass roots and shrub roots throughout
Spit 2: 10-20	Medium dark grey brown silty loam; developing mottling with depth; single basalt rock protruding at base; tree roots/rootlets throughout
Spit 3: 20-30	Mottled medium -dark grey brown silty loam with basalt pebble/cobbles and small boulders at base; tree rootlets throughout
Square 6	
Spit 1: 0-10	Very dark almost black brown silty loam
Spit 2: 10-20	As above; small tree roots; small basalt cobble at base of spit
Spit 3: 20-30	Slightly lighter dark brown silty loam lightening at base; lightly compacted; basalt boulder at base; tree roots continue



Looking 300° towards Transect 4 located behind trees on small rise



Southwest section of Square 5

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0

Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
-	-	-	-	-	-

Gooandra
Survey Unit: 1
Test Transect: 5
Description: The transect is orientated north/south above a drainage line and is situated on a very gently sloping heath covered elevated landform. The aspect is to the northeast.

Square locations:

Square #	Easting	Northing
1	636763	6039472
2	636760	6039466
3	636759	6039462
4	636756	6039458
5	636756	6039453
6	636754	6039448

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Very dark brown silty loam; plentiful grass rootlets and occasional shrub roots
Spit 2: 10-20	Very dark brown silty loam; slightly yellowish mottling towards base
Spit 3: 20-30	Yellowish mottled dark brown silty loam grading to a yellow brown silty loam; basalt pebble as base in northwest corner
Spit 4: 30-40	Yellow brown silty loam with occasional basalt pebbles; becoming tabular basalt boulders across base; rootlets continue
Square 2	
Spit 1: 0-10	Very dark brown silty loam; many roots from grass and heath
Spit 2: 10-20	Very dark brown silty loam; heath roots continue
Spit 3: 20-30	Becoming a lighter dark brown silty loam; occasional root continues
Square 3	
Spit 1: 0-10	Very dark brown silty loam; many grass rootlets; loose and friable; basalt cobble in southwest corner at base of spit
Spit 2: 10-20	Dark brown silty loam; increasing cobbles; boulder at base extending into spit 3; soil becomes a reddish dark brown silty loam around rocks
Spit 3: 20-30	Gradual change to a reddish dark brown silty loam at 21cm where small basalt gravels appear amongst basalt cobbles.
Square 4	
Spit 1: 0-10	Dark grey brown silty loam; plentiful grass roots and shrub roots throughout

Square	Stratigraphic Log
Spit 2: 10-20	Dark grey brown silty loam; developing mottling at base around roots
Spit 3: 20-30	Dark grey brown increasingly mottled silty loam with basalt pebbles and outcropping at base
Square 5	
Spit 1: 0-10	Very dark brown silty loam; many roots and rootlets
Spit 2: 10-20	Dark brown silty loam; insect burrows
Spit 3: 20-30	Slightly lighter dark brown silty loam; lightening at base; lightly compacted; basalt pebbles/cobbles at base
Square 6	
Spit 1: 0-10	Dark brown silty loam; loose and friable; many roots and rootlets
Spit 2: 10-20	Slight colour change to a lighter brown silty loam; decreasing roots
Spit 3: 20-30	Clear change to a medium brown gravelly/pebbly silty loam at base



Looking 90° towards Transect 5



North section of Square 4

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0
Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0
Spit 4: 0					

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
-	-	-	-	-	-

Gooandra

Survey Unit: 1

Test Transect: 6

Description: The transect is oriented 170/350° and is situated on the same landform as SU1 Transect 5, but higher towards the crest and further from the drainage line and spring.

Square locations:

Square #	Easting	Northing
1	636762	6039437
2	636761	6039433
3	636765	6039425

4	636764	6039419
5	636763	6039414
6	636767	6039409

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Very dark/dark grey brown silty loam; plentiful grass rootlets
Spit 2: 10-20	Dark grey brown lightly mottled silty loam becoming gravelly/pebbly at base
Spit 3: 20-30	Medium-dark yellowing gravelly loam; pea gravel notably increasing in occurrence at base
Spit 4: 30-40	Yellow brown gravelly loam with occasional basalt cobbles/boulders appearing at base
Square 2	
Spit 1: 0-10	Very dark/dark grey brown silty loam; plentiful grass rootlets
Spit 2: 10-20	As above; slightly lightening at base; decreasing rootlets
Spit 3: 20-30	Gradually changes from medium brown silty loam to a light brown gravelly loam at base
Square 3	
Spit 1: 0-10	Dark grey brown silty loam; basalt outcropping along west side of pit
Spit 2: 10-20	Dark grey becoming mottled and gravelly silty loam; basalt boulder occupying west side of pit and extends through spit
Spit 3: 20-30	Mottled yellowing brown gravel loam mix with some solid basalt at base of spit; basalt boulder on west side occupies on third of spit depth
Square 4	
Spit 1: 0-10	Very dark brown silty loam basalt boulder appears at base
Spit 2: 10-20	Gradual change medium-dark yellowing brown gravelly loam; gravel notably increasing in occurrence at base
Spit 3: 20-30	Medium brown gravelly silty loam with basalt pebbles; basalt outcropping at base
Square 5	
Spit 1: 0-10	Very dark brown silty loam basalt boulder appears at base
Spit 2: 10-20	Gradual change medium-dark yellowing brown gravelly loam; gravel notably increasing in occurrence at base; large boulder emerges
Spit 3: 20-30	Medium brown gravelly silty loam with basalt pebbles; basalt outcropping at base
Square 6	
Spit 1: 0-10	Dark brown silty loam; loose and friable; rootlet penetration throughout; single basalt cobble in spit
Spit 2: 10-20	Dark grey brown silty loam developing lightening hue and with occasional basalt gravels/pebbles; outcropping basalt in bottom 5cm of spit
Spit 3: 20-30	Undulating base; yellowing dark brown silty loam with occasional pebbles; tabular basalt rubble at base; dense rootlet penetration throughout spit



Looking 170° towards Transect 6 and the southern end of Transect 5



East section of Square 3

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0
Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0
Spit 4: 0					

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
-	-	-	-	-	-

Gooandra

Survey Unit: 1

Test Transect: 7

Description: The transect is orientated north/south and is situated on the crest proper of an elevated rise, part of the greater plateau. Low outcrops of rounded basalt are sited sporadically across the crest.

Square locations:

Square #	Easting	Northing
1	636773	6039398
2	636770	6039393
3	636766	6039388
4	636765	6039382
5	636764	6039380
6	636763	6039375

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Dark grey brown silty loam with basalt small boulders throughout; plentiful shrubs and grass root penetration
Spit 2: 10-20	Dark grey brown occasionally pebbly silty loam with small basalt boulders throughout
Spit 3: 20-30	Dark grey brown occasionally pebbly silty loam with small basalt boulders throughout
Spit 4: 30-40	Change at base to solid basalt outcropping

Square	Stratigraphic Log
Square 2	
Spit 1: 0-10	Dark grey brown silty loam with basalt small boulders throughout; plentiful shrubs and grass root penetration
Spit 2: 10-20	Dark grey brown occasionally pebbly silty loam with small basalt boulders throughout
Spit 3: 20-30	Patch of deposit between boulders at pit centre and southeast corner; dark grey brown occasionally pebbly silty loam with solid basalt rock outcropping/patches of gravelly silt
Square 3	
Spit 1: 0-10	Dark brown very fine silty loam; loose and friable; many rootlets and heath roots; basalt boulders/cobbles begin at surface and continue to base
Spit 2: 10-20	Dark brown fine silty loam with increasing basalt boulders/cobble content
Spit 3: 20-30	Dark brown fine silty loam with the addition of an occasional basalt pebble
Square 4	
Spit 1: 0-10	Dark brown very fine silty loam; loose and friable; many rootlets and heath roots; basalt boulders/cobbles begin at surface and continue to base
Spit 2: 10-20	Lighter brown fine silty loam with increasing basalt boulders/cobble content; yellowing at base
Spit 3: 20-30	Yellow brown gravelly loam with basalt pebbles increasing at base
Spit 4: 30-40	Yellow brown gravelly/pebbly loam with basalt gravel/saprolite fragments; base of spit predominately outcropping basalt
Square 5	
Spit 1: 0-10	Dark grey brown silty loam; some yellowing/orange mottling at base; small basalt boulder on west edge through whole spit; many grass rootlets
Spit 2: 10-20	Yellowing mottled dark brown gravelly loam; plentiful rootlets throughout
Spit 3: 20-30	Yellow brown gravelly loam with basalt pebbles and cobbles
Spit 4: 30-40	Yellow brown gravelly loam with basalt gravel/saprolite fragments; base of spit predominately outcropping basalt
Square 6	
Spit 1: 0-10	Dark brown silty loam; gradual change to a medium brown silty loam with yellowing/orange mottling at base; some basalt pebbles/gravels; many grass rootlets
Spit 2: 10-20	Yellowing mottled dark brown gravelly loam; plentiful rootlets throughout
Spit 3: 20-30	Yellow brown gravelly loam with basalt pebbles and cobbles



Looking 55° towards Transects 7 and 8



West section of Square 1

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0
Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0
Spit 4: 0			Spit 4: 0	Spit 4: 0	

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
-	-	-	-	-	-

Gooandra

Survey Unit: 1

Test Transect: 8

Description: The transect is oriented 65/245° and is situated 10 metres to the west southwest of Transects 6 and 7 ascending a very gentle gradient [2° slope] to a higher crest formation. The aspect is to the northeast. Transect 8 is an open area surrounded by pocket of tall thin *White Sallee Eucalypt* and a ground cover of heath and native grasses. Worn horse tracks, horse manure and rabbit diggings are evident.

Square locations:

Square #	Easting	Northing
1	636754	6039383
2	636748	6039380
3	636742	6039378
4	636738	6039373
5	636733	6039377
6	636729	6039372

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Dark grey brown silty loam; plentiful small roots; occasional pebble
Spit 2: 10-20	Dark grey brown occasionally pebbly silty loam with small basalt boulder throughout at west side; tree rootlets common

Square	Stratigraphic Log
Spit 3: 20-30	Dark grey brown silty loam yellowing/lightening notable with pebbles/gravels; basalt rock outcropping at base; small tree roots to base
Spit 4: 30-40	Yellow brown gravelly silt; plentiful saprolitic basalt pebbles and cobbles packed across base; small basalt boulders occupying half of pit
Square 2	
Spit 1: 0-10	Dark brown silty loam; plentiful shrubs and grass root penetration
Spit 2: 10-20	Dark brown fine silty loam; decreasing rootlets occasional basalt pebble appearing at 18cm; small tree roots
Spit 3: 20-30	Gradual change to t lighter brown silty loam with increasing basalt gravels and an occasional pebble; becoming compacted; heath roots continue; small amount of spider bioturbation at base
Spit 4: 30-40	Increasing rock content with basalt cobbles appearing a t 36cm; soil becomes a powdery light brown very fine silty loam with many basalt sub-rounded pebbles and gravels
Square 3	
Spit 1: 0-10	Dark brown very fine silty loam; loose and friable; many rootlets and heath roots
Spit 2: 10-20	Dark brown fine silty loam with increasing heath roots; some gravels appearing at base
Spit 3: 20-30	Gradual change to a medium brown very gravelly fine silty loam; occasional basalt pebble
Spit 4: 30-40	Yellow brown gravelly silt; plentiful saprolitic basalt pebbles and cobbles packed across base
Square 4	
Spit 1: 0-10	Dark grey brown silty loam; gradual change to an orange brown mottling at base; small tree roots, shrub roots and grass roots throughout
Spit 2: 10-20	Dark grey mottled silty loam; pale gravel flecks at base; flat basalt boulder northwest corner
Spit 3: 20-30	Dark grey gravelly loam with basalt boulders occupying base of spit
Square 5	
Spit 1: 0-10	Dark brown very fine silty loam; loose and friable; many rootlets and heath roots
Spit 2: 10-20	Dark brown fine silty loam with increasing heath roots; some gravels appearing at base
Spit 3: 20-30	Yellow brown gravelly loam with basalt pebbles and cobbles at base
Square 6	
Spit 1: 0-10	Dark grey brown mottled silty loam; many grass rootles
Spit 2: 10-20	Dark grey brown mottled slightly gravelly silty loam; basalt boulders occupying over half of base
Spit 3: 20-30	Dark grey brown mottled increasingly gravelly silty loam increased basalt rock proportion with depth



Looking 55° towards Transects 7 and 8



Southwest section of Square 2

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 1
Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0
Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0
Spit 4: 0	Spit 4: 0	Spit 4: 0			

Visual representation of artefact retrieval:

Sq 1
-

Sq 2
-

Sq 3
-

Sq 4
-

Sq 5
-

Sq 6
1

Gooandra
Survey Unit: 1
Test Transect: 9
Description: The transect is oriented northeast/southwest and is situated on an upper slope of a northeast facing simple slope with a very gentle 2° gradient. The simple slope has an occasional basalt outcrop and extends to a flattish bench overlooking a drainage line and spring.

Square locations:

Square #	Easting	Northing
1	636637	6039350
2	636632	6039349
3	636629	6039348
4	636623	6039347
5	636618	6039341
6	636614	6039342

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Dark grey brown silty loam; plentiful small roots
Spit 2: 10-20	Dark grey brown occasionally pebbly silty loam with small basalt cobbles/boulders emerging
Spit 3: 20-30	Dark grey brown silty loam yellowing/lightening notable with pebbles/gravels; basalt rock outcropping at base

Square	Stratigraphic Log
Spit 4: 30-40	Yellow brown gravelly silt; plentiful saprolitic basalt pebbles and cobbles packed across base
Square 2	
Spit 1: 0-10	Dark brown/pale mottled silty loam; occasional basalt cobble; basalt rock at points at base; plentiful grass root penetration
Spit 2: 10-20	Mottled dark brown silty loam; pale shift to light/medium yellow brown with gravels at base; small basalt boulders outcropping
Spit 3: 20-30	Mottled medium yellow brown gravelly silt/ basalt boulders and cobbles
Spit 4: 30-50	Boulders/cobble/soil removal deep; pale medium yellow brown gravelly silt/basalt rubble
Square 3	
Spit 1: 0-10	Dark brown very fine silty loam; loose and friable; many rootlets and heath roots; basalt cobbles appearing at base
Spit 2: 10-20	Dark brown fine silty loam with increasing heath roots; occasional very small flecks of charcoal appearing at base atop basalt cobbles and between
Spit 3: 20-35	Becoming a mottled medium yellow brown gravelly silt with basalt boulders and cobbles packed at base; bioturbation; heath roots continue
Square 4	
Spit 1: 0-10	Dark grey brown silty loam; plentiful small roots
Spit 2: 10-20	Dark grey brown silty loam; gradual change to an orange brown mottling at base; occasional pebble; small tree roots, shrub roots and grass roots throughout
Spit 3: 20-30	Medium yellow brown silty loam; increasing pebbles
Spit 4: 30-40	Mottled medium yellow brown silty loam with increasing pebbles; basalt cobbles and small boulders emerging
Spit 5: 40-50	Yellow brown gravelly loam with basalt pebbles and cobbles at base
Square 5	
Spit 1: 0-10	Dark brown silty loam; basalt boulders outcropping at two points; many rootlets throughout
Spit 2: 10-20	Dark brown becoming a reddish brown silty loam; becoming a pale mottled reddish brown gravelly silty loam with basalt rubble appearing at base
Spit 3: 20-30	Dark reddish brown slightly gravelly loam with basalt pebbles and cobbles at base
Spit 4: 30-40	Lightening reddish brown gravelly silt changing to a mottled yellow brown gravelly silt/basalt rubble; rootlet penetration throughout
Square 6	
Spit 1: 0-10	Dark grey brown mottled silty loam; many grass rootles; two basalt cobbles appearing
Spit 2: 10-20	Dark grey brown mottled slightly gravelly silty loam; basalt boulders occupying over half of base
Spit 3: 20-30	Dark grey brown mottled increasingly gravelly silty loam increased basalt rock proportion with depth
Spit 4: 30-40	Lightening reddish brown gravelly silt with basalt boulders occupying majority of base



Looking 240° towards Transects 9



Southwest section of Square 2

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0
Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0
Spit 4: 0	Spit 4: 0		Spit 4: 0	Spit 4: 0	Spit 4: 0
			Spit 5: 0		

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
-	-	-	-	-	-

Gooandra

Survey Unit: 1

Test Transect: 10

Description: The transect is oriented southeast/northwest and is situated on a broad flattish bench above the drainage line and Transect 9. The landform has a northeast aspect and is covered in thick vegetation of heath and native grasses. A small stand of *White Sallee Eucalypt* is located directly southeast of Transect 10.

Square locations:

Square #	Easting	Northing
1	636565	6039356
2	636562	6039358
3	636556	6039367
4	636556	6039365
5	636555	6039370
6	636553	6039376

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Dark red brown silty loam; plentiful small roots [tree, shrub, grass]; basalt cobbles and small boulder appearing at base
Spit 2: 10-20	Dark red brown silty loam; small basalt cobbles/boulders emerging; rootlets throughout
Spit 3: 20-30	Red brown silty loam yellowing/lightening with depth becoming slightly gravelly; basalt rubble outcropping at base/rough gravel;

Square	Stratigraphic Log
	basalt boulders and cobbles in upper levels terminate with this depth ie. Appear to be sitting on next level
Spit 4: 30-40	Medium yellow brown gravelly silt with basalt boulder outcropping at base; east side of pit; black flecks/frags in deposit [?mineral origin]
Spit 5 40-50	Medium yellow brown gravelly silt/saprolitic soil containing black flecked/banded yellow saprolitic gravel; solid basalt boulder outcropping in centre of pit at base
Square 2	
Spit 1: 0-10	Dark brown silty loam; basalt pebbles; plentiful grass root penetration
Spit 2: 10-20	Medium brown silty loam; increased pebble content
Spit 3: 20-30	Medium yellow brown gravelly saprolitic silt with basalt boulder outcropping at base
Square 3	
Spit 1: 0-10	Dark brown very fine silty loam; loose and friable; many rootlets and heath roots; small pieces of charcoal throughout spit; bioturbation
Spit 2: 10-20	Becomes a dark brown silty loam with plentiful basalt cobbles; change to a reddish brown silty loam; small basalt cobbles/boulders; rootlets throughout; charcoal ceases
Spit 3: 20-30	Becoming a lighter reddish brown gravelly silt with basalt boulders and cobbles packed at base; bioturbation; heath roots continue
Square 4	
Spit 1: 0-10	Dark brown silty loam; plentiful small roots; large basalt boulder appearing at base
Spit 2: 10-20	Dark brown silty loam; some basalt pebbles; increased basalt cobble/boulder content; plentiful grass root penetration
Spit 3: 20-30	Mottled medium brown increasingly gravelly silty loam increased basalt rock proportion with depth
Square 5	
Spit 1: 0-10	Dark grey brown silty loam; gradual change to a mottled dark grey brown silty loam from root/insect bioturbation; small basalt boulders throughout spit
Spit 2: 10-20	Mottled dark grey brown silty loam; change to a yellowing brown silty loam
Spit 3: 20-30	Mottled yellow brown gravelly silt with increasing occurrence of broken basalt [gravel, pebbles, cobbles] with depth
Square 6	
Spit 1: 0-10	Dark grey brown mottled silty loam; many grass rootles
Spit 2: 10-20	Change to a dark/medium brown mottled slightly gravelly silty loam
Spit 3: 20-30	Medium brown gravelly/pebbly silt; increased pebble content with depth; one small basalt boulder;
Spit 4: 30-40	Mottled yellow brown gravelly silt with increasing occurrence of broken basalt [gravel, pebbles, cobbles] with depth



Looking 150° towards Transect 10



Northwest section of Square 1

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0
Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0
Spit 4: 0					Spit 4: 0
Spit 5: 0					

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
-	-	-	-	-	-

Gooandra

Survey Unit: 1

Test Transect: 11

Description: The transect is oriented southeast/northwest offset 10 metres to the northeast of Transect 10 and closer to the bench break of slope.

Square locations:

Square #	Easting	Northing
1	636572	6039358
2	636571	6039363
3	636570	6039367
4	636569	6039372
5	636566	6039377
6	636565	6039381

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Dark reddish brown silty loam; occasional basalt cobble; rootlets throughout
Spit 2: 10-20	Dark reddish brown silty loam; yellowing with depth; occasional floating basalt cobble
Spit 3: 20-30	Medium dark yellow brown clean silty loam ; very occasional floating basalt cobble
Spit 4: 30-40	Medium yellow brown clean silty loam; occasional gravel fragments at bas; shrub roots at base

Square	Stratigraphic Log
Spit 5 40-50	Medium/lightening mottled yellow brown silty loam with increasing gravel content; basalt gravel and cobble appearing at base
Spit 6: 50-55	Mottled yellow brown gravelly silt; basalt cobbles at point; gravel = yellow saprolite with black mineral flecks [influences base mottling]
Square 2	
Spit 1: 0-10	Dark brown very fine silty loam; loose and friable; change at 8cm to mottled dark brown silt; many rootlets and heath roots; small pieces of charcoal throughout spit; bioturbation
Spit 2: 10-20	Change at 18cm to a reddish brown silty loam with basalt cobbles; bioturbation
Spit 3: 20-30	Medium yellow brown gravelly saprolitic silt with basalt boulder outcropping at base
Spit 4: 30-40	Mottled yellow brown gravelly silt with increasing occurrence of broken basalt [gravel, pebbles, cobbles] with depth
Square 3	
Spit 1: 0-10	Dark brown very fine silty loam; loose and friable; many rootlets and heath roots
Spit 2: 10-20	Becomes a dark/medium brown mottled silty loam with basalt pebbles/cobbles
Spit 3: 20-30	Becoming a medium brown gravelly silt with basalt boulder from spit above
Spit 4: 30-40	Mottled medium brown gravelly silt with increasing occurrence of basalt boulders at base
Square 4	
Spit 1: 0-10	Very dark brown silty loam; plentiful small roots; large basalt boulder appearing at base
Spit 2: 10-20	Very dark grey brown silty loam; developing light compaction and red brown mottling at base; some yellow fleck and mottling and fine gravel appearing at base
Spit 3: 20-30	Heavily mottled red brown increasingly gravelly silty loam; developing yellowing silt with plentiful orange/yellow saprolitic gravels across base
Square 5	
Spit 1: 0-10	Dark grey brown silty loam; plentiful grass rootlets
Spit 2: 10-20	Mottled dark/medium brown silty loam; basalt pebbles appearing
Spit 3: 20-30	Medium brown gravelly silt with increasing pebble/cobble/boulder content with depth
Square 6	
Spit 1: 0-10	Dark grey brown mottled silty loam; many grass /shrub rootles; basalt cobbles from surface to base; worm bioturbation
Spit 2: 10-20	Becomes a packed basalt cobble/boulder base; roots and rootlets continue



Looking 150° towards Transects 10 and 11



Northwest section of Square 1



Southeast section of Square 6



Overall/base view of Square 6 section

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0
Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	
Spit 4: 0	Spit 4: 0	Spit 4: 0			
Spit 5: 0					
Spit 6: 0					

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
-	-	-	-	-	-

Gooandra

Survey Unit: 1

Test Transect: 12

Description: The transect is oriented 140/320° and is situated on the same landform as Transects 10 & 11. Transect 12 is located on a bench above a drainage line and directly adjacent to the Snowy Mountains Highway.

Square locations:

Square #	Easting	Northing
1	636547	6039417
2	636546	6039423
3	636554	6039427
4	636545	6039430
5	636544	6039436

6	636543	6039441

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Very dark brown silty loam; bioturbation; plentiful grass roots
Spit 2: 10-20	Very dark grey brown silty loam; paling towards base; basalt rubbles/boulders outcropping at base
Spit 3: 20-30	Heavily mottled paling brown/yellowish brown silt; becoming a gravelly silt at base; small basalt boulders/cobbles
Spit 4: 30-40	Dense yellowish saprolite gravel and occasional basalt cobble mixed with yellow brown silt; some packed basalt rubble
Square 2	
Spit 1: 0-10	Dark brown silty loam; plentiful grass rootlets
Spit 2: 10-20	Dark brown silty loam; basalt cobbles emerging
Spit 3: 20-30	Medium brown gravelly silt; basalt outcropping at base
Square 3	
Spit 1: 0-10	Dark brown very fine silty loam; loose and friable; many grass rootlets and heath roots; becomes tacky at base
Spit 2: 10-20	Developing into a reddish brown silty loam; basalt cobble in side wall
Spit 3: 20-30	Becoming a lighter reddish brown gravelly silt with basalt cobbles at base; bioturbation; heath roots
Spit 4: 30-37	Light reddish brown fine silt; at 32cm becomes very gravelly extending to base; bioturbation and roots
Square 4	
Spit 1: 0-10	Dark grey brown mottled silty loam; plentiful rootlets
Spit 2: 10-20	Dark grey brown mottled silty loam; deposit yellowing at base ; plentiful grass rootlets
Spit 3: 20-30	Yellow brown silty loam; basalt cobble/boulder outcrop at base
Spit 4: 30-40	Yellow brown silty loam becoming very gravelly silt at base; universally gravelly across bottom of spit
Square 5	
Spit 1: 0-10	Dark grey brown silty loam; plentiful rootlets
Spit 2: 10-20	Deposit yellowing at base; plentiful grass/shrub rootlets
Spit 3: 20-30	Gradual change to a light yellow brown fine silt; at 25cm becomes very gravelly extending to base; bioturbation and roots
Spit 4: 30-40	Light yellow brown gravelly silt with increased basalt content
Square 6	
Spit 1: 0-10	Dark grey brown mottled silty loam; many grass rootlets; bioturbation
Spit 2: 10-20	Dark grey brown mottled slightly silty loam; yellowing slightly at base
Spit 3: 20-30	Yellow brown silty loam; two small semi-tabular basalt boulders at east side of pit
Spit 4: 30-40	Yellow brown slightly gravelly silty loam; basalt rubble [small boulders/cobbles] throughout spit – sitting atop and within base; gravel appearing in concentration in northwest corner



Looking 140° towards Transect 12



West southwest section of Square 6

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 1	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0
Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0
Spit 4: 0		Spit 4: 0	Spit 4: 0	Spit 4: 0	Spit 4: 0

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
1	-	-	-	-	-

Discussion – One stone artefact was retrieved from the test transect indicated a very low density and patchy artefact distribution.

Gooandra

Survey Unit: 1

Test Transect: 13

Description: The transect is oriented east/west and is situated on a micro-landform within the greater plateau; a small flattish spur crest with a northeast aspect. Transect 13 is located along the northern shoulder of the crest adjacent to the Snowy Mountains Highway and overlooking all other Test Transects in Survey Unit 1. A small stand of *White Sallee Eucalypt* [mature and immature] cover the central area of the crest. The remainder of the crest has a thick cover of native grasses, heath as well as numerous low basalt outcrops. Disturbances to this area is mostly confined to rabbit excavations. Transect 13 was extended in a westerly direction from Square 1 and a further three squares were marked out. Two squares were excavated (Squares -2 & -3) to test the upper slope, below the shoulder of the crest. Square -1 was not excavated due to trees/basalt boulder outcropping.

Square locations:

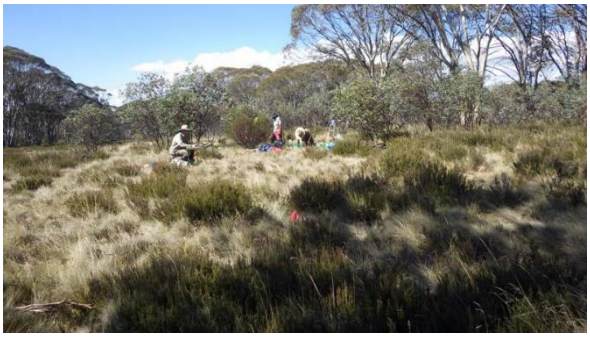
Square #	Easting	Northing
-3	636488	6039283
-2	636487	6039283
1	636481	6039287
2	636477	6039289
3	636474	6039289
4	636467	6039293
5	636464	6039294

Square #	Easting	Northing
6	636459	6039297

Excavation details:

Square	Stratigraphic Log
Square -3	
Spit 1: 0-10	Dark brown silty loam; plentiful rootlets and basalt pebbles/cobbles throughout
Spit 2: 10-20	At 18cm a change to a yellowish brown silt; slightly compacted; increase in pebble/cobble content
Spit 3: 20-30	Packed basalt cobble/ boulders appearing at base as soil colour lightens to a light reddish brown saprolitic gravelly silty loam
Square -2	
Spit 1: 0-10	Dark brown silty loam; plentiful rootlets
Spit 2: 10-20	Change to a yellowish brown silt at base; some pebbles at base
Spit 3: 20-30	Yellow brown silt with a substantial increase in basalt pebbles; comes onto a basalt boulder base
Square 1	
Spit 1: 0-10	Dark brown silty loam; becoming mottled at base
Spit 2: 10-20	Reddish brown silty loam; many small basalt boulders/cobbles
Spit 3: 20-30	As above; packed cobbles/boulders at base
Square 2	
Spit 1: 0-10	Dark brown silty loam; plentiful grass rootlets; at 3cm becomes a reddish brown fine silty loam; loosely compacted
Spit 2: 10-20	Reddish brown silty loam; basalt gravels/cobbles emerging; plentiful grass rootlets
Spit 3: 20-30	Reddish brown gravelly silt; basalt outcropping at base
Square 3	
Spit 1: 0-10	Grey brown silty loam; gradual change to red brown mottled silty loam with small basalt boulders throughout
Spit 2: 10-20	Red brown mottled silty loam with small basalt boulders throughout and basalt emerging at several points at base
Square 4	
Spit 1: 0-10	Dark brown silty loam; plentiful rootlets and basalt boulders throughout
Spit 2: 10-20	Dark brown silty loam; increasing basalt rock; plentiful grass rootlets
Spit 3: 20-30	Reddish brown silty loam; basalt cobble/boulder outcropping at base
Square 5	
Spit 1: 0-10	Reddish brown silty loam with basalt boulders throughout
Spit 2: 10-20	Lifted basalt boulder occupying the majority of the spit and cleaned around to base; mottled red brown silty loam; occasional saprolitic pebbles; plentiful rootlets
Spit 3: 20-30	Mottled red brown silty loam; yellowing at base; yellow saprolitic gravel appearing /protruding at base
Square 6	
Spit 1: 0-10	Dark brown mottled silty loam; many grass rootlets; bioturbation

Square	Stratigraphic Log
Spit 2: 10-20	Change to a reddish brown very fine sticky silt; many basalt cobbles and large boulder in centre of pit extending into spit 3; grass rootlets decreasing
Spit 3: 20-30	Gravels appearing at base as soil colour lightens to a light reddish brown saprolitic gravelly silt


Looking 90° along Transect 13


South section of Square 1

Artefact Retrieval:

Square -3	Square -2	Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 1	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 0	Spit 2: 1	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0
Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0		Spit 3: 0	Spit 3: 0	Spit 3: 0

Visual representation of artefact retrieval:

Sq -3	Sq -2	Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
-	1	1	-	-	-	-	-

Tantangara
Survey Unit: 1
Test Transect: 1
Description: The transect is oriented 135/315° situated on the edge of a gently undulating crest of an east facing spur. Volcanic bedrock is exposed in the form of low outcrops. The crest is highly disturbed from pest infestation and recent human activity. Erosion is high across the landform. The area shows many signs of sustaining a high rabbit population - extensive rabbit warrens, bare patches of earth with a lot of rabbit droppings and fresh diggings. Vehicle tracks are numerous and travel across the crest in many directions.

Square locations:

Square #	Easting	Northing
1	649492	6038185
2	649490	6038188
3	649487	6038193
4	649485	6038197
5	649483	6038201
6	649480	6038206

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Medium yellow brown coarse gravel silty loam
Spit 2: 10-20	Medium yellow brown gravelly silty loam; becomes a saprolite gravel/rubble and packed/outcropping bedrock at base
Square 2	
Spit 1: 0-10	Medium yellow brown coarse gravel silty loam; small tree roots in north corner
Spit 2: 10-20	Medium yellow brown gravelly silty loam; becomes a saprolite gravel/rubble
Spit 3: 20-24	Outcropping/bedrock base
Square 3	
Spit 1: 0-10	Medium yellow brown coarse gravel silty loam
Spit 2: 10-20	Medium yellow brown gravelly silty loam; becomes a saprolite gravel/rubble and packed/outcropping bedrock at base
Square 4	
Spit 1: 0-10	Medium yellow brown coarse gravel silty loam
Spit 2: 10-20	Medium yellow brown gravelly silty loam; becomes a saprolite gravel/rubble and packed/outcropping bedrock at base
Square 5	
Spit 1: 0-10	Medium yellow brown silty loam; plentiful bioturbation with patches of dense larval balling/pelleting; slightly darkening with depth
Spit 2: 10-20	Medium yellow brown silty loam becoming gravelly and rapidly very rubbly [saprolite cobbles/pebbles]
Square 6	
Spit 1: 0-10	Medium brown silty loam; plentiful grass roots
Spit 2: 10-20	Medium dark brown silty loam; slightly gravelly; grass rootlets
Spit 3: 20-30	Medium brown slightly gravelly silty loam
Spit 4: 30-40	Lightening to an orange yellow brown very gravelly silt; bioturbation; bedrock showing along northeast end of pit.
Spit 5: 40-45	Continues as above; bedrock at base.



Looking 130° towards Transects 1 & 2



Southwest section of Square 2

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0
	Spit 3: 0				Spit 3: 0
					Spit 4: 1
					Spit 5: 0

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
-	-	-	-	-	1

Tantangara
Survey Unit: 1
Test Transect: 2
Description: The transect is oriented 135/315° offset 10 metres from Transect 1 to the southwest. Five squares were excavated. Square 3 was not excavated as the surrounding area was wholly rabbit warren and therefore highly disturbed.

Square locations:

Square #	Easting	Northing
1	649485	6038180
2	649481	6038184
4	649476	6038192
5	649474	6038193
6	649469	6038200

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Medium yellow brown coarse gravel silty loam
Spit 2: 10-20	Medium yellow brown gravelly silty loam; becomes a saprolite gravel/rubble and packed/outcropping volcanic bedrock at base
Square 2	
Spit 1: 0-10	Medium yellow brown silty loam; becoming slightly gravelly with depth
Spit 2: 10-22	Medium yellow brown gravelly silty loam; becomes a broken/packed saprolite and bedrock base
Square 4	
Spit 1: 0-10	Medium brown silty loam; slightly gravelly with depth
Spit 2: 10-20	Medium yellow brown gravelly silty loam; becomes a saprolite gravel/rubble and packed/outcropping bedrock at base.
Square 5	
Spit 1: 0-10	Medium grey brown silty loam; becoming broken bedrock/bedrock; plentiful root/rootlet penetration
Square 6	
Spit 1: 0-10	Medium yellow brown silty loam; becoming rubbly at base

Square	Stratigraphic Log
Spit 2: 10-20	Medium yellow brown silty loam becoming gravelly and rapidly very rubbly [saprolite cobbles/pebbles] and onto bedrock



Looking 130° towards Transects 1 & 2



Southeast section of Square 1

Artefact Retrieval:

Square 1	Square 2	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 0	Spit 2: 0		Spit 2: 0

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 4	Sq 5	Sq 6
-	-	-	-	-

Tantangara
Survey Unit: 1
Test Transect: 3
Description: The transect is oriented 140/320° situated on the crest proper of an east facing spur, 15 metres southwest of Transect 2. Low volcanic bedrock exposures and sparse Hakea are present across the crest. The crest is highly disturbed from pest infestation and recent human activity most likely the cause of the high level of erosion present across the landscape. The area shows many signs of sustaining a high rabbit population - extensive rabbit warrens, bare patches of earth with a lot of rabbit droppings and fresh diggings. Vehicle tracks are numerous and travel across the crest in many directions.

Square locations:

Square #	Easting	Northing
1	649465	6038173
2	649464	6038177
3	649462	6038183
4	649460	6038187
5	649458	6038192

Square #	Easting	Northing
6	649455	6038197

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Grey brown silty loam; relatively loose or fluffy with rocks outcropping at base
Spit 2: 10-20	Grey brown silty loam; comes onto a broken bedrock/packed rubble
Square 2	
Spit 1: 0-10	Medium brown loose silty loam; grass rootlet penetration; becoming very rocky with depth
Spit 2: 10-20	Medium brown gravelly silty loam; becomes a saprolite gravel/rubble onto outcropping/bedrock base
Square 3	
Spit 1: 0-10	Grey brown to yellow brown silty loam; occasional angular pebble at base
Spit 2: 10-20	Grey and yellow brown silty loam; rapidly giving onto angular bedrock pebble and decomposing bedrock; roots/rootlets common throughout
Square 4	
Spit 1: 0-10	Medium yellow brown coarse gravel silty loam; rapidly very rubbly [saprolite cobbles/pebbles] base
Square 5	
Spit 1: 0-10	Medium yellow brown silty loam; plentiful bioturbation with patches of dense larval balling/pelleting; slightly darkening with depth
Spit 2: 10-20	Medium yellow brown silty loam becoming very rubbly [saprolite cobbles/pebbles]
Spit 3: 20-30	Rapidly giving onto angular bedrock pebble and decomposing bedrock; roots/rootlets common throughout
Square 6	
Spit 1: 0-10	Grey brown silty loam; yellowing slightly with depth; plentiful grass roots
Spit 2: 10-20	Yellow brown silty loam; slightly gravelly; bedrock pebbles/cobbles appearing at base
Spit 3: 20-30	Yellow brown gravelly loam; giving onto broken bedrock and bedrock gravel



Looking 75° towards Transect 3



Southeast section of Square 4

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 0	Spit 2: 0		Spit 2: 0	Spit 2: 0
				Spit 3: 0	Spit 3: 0

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
-	-	-	-	-	-

Tantangara
Survey Unit: 1
Test Transect: 4
Description: The transect is orientated 140°/320° situated on the crest proper of an east facing spur, 10 metres southwest of Transect 3. Low volcanic bedrock exposures and sparse scatter of Hakea are sited across the crest. The crest is highly disturbed from pest infestation and recent human activity most likely the cause of the high level of erosion present across the landscape. The area shows many signs of sustaining a high rabbit population - extensive rabbit warrens, bare patches of earth with a lot of rabbit droppings and fresh diggings. Vehicle tracks are numerous and travel across the crest in many directions.

Square locations:

Square #	Easting	Northing
1	649455	6038170
2	649452	6038176
3	649451	6038180
4	649450	6038185
5	649449	6038190
6	649449	6038195

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Grey brown silty loam; relatively loose or fluffy with rocks outcropping in the west corner
Spit 2: 10-20	Grey brown silty loam; comes onto a broken bedrock/packed rubble
Square 2	
Spit 1: 0-10	Medium brown loose silty loam; grass rootlet/shrub root penetration; becoming very rocky with depth
Spit 2: 10-20	Medium brown gravelly silty loam; increasing roots; becomes a saprolite gravel/rubble
Square 3	
Spit 1: 0-10	Medium yellow brown silty loam; with bedrock/angular pebbles/gravels at base
Spit 2: 10-20	Medium yellow brown silty loam; rapidly plentiful angular bedrock pebble and decomposing bedrock; becoming packed; roots/rootlets common throughout
Square 4	
Spit 1: 0-10	Medium yellow brown coarse gravel silty loam; rapidly very rubbly [saprolite cobbles/pebbles] base
Spit 2: 10-20	Medium yellow brown silty loam; rapidly plentiful angular bedrock pebble and decomposing bedrock; becoming packed; roots/rootlets common throughout
Square 5	Moved pit 1 metre west to avoid rabbit diggings and old tree stump
Spit 1: 0-10	Medium yellow brown silty loam; plentiful small root and bioturbation mottling; slightly compacted at base
Spit 2: 10-20	Medium yellow brown silty loam; lightly compacted; becoming very rubbly [saprolite cobbles/pebbles]
Spit 3: 20-30	Medium yellow brown gravelly loam; very gravelly rubbly saprolite and silt mix with packed bedrock gravel/rubble at base
Square 6	
Spit 1: 0-10	Medium brown silty loam; plentiful grass roots
Spit 2: 10-20	Medium brown silty loam; slightly gravelly appearing at base
Spit 3: 20-30	Yellow brown gravelly loam; giving onto broken bedrock and bedrock gravel



Looking 110° towards Transect 4



Southeast section of Square 1

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0
				Spit 3: 0	Spit 3: 0

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
-	-	-	-	-	-

Tantangara
Survey Unit: 1
Test Transect: 5
Description: The transect is oriented 160/340° situated on the edge the crest sloping down towards the saddle of Survey Unit 1. The slope faces west southwest and has a very gentle 1-2° gradient with an open aspect. The terrain across this area is lumpy, some of which most probably caused by the current rabbit infestation.

Square locations:

Square #	Easting	Northing
1	649403	6038159
2	649405	6038162
3	649405	6038168
4	649402	6038173
5	649402	6038179
6	649401	6038185

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Medium grey brown coarse gravel silty loam; many rootlets throughout

Square	Stratigraphic Log
Spit 2: 10-20	Medium grey brown slightly gravelly silty loam; rootlets
Spit 3: 20-30	Medium grey brown silty loam; saprolitic gravel/pebble appearing along northwest wall; rootlet penetration
Spit 4: 30-37	Saprolite increases with depth; becomes a packed outcropping bedrock base; decreased rootlet content
Square 2	
Spit 1: 0-10	Grey brown silty loam; plentiful bioturbation [insect and rabbit mixing] roots throughout
Spit 2: 10-20	Grey brown silty loam becoming gravelly [saprolitic] and onto a packed bedrock rubble and broken bedrock; root penetration throughout
Square 3	
Spit 1: 0-10	Medium brown silty loam
Spit 2: 10-20	Medium yellow brown slightly gravelly silty loam; becomes a saprolite gravel/rubble and packed/outcropping bedrock at base
Square 4	
Spit 1: 0-10	Medium brown silty loam; plentiful bioturbation [insect] roots throughout
Spit 2: 10-20	Medium brown silty loam; small amount of saprolitic gravel appearing at base
Spit 3: 20-30	Medium yellow brown gravelly silty loam; becomes a saprolite gravel/rubble and packed/outcropping bedrock at base
Square 5	
Spit 1: 0-10	Medium grey brown silty loam; plentiful bioturbation with patches of dense larval balling/pelleting; slightly darkening with depth
Spit 2: 10-20	Medium grey brown silty loam; becoming yellow brown with pale flecking [small gravels] common; becomes coarse rubbly base [saprolite cobbles/pebbles]
Spit 3: 20-30	Yellow brown gravelly loam onto a dense rind of saprolitic gravel [yellowish] directly overlying bedrock at base
Square 6	
Spit 1: 0-10	Medium grey brown silty loam; gradual change to a yellow brown silty loam with plentiful grass roots and mottling
Spit 2: 10-20	Medium yellow brown silty loam; fine gravel content at base
Spit 3: 20-30	Yellow brown gravelly loam; onto a yellow saprolite rind and gravel overlying broken bedrock





Looking 60° towards Transect 5 East northeast section of Square 6

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0
Spit 3: 0			Spit 3: 0	Spit 3: 0	Spit 3: 0
Spit 4: 0					

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
-	-	-	-	-	-

Tantangara
Survey Unit: 1
Test Transect: 6
Description: The transect is oriented 165/345° offset 10 metres to the northwest of Transect 5. A lone *Black Sallee Eucalpyt* grows c. 5 metres west of Square 3. *Hakea* shrubs are in abundance and cover the slope down to the small saddle where there is a notable decrease in *Hakea* population, possibly caused by the increased vehicle movements in this area defined by the remains of numerous braided vehicle tracks.

Square locations:

Square #	Easting	Northing
1	649389	6038177
2	649388	6038182
3	649390	6038188
4	649390	6038191
5	649390	6038197
6	649389	6038202

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Medium grey brown silty loam; some floating saprolitic gravels; many rootlets throughout
Spit 2: 10-20	Medium yellow brown slightly gravelly silty loam; becomes a saprolite gravel/rubble and packed/outcropping bedrock at base
Square 2	
Spit 1: 0-10	Grey brown silty loam; plentiful bioturbation [insect] roots throughout

Square	Stratigraphic Log
Spit 2: 10-20	Grey brown silty loam becoming gravelly [saprolitic]; root penetration and bioturbation throughout
Spit 3: 20-28	Grey brown gravelly [saprolitic] silty loam and onto a packed bedrock rubble and broken bedrock; root penetration throughout
Square 3	
Spit 1: 0-10	Grey brown slightly gravelly silty loam
Spit 2: 10-20	Grey brown gravelly silty loam; becomes a saprolite gravel/rubble and packed/outcropping bedrock at base
Square 4	
Spit 1: 0-10	Medium grey brown silty loam; becoming slightly gravelly at base; rootlets
Spit 2: 10-20	Medium grey silty loam; increase in saprolitic gravel content at base
Spit 3: 20-25	Becomes a saprolite gravel/rubble and packed/outcropping bedrock at base
Square 5	
Spit 1: 0-10	Medium yellow brown silty loam; plentiful bioturbation mottling
Spit 2: 10-20	Medium yellow brown mottled silty loam; firm; with fine gravels at base; roots and rootlets throughout
Spit 3: 20-30	Yellow brown fine gravelly silty loam onto a yellow saprolitic gravel and broken bedrock base
Square 6	
Spit 1: 0-10	Medium grey brown silty loam; slightly gravelly at base; plentiful grass roots and mottling; bedrock cobble in west wall
Spit 2: 10-20	Decrease in rootlets; comes onto a yellow saprolitic gravel overlying broken bedrock



Looking 70° towards Transect 6



South-southeast section of Square 5

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0
	Spit 3: 0		Spit 3: 0	Spit 3: 0	

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
-	-	-	-	-	-

Tantangara

Survey Unit: 1
Test Transect: 7
Description: The transect is oriented 160/340° and situated in a saddle of a broad crest. The main vegetation cover within the saddle are native grasses, three *Black Sallee Eucalypt*, a fruit tree [?apple/quince] and a small amount of *Hakea*. Vehicle tracks, old and fresh, travel in numerous directions across the saddle and are the key source of current disturbance in this area.

Square locations:

Square #	Easting	Northing
1	649364	6038156
2	649365	6038161
3	649363	6038166
4	649362	6038171
5	649362	6038176
6	649362	6038180

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Medium grey brown silty loam; some floating saprolitic gravels; many rootlets throughout
Spit 2: 10-20	Medium grey brown gravelly silty loam; becomes a saprolite gravel/rubble and packed/outcropping bedrock at base
Square 2	
Spit 1: 0-10	Yellow brown coarse pebbly silty loam directly onto broken outcropping bedrock
Square 3	
Spit 1: 0-10	Light grey brown slightly gravelly silty loam
Spit 2: 10-20	Grey brown gravelly silty loam; becomes a saprolite gravel/rubble and packed/outcropping bedrock at base
Square 4	
Spit 1: 0-10	Medium grey brown silty loam; becoming slightly gravelly at base; rootlets
Spit 2: 10-20	Medium grey gravelly silty loam; some bioturbation; becomes a saprolite gravel/rubble and packed/outcropping bedrock at base
Square 5	
Spit 1: 0-10	Medium yellow brown silty loam; bedrock fragments appearing at base
Spit 2: 10-20	Gravelly yellow brown silty loam; giving directly onto yellow saprolitic gravel/broken bedrock
Square 6	
Spit 1: 0-10	Medium grey brown silty loam; slightly gravelly at base; plentiful grass roots
Spit 2: 10-20	Giving onto yellow saprolitic gravel overlying broken bedrock



Looking 340° towards Transect 7



South-southeast section of Square 2

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0		Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
-	-	-	-	-	-

Tantangara
Survey Unit: 1
Test Transect: 8
Description: The transect is orientated 165°/345° offset 10 metres to the west of Transect 7 and situated in the saddle proper. Transect 8 is located on the same landform as Transect 7.

Square locations:

Square #	Easting	Northing
1	649350	6038153
2	649350	6038159
3	649350	6038163
4	649350	6038168
5	649350	6038173
6	649350	6038179

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Medium grey brown – yellow brown mottled silty loam
Spit 2: 10-20	Yellow brown gravelly silty loam; increasing coarse gravel content
Spit 3: 20-30	Uneven base of coarse saprolitic gravel onto broken outcropping bedrock
Square 2	
Spit 1: 0-10	Medium brown silty loam; some gravels appearing at base
Spit 2: 10-20	Medium grey gravelly silty loam; some bioturbation; becomes a saprolite gravel/rubble at base
Square 3	

Square	Stratigraphic Log
Spit 1: 0-10	Medium brown silty loam; some gravels appearing at base
Spit 2: 10-16	Medium brown gravelly silty loam; becomes a saprolite gravel/rubble and packed/outcropping bedrock at base
Square 4	
Spit 1: 0-10	Medium yellow brown silty loam; small amount of saprolitic gravel at base; rootlets
Spit 2: 10-20	Medium yellow gravelly silty loam; giving onto a saprolite gravel/rubble/broken bedrock at base
Square 5	
Spit 1: 0-10	Medium yellow brown silty loam; bedrock fragments appearing at base
Spit 2: 10-20	Gravelly yellow brown silty loam; giving directly onto yellow saprolitic gravel/broken bedrock
Square 6	
Spit 1: 0-10	Medium yellow brown mottled silty loam; plentiful grass roots throughout
Spit 2: 10-20	Medium yellow brown silty loam becoming a very gravelly yellow dense saprolitic gravel overlying broken/outcropping bedrock



Looking 345° along Transect 8



South-southeast section of Square 6

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0
Spit 3: 0					

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
-	-	-	-	-	-

Tantangara
Survey Unit: 1
Test Transect: 9
Description: The transect is oriented 155/335° and is situated in the saddle proper however, testing further south-southeast on this landform. Five Test Squares were excavated. Square 3 was not excavated as it was on a well-used vehicle track that was severely potholed and gravelled with imported rock. An intersection of vehicle

tracks is sited directly northeast of Transect 9 with a minor unformed vehicle track crossing at Square 6.

Square locations:

Square #	Easting	Northing
1	649329	6038124
2	649327	6038130
4	649325	6038139
5	649323	6038143
6	649322	6038149

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Medium dark brown silty loam; grass rootlets; small amount of gravels appearing at base
Spit 2: 10-20	Medium brown slightly gravelly silty loam; decreasing rootlets
Spit 3: 20-23	Medium grey brown gravelly silty loam; giving onto saprolitic gravel onto broken outcropping bedrock
Square 2	
Spit 1: 0-10	Medium brown silty loam; slightly gravelly at base
Spit 2: 10-20	Medium brown gravelly silty loam; saprolitic gravels appearing at base;
Square 4	
Spit 1: 0-10	Medium yellow brown pellety silty loam; plentiful roots throughout and bioturbation
Spit 2: 10-20	Medium yellow brown/paler mottled and unconsolidated silty loam with occasional coarse gravel at base
Spit 3: 20-30	Gravelly yellow brown silty loam; giving onto a dense saprolite pebbles overlying broken outcropping bedrock; fine root and grass root penetration throughout
Square 5	
Spit 1: 0-10	Medium brown - yellow brown gravelly silty loam; bedrock appearing at base
Square 6	
Spit 1: 0-10	Medium yellow brown silty loam interspersed with saprolitic gravel; giving onto broken bedrock base

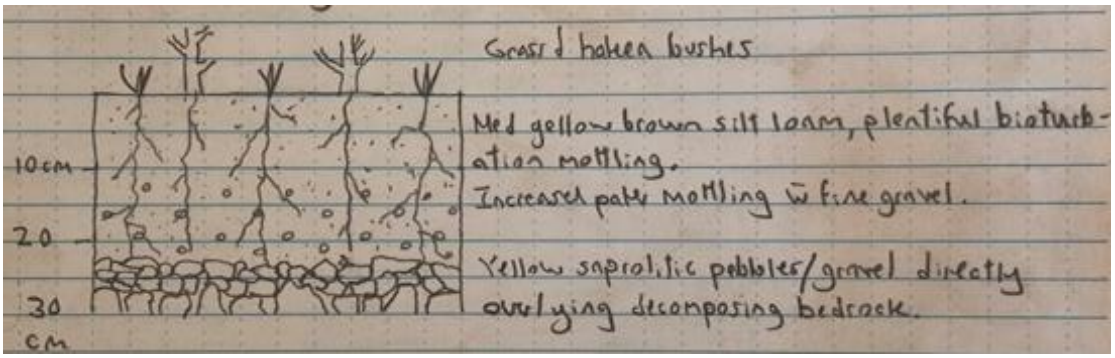


Looking 155° towards Transect 9



South-southeast section of Square 1

Schematic representation of soil profile: Survey Unit 1 Transect 9 Square 4: South southeast section.



Artefact Retrieval:

Square 1	Square 2	Not exc.	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0		Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 0		Spit 2: 0		
Spit 3: 0			Spit 3: 0		

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 4	Sq 5	Sq 6
-	-	-	-	-

Tantangara
Survey Unit: 1
Test Transect: 10
Description: The transect is oriented 155/335° offset 10 metres to the southwest of Transect 9 in a saddle. A well-used potholed and gravelled vehicle track is flanked by squares 5 & 6. It is the same vehicle track that travels through Transect 9.

Square locations:

Square #	Easting	Northing
1	649318	6038108
2	649316	6038113
3	649314	6038118
4	649315	6038124
5	649313	6038129
6	649312	6038135

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Pale grey brown /medium yellow brown unconsolidated silty loam; heavy bioturbation: insect and rabbit; with root mixing through burrowed zones
Spit 2: 10-20	Medium yellow brow highly mottled/mixed pellety silty loam giving directly onto saprolite pebbles and broken bedrock
Square 2	

Square	Stratigraphic Log
Spit 1: 0-10	Medium grey brown silty loam; grass roots plentiful; shrub root in south corner of pit
Spit 2: 10-16	Medium grey mottled gravelly silty loam; insect bioturbation; becomes a saprolite gravel/rubble at base
Square 3	
Spit 1: 0-10	Medium brown silty loam; some mottling at base from insect bioturbation
Spit 2: 10-20	Medium brown gravelly silty loam; increased mottling from bioturbation; becomes a saprolite gravel/rubble and packed/outcropping bedrock at base
Square 4	
Spit 1: 0-10	Medium yellow brown heavily mottled and pellety silty loam; plentiful bioturbation and root mixing
Spit 2: 10-20	Vey mixed and mottled yellow brown pellety silty loam; giving rapidly onto saprolite gravel/rubble/broken bedrock at base
Square 5	Pit adjacent to main vehicle track
Spit 1: 0-10	Medium brown mottled silty loam; heavily bioturbated from insect tunnelling
Spit 2: 10-20	Distinct change to a dark brown silty loam followed by a gravel lens [appears unnatural and may be caused by mechanical excavation of adjacent road]; giving directly onto yellow saprolitic gravel/broken bedrock at base
Square 6	
Spit 1: 0-10	Dark grey brown pellety silty loam; strong brown mottling at base of spit
Spit 2: 10-20	Strong brown pellety silty loam; developing yellow brown mottling and giving onto a mottled medium yellow brown silty loam with pale yellow gravel flecks; becomes firm at base
Spit 3: 20-30	Mottled yellow brown gravelly loam giving onto yellow saprolite pebble crust with decomposing bedrock

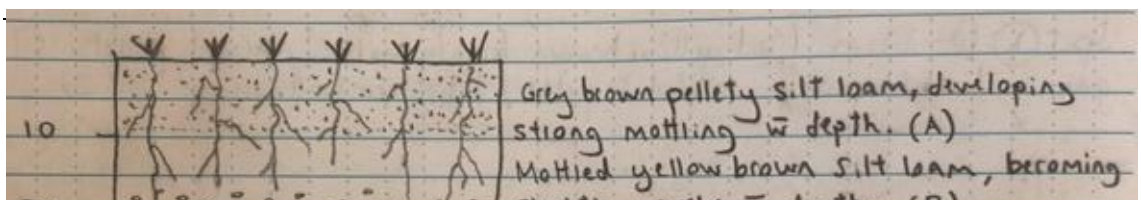


Looking 180° towards Transect 10



North-northwest section of Square 6

Schematic representation of soil profile: Survey Unit 1 Transect 10 Square 6: North northwest section



Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0
					Spit 3: 0

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
-	-	-	-	-	-

Tantangara
Survey Unit: 1
Test Transect: 11
Description: The transect is oriented 100/280° and situated on a spur crest with an easterly aspect. The area has occasional low outcrops of volcanic rock and is thickly vegetated with native grasses and *Hakea* shrubs. There are no mature trees on crest. The area is highly disturbed from rabbits.

Square locations:

Square #	Easting	Northing
1	649138	6038132
2	649133	6038134
3	649131	6038136
4	649127	6038138
5	649122	6038140
6	649116	6038142

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Medium grey brown silty loam; occasional gravel; plentiful rootlets; bioturbation
Spit 2: 10-20	Medium grey brown silty loam decreasing grass rootlets; increasing saprolitic gravels/pebbles
Spit 3: 20-30	Grey brown/yellow brown gravelly silty loam/bedrock rubble admixture/bedrock outcropping
Square 2	
Spit 1: 0-10	Medium brown silty loam; unconsolidated; grass rootlets

Square	Stratigraphic Log
Spit 2: 10-20	Becoming a gravelly medium grey brown silty loam; giving rapidly onto a saprolitic gravel/packed bedrock base
Square 3	
Spit 1: 0-10	Medium grey brown to slightly yellow brown silty loam giving directly onto broken bedrock; plentiful root penetration
Square 4	
Spit 1: 0-10	Medium grey brown loose silty loam giving directly onto broken bedrock; plentiful root penetration
Square 5	
Spit 1: 0-10	Medium grey brown to slightly yellow brown silty loam giving onto broken bedrock with patches of loamy soil; plentiful rootlets
Spit 2: 10-18	Grey brown/yellow brown gravelly silty loam/bedrock rubble admixture
Square 6	
Spit 1: 0-10	Medium grey brown silty loam; occasional gravel; plentiful rootlets; bioturbation
Spit 2: 10-20	Medium grey brown loose silty loam giving directly onto broken bedrock; bioturbation continues to base

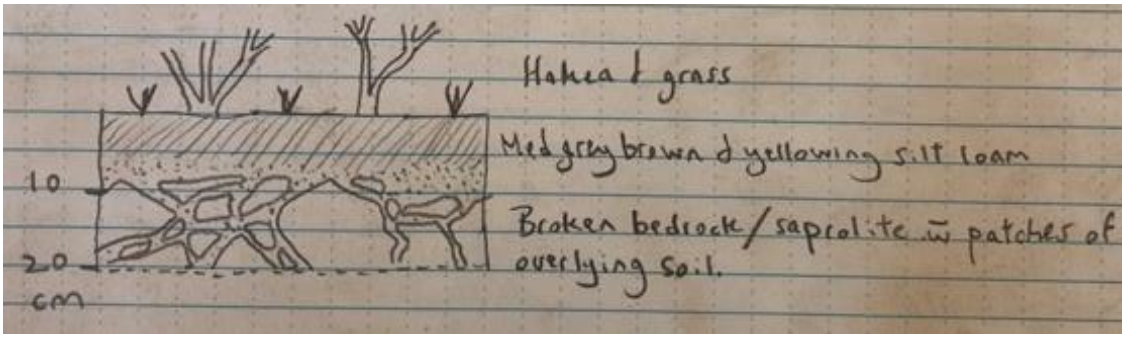


Looking 260° towards Transect 11



West section of Square 5

Schematic representation of soil profile: Survey Unit 1 Transect 11 Square 5: West section



Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 0			Spit 2: 0	Spit 2: 0
Spit 3: 0					

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
-	-	-	-	-	-

Tantangara
Survey Unit: 1
Test Transect: 12
Description: The transect is oriented 100/280° offset c.10 metres south of Transect 11.

Square locations:

Square #	Easting	Northing
1	649138	6038127
2	649133	6038128
3	649128	6038129
4	649124	6038129
5	649119	6038130
6	649113	6038132

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Medium grey brown silty loam; occasional gravel; plentiful rootlets; bioturbation
Spit 2: 10-20	Medium grey brown slightly gravelly silty loam decreasing grass rootlets
Spit 3: 20-30	Grey brown/yellow brown gravelly silty loam/bedrock rubble admixture at c.25cm; giving onto bedrock outcropping
Square 2	
Spit 1: 0-10	Medium brown silty loam; unconsolidated; grass rootlets; some bioturbation
Spit 2: 10-20	Becoming a slightly darker medium brown silty loam; lightly compacted; bioturbation
Spit 3: 20-30	Saprolitic gravels appear giving rapidly onto a saprolitic gravel/packed bedrock base
Square 3	
Spit 1: 0-10	Grey brown loose pellety silty loam; shrub and grass roots throughout
Spit 2: 10-20	Grey brown/yellow brown silty loam; considerable pockets and mixing; becomes slightly compacted fine gravelly yellow brown loam at base
Spit 3: 20-30	Fine gravelly yellow brown silty loam; giving onto broken bedrock; shrub roots throughout
Square 4	
Spit 1: 0-10	Grey brown pellety silty loam giving mottled yellow brown silty loam; rootlets and roots throughout
Spit 2: 10-20	Mottled yellow brown silty loam with some pale gravel flecking giving onto broken bedrock
Square 5	
Spit 1: 0-10	Medium grey brown to slightly yellow brown silty loam; loose and unconsolidated; insect bioturbation

Square	Stratigraphic Log
Spit 2: 10-20	Yellowish brown loose gravelly silty loam giving directly onto broken bedrock; bioturbation continues to base
Square 6	
Spit 1: 0-10	Medium brown silty loam; occasional gravel; plentiful shrub and grass rootlets; bioturbation
Spit 2: 10-20	Developing into a reddish yellow brown loose silty loam with increased saprolitic gravels with depth; bioturbation
Spit 3: 20-30	Reddish yellow brown gravelly silty loam; giving onto a broken bedrock; bioturbation continues to base of spit

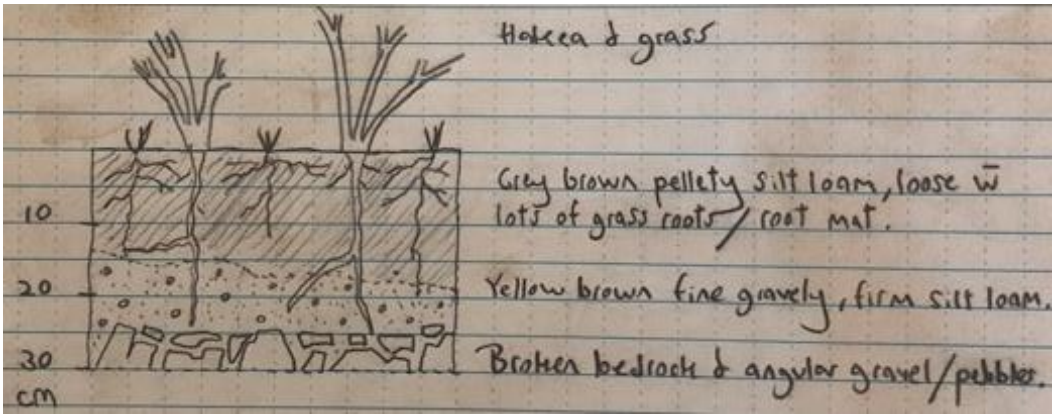


Looking 250° along Transect 12



East section of Square 6

Schematic representation of soil profile: Survey Unit 1 Transect 12 Square 3: West section



Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0
Spit 3: 0	Spit 3: 0	Spit 3: 0			Spit 3: 0

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
-	-	-	-	-	-

Tantangara

Survey Unit: 1
Test Transect: 13
Description: The transect is oriented 95/275° offset c. 20 metres downslope and south of Transect 12. Transect 13 is located off the crest on the south facing side slope. Very dense Hakea shrubs up to 1.5 metres high and an understory of native grasses cover the slope. A very large wombat burrow is located at the western end of Transect 13 c. 5 metres from Square 6. Rabbit excavations area also sited across the area.

Square locations:

Square #	Easting	Northing
1	649135	6038109
2	649129	6038108
3	649125	6038109
4	649122	6038111
5	649116	6038112
6	649112	6038112

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Dark grey brown mottled silty loam; occasional gravel; plentiful root mixing throughout; becoming firmer and yellow brown mottled loam at base
Spit 2: 10-20	Heavily mottled, firm medium dark yellow brown silty loam; plentiful shrub root/rootlet penetration
Spit 3: 20-30	Mottled yellow brown silty loam; lightening and gaining compaction with depth; some gravel appearing at base
Spit 4: 30-40	Gravelly yellow brown slightly fine sandy silt giving onto dense saprolite pebbles/cobbles [decomposed ground rock cortex; substantial soil pockets mixed with saprolite]
Spit 5: 40-55	Pale yellow saprolite with yellow brown soil in patches; gives onto saprolitic bedrock outcrop at base
Square 2	
Spit 1: 0-10	Dark brown silty loam; grass rootlets; some bioturbation
Spit 2: 10-20	Becoming a medium brown silty loam; lightly compacted; tree roots in north wall; slightly gravelly at base; bioturbation
Spit 3: 20-30	Saprolitic gravels appear at 25cm giving rapidly onto a saprolitic gravel/packed bedrock base
Square 3	
Spit 1: 0-10	Medium brown silty loam; shrub and grass roots throughout; bioturbation
Spit 2: 10-20	Grey brown silty loam; considerable pockets and mixing; becomes slightly compacted fine gravelly yellow brown loam giving onto saprolitic gravel/packed bedrock base
Square 4	
Spit 1: 0-10	Medium brown silty loam; shrub and grass roots throughout; bioturbation
Spit 2: 10-20	Mottled medium and dark brown silty loam with some pale gravel flecking; heavily bioturbated with insect tunnels

Square	Stratigraphic Log
Spit 3: 20-30	Yellowish brown gravelly silty loam; increased saprolitic gravels then gives onto saprolitic bedrock outcrop at base
Square 5	
Spit 1: 0-10	Dark brown silty loam; loose and unconsolidated; insect bioturbation; plentiful grass roots throughout; slightly gravelly at base
Spit 2: 10-20	Medium brown loose gravelly silty loam; decreasing insect and root bioturbation
Spit 3: 20-30	Medium brown silty loam; gradual change to a yellowing brown gravelly silty loam; occasional broken bedrock cobble
Spit 4: 30-34	Yellowish brown gravelly silty loam; increased saprolitic gravels then gives onto saprolitic bedrock outcrop at base
Square 6	
Spit 1: 0-10	Dark brown silty loam; loose and unconsolidated; insect bioturbation; plentiful grass roots throughout; slightly gravelly at base
Spit 2: 10-20	Mottled medium brown gravelly silty loam; lots of insect bioturbation; occasional broken bedrock cobble
Spit 3: 20-28	Mottled brown gravelly silty loam; gives onto saprolitic bedrock outcrop at base

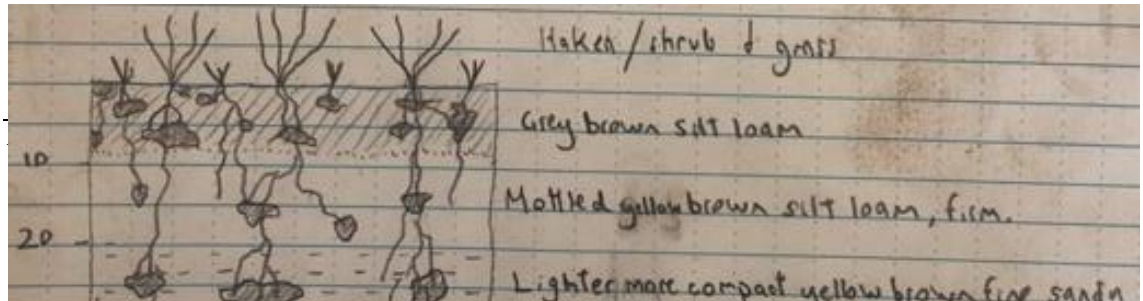


Looking 260° along Transect 13



North section of Square 1

Schematic representation of soil profile: Survey Unit 1 Transect 13 Square 1: North section



Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0
Spit 3: 0	Spit 3: 0		Spit 3: 0	Spit 3: 0	Spit 3: 0
Spit 4: 0				Spit 4: 0	
Spit 5: 0					

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
-	-	-	-	-	-

Tantangara
Survey Unit: 1
Test Transect: 14
Description: The transect is oriented 85/265° and is situated on the slightly higher elevated northwest end of the spur crest landform within Survey Unit 1. The gradient is flattish and not as densely vegetated as the southern side of the spur.

Square locations:

Square #	Easting	Northing
1	649070	6038213
2	649062	6038213
3	649058	6038214
4	649052	6038213
5	649047	6038213
6	649042	6038213

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Yellowish brown silty loam [relatively unconsolidated] giving onto packed saprolite pebbles and bedrock

Square	Stratigraphic Log
Square 2	
Spit 1: 0-10	Light yellowing grey brown silty loam [full of roots, relatively unconsolidated] giving onto packed saprolite pebbles and bedrock
Square 3	
Spit 1: 0-10	Medium grey brown silty loam [full of roots, relatively unconsolidated] giving onto packed saprolite pebbles and bedrock
Square 4	
Spit 1: 0-10	Medium brown silty loam; shrub and grass roots throughout; bioturbation
Spit 2: 10-20	Yellowish brown gravelly silty loam; plentiful insect bioturbation and roots; onto saprolitic bedrock outcrop at base
Square 5	
Spit 1: 0-10	Mottled medium brown silty loam; plentiful insect bioturbation and roots; pellety texture
Spit 2: 10-20	Heavily mottled brown/yellow brown silty loam; roots throughout; very occasional saprolitic gravel piece
Spit 3: 20-30	Heavily mottled brown/ yellow brown silty loam; change to a pale yellow crumbling/brittle saprolite and soil mix
Spit 4: 30-40	Yellow brown gravelly loam with light yellow saprolite; giving onto decomposing bedrock; root penetration through cracks to base
Square 6	
Spit 1: 0-10	Dark/medium brown silty loam; insect bioturbation; plentiful grass roots throughout
Spit 2: 10-20	Mottled medium brown gravelly silty loam; lots of insect bioturbation and roots;
Spit 3: 20-30	Mottled brown slightly gravelly silty loam; gives onto yellowing brown silty loam with increased saprolitic gravels
Spit 4: 30-40	Yellow brown gravelly loam with light yellow saprolite; giving onto decomposing bedrock

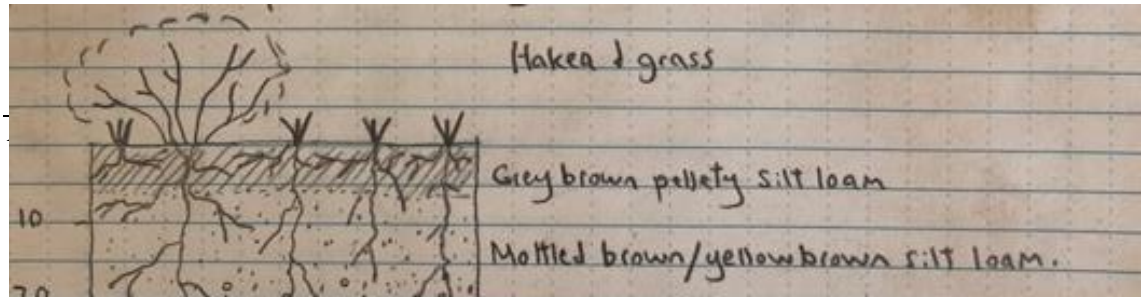


Looking 310° towards Transect 14



South section of Square 5

Schematic representation of soil profile: Survey Unit 1 Transect 14 Square 5: South section



Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
			Spit 2: 0	Spit 2: 0	Spit 2: 0
				Spit 3: 0	Spit 3: 0
				Spit 4: 0	Spit 4: 0

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
-	-	-	-	-	-

Tantangara
Survey Unit: 1
Test Transect: 15
Description: The transect is oriented 95/275° and is situated on the slightly higher elevated northwest end of the spur crest landform within Survey Unit 1. The gradient is flattish [1-2°] very gently sloping to the north and not as densely vegetated as the southern side of the spur. Occasional low bedrock outcropping.

Square locations:

Square #	Easting	Northing
1	649040	6038223
2	649033	6038226
3	649030	6038226
4	649025	6038229
5	649020	6038230
6	649016	6038231

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Pale/medium grey brown silty loam; pellety [root and bioturbation mixing]
Spit 2: 10-20	Change at 15cm to a medium brown silty loam; tree roots appearing in west wall at c.20cm; decreasing insect bioturbation
Spit 3: 20-30	Pale grey brown silty loam; small amount gravel appearing at base; some insect bioturbation

Square	Stratigraphic Log
Spit 4: 30-40	Yellow brown compacted fine gravelly silt; becoming yellowish red grave/silt with occasional saprolite pebble and cobble; pale yellow saprolite appearing at base
Square 2	
Spit 1: 0-10	Medium grey brown silty loam; pellety [root and bioturbation mixing]; loose and unconsolidated
Spit 2: 10-20	As above
Spit 3: 20-30	Decreasing root and bioturbation; becoming a yellow brown silty loam with increasing compaction with depth
Spit 4: 30-40	Lightly compacted yellow brown fine gravelly silt; some bioturbation; becoming firmly compacted at base
Spit 5: 40-50	Yellow brown mottled fine gravelly silt; leached and compacted; occasional saprolitic pebble
Spit 6: 50-60	Yellow brown compacted fine gravelly silt; becoming yellowish red grave/silt with occasional saprolite pebble and cobble; pale yellow saprolite appearing at base
Square 3	
Spit 1: 0-10	Pale/medium grey brown silty loam; pellety [root and bioturbation mixing]
Spit 2: 10-20	Grey brown/yellow brown mottled silty loam; plentiful root penetration and pocket mixing; becomes firm at base
Spit 3: 20-30	Yellow brown/brown mottled silty loam becoming paler [leached?] and compacted; some fine gravels apparent at base
Spit 4: 30-40	Yellow brown mottled fine gravelly silt; leached and compacted
Spit 5: 40-50	Yellow brown compacted fine gravelly silt; becoming yellowish red grave/silt with occasional saprolite pebble and cobble; pale yellow saprolite appearing at base
Spit 6: 50-60	Comparatively friable reddish yellow brown very gravelly silt; giving onto pale yellow saprolite bedrock
Square 4	
Spit 1: 0-10	Medium grey brown silty loam; pellety [root and bioturbation mixing]; loose and unconsolidated
Spit 2: 10-20	Medium brown mottled silty loam; plentiful roots and insect bioturbation
Spit 3: 20-30	Decreasing root and bioturbation; becoming a mottled yellow brown silty loam with increasing compaction with depth
Spit 4: 30-40	Yellow brown/brown mottled silty loam and compacted; saprolitic gravels apparent at c.37cm
Spit 5: 40-45	Yellow brown gravelly silt/pale yellow saprolite; giving onto saprolite rubble/bedrock
Square 5	
Spit 1: 0-10	Grey brown mottled pellety silty loam; lots of bioturbation; loose; occasional floating cobble
Spit 2: 10-20	Yellowing grey brown mottled and silt loam; bioturbation; change to a yellow brown mottled silty loam
Spit 3: 20-30	Compacted yellow brown slightly gravelly silt; some root penetration; reduced bioturbation
Spit 4: 30-40	Compacted pale yellow brown gravelly silt with occasional saprolite pebble; some light yellow saprolite at base

Square	Stratigraphic Log
Spit 5: 40-50	Yellow brown gravelly silt/pale yellow saprolite; giving onto saprolite rubble/bedrock
Square 6	
Spit 1: 0-10	Grey brown mottled pellety silty loam
Spit 2: 10-20	Yellowing grey brown mottled and silt loam; change to a yellow brown mottled silty loam
Spit 3: 20-30	Compacted pale yellow brown gravelly silt with occasional saprolite pebble; some light yellow saprolite at base
Spit 4: 30-40	Yellow brown gravelly silt/pale yellow saprolite; giving onto saprolite rubble/bedrock

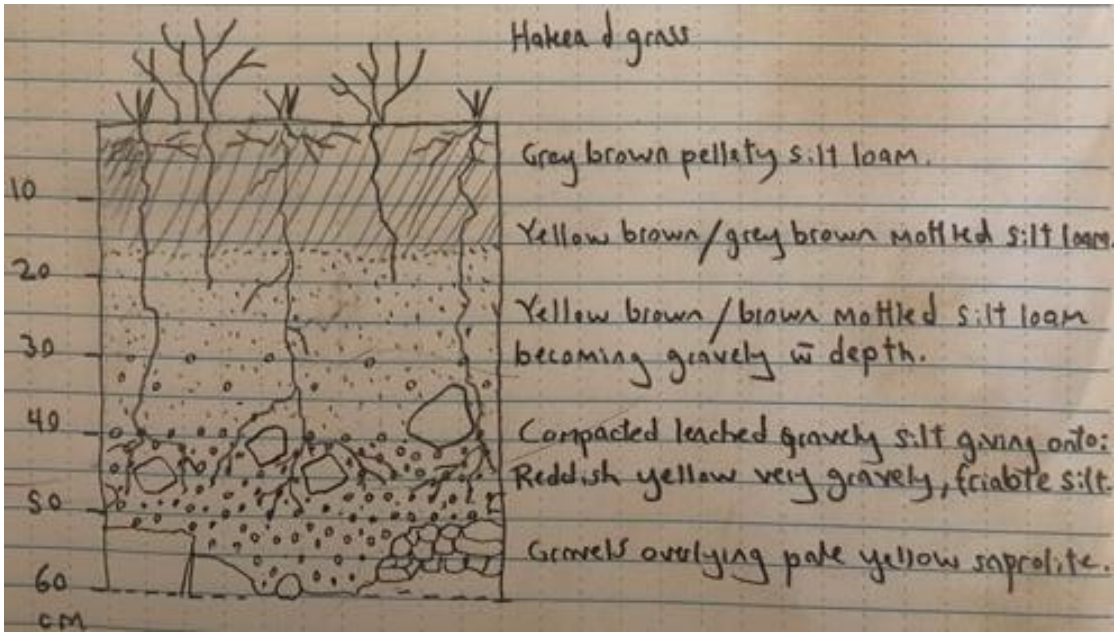


Looking 270° along Transect 15



North section of Square 3

Schematic representation of soil profile: Survey Unit 1 Transect 15 Square 3: North section



Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0
Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0
Spit 4: 0	Spit 4: 0	Spit 4: 0	Spit 4: 0	Spit 4: 0	Spit 4: 0

	Spit 5: 0	Spit 5: 0	Spit 5: 0	Spit 5: 0	
	Spit 6: 0	Spit 6: 0			

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
-	-	-	-	-	-

Tantangara
Survey Unit: 2
Test Transect: 1
Description: The transect is oriented 35/215° and situated on a very gently sloping bench of a spur crest with an aspect to the northeast. The area is covered with dense patches of *Hakea*; small heath shrubs and native grasses with an occasional low outcropping of volcanic bedrock rock. The landform is highly eroded and has been subjected to rabbit and wild horse infestation, consequently, influencing significant degradation.

Square locations:

Square #	Easting	Northing
1	648859	6037858
2	648864	6037861
3	648867	6037863
4	648872	6037867
5	648876	6037868
6	648879	6037872

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Dark brown very fine sandy loam with occasional angular large pebble; root/rootlet penetration throughout; giving onto packed saprolite rubble/decomposing bedrock; roots/rootlets throughout
Square 2	
Spit 1: 0-10	Dark brown very fine sandy loam with occasional angular large pebble; root/rootlet penetration throughout
Spit 2: 10-20	Dark brown very fine sandy loam with occasional angular pebble giving onto packed saprolite rubble/decomposing bedrock; roots/rootlets throughout
Square 3	
Spit 1: 0-10	Dark brown very fine sandy loam; root/rootlets penetration throughout
Spit 2: 10-20	Dark brown very fine sandy loam; uniform
Spit 3: 20-30	Medium/dark grey brown very fine sandy loam; at c.23cm becomes a yellowish brown saprolite rubble and continues to base [decomposing bedrock]
Spit 4: 30-35	Continues as above; increasing decomposing bedrock cobbles
Square 4	
Spit 1: 0-10	Dark grey brown very fine sandy loam; root/rootlets penetration throughout

Square	Stratigraphic Log
Spit 2: 10-20	Dark grey brown very fine sandy loam; plentiful saprolitic gravel/pebbles/cobbles
Spit 3: 20-30	
Square 5	
Spit 1: 0-10	Dark grey brown very fine sandy loam; root/rootlets penetration throughout
Spit 2: 10-20	Lightening grey brown very sandy loam developing fine pale gravel flecks with depth
Spit 3: 20-30	Medium/dark grey brown very fine sandy loam; giving onto saprolite rubble at base [decomposing bedrock]
Square 6	
Spit 1: 0-10	Medium brown gravelly sandy loam [saprolitic gravels] loose and unconsolidated
Spit 2: 10-20	Lighter brown very gravelly sandy loam; size of saprolite increasing with depth; giving onto cobble floor of decomposing bedrock; uneven base



Looking 215° along Transect 1



Southeast section of Square 5

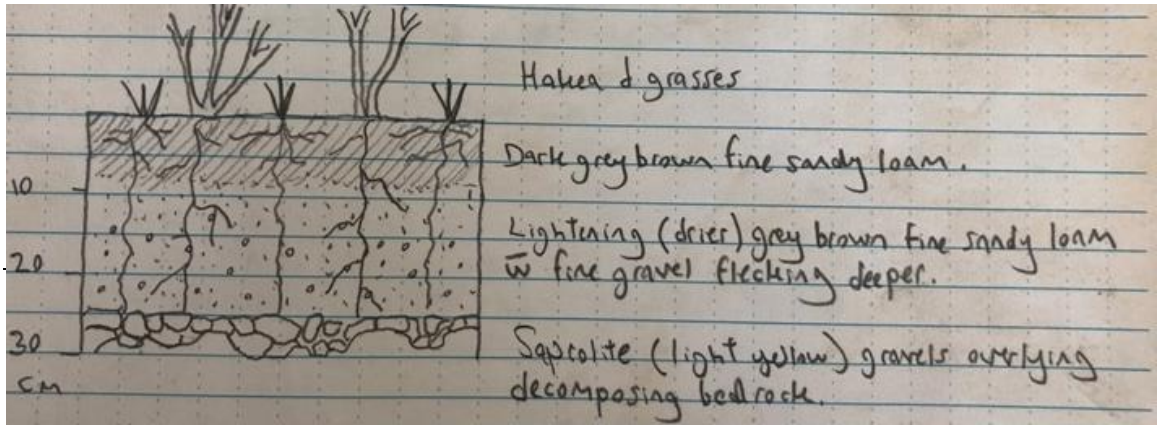


Southwest section of Square 4



Overall view of Square 4

Schematic representation of soil profile: Survey Unit 2 Transect 1 Square 5: Southeast section



Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 1	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 1
	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0
		Spit 3: 0	Spit 3: 0	Spit 3: 0	
		Spit 4: 0			

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
-	1	-	-	-	1

Discussion – Two artefacts were retrieved from this test transect. The results indicate a very low density and patchy artefact distribution.

Tantangara
Survey Unit: 2
Test Transect: 2
Description: The transect is oriented 45/225° offset c. 30 metres southeast of Transect 1.

Square locations:

Square #	Easting	Northing
1	648875	6037836
2	648877	6037839
3	648882	6037840
4	648885	6037842
5	648891	6037846
6	648895	6037846

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Medium dark brown fine silty loam; loose; many rootlets
Spit 2: 10-20	Medium dark brown silty loam; bioturbation; rootlet penetration
Spit 3: 20-30	Medium brown slightly gravelly silty loam; bedrock boulder/saprolite gravel mix; giving onto saprolitic bedrock across base;
Square 2	
Spit 1: 0-10	Dark grey brown silty loam; root/rootlet penetration throughout
Spit 2: 10-20	Dark grey brown silty loam; becoming slightly gravelly silty loam with saprolite and small boulders/cobbles protruding in west side of pit

Square	Stratigraphic Log
Spit 3: 20-30	Dark grey brown gravelly silty loam; bedrock boulders and saprolite gravel
Spit 4: 30-40	Dark grey brown gravelly silty loam; bedrock boulder/saprolite gravel mix; giving onto saprolitic bedrock across base; rootlet penetration throughout
Square 3	
Spit 1: 0-10	Dark brown very fine gravelly silty loam; occasional cobble; saprolite gravels appearing at base
Spit 2: 10-20	Dark grey gravelly silty loam/bedrock rubble mix; giving onto saprolite bedrock at base; root/rootlet penetration throughout
Square 4	
Spit 1: 0-10	Medium dark brown fine silty loam; loose; many rootlets
Spit 2: 10-20	Medium dark brown fine silty loam; loose; many rootlets
Spit 3: 20-30	Medium brown slightly gravelly silty loam; bedrock boulder/saprolite gravel mix at base
Spit 4: 30-40	Saprolitic bedrock boulders/cobbles at base
Square 5	
Spit 1: 0-10	Dark grey brown silty loam with occasional saprolite pebble; change to loam/saprolite bedrock rubble mix; rootlets throughout
Spit 2: 10-20	Dark grey gravelly silty loam/bedrock rubble mix; giving onto saprolite bedrock at base; root/rootlet penetration throughout
Square 6	
Spit 1: 0-10	Dark grey brown silty loam with occasional saprolite pebble; change to loam/saprolite bedrock rubble mix at base; rootlets throughout
Spit 2: 10-20	Giving onto saprolite bedrock at base

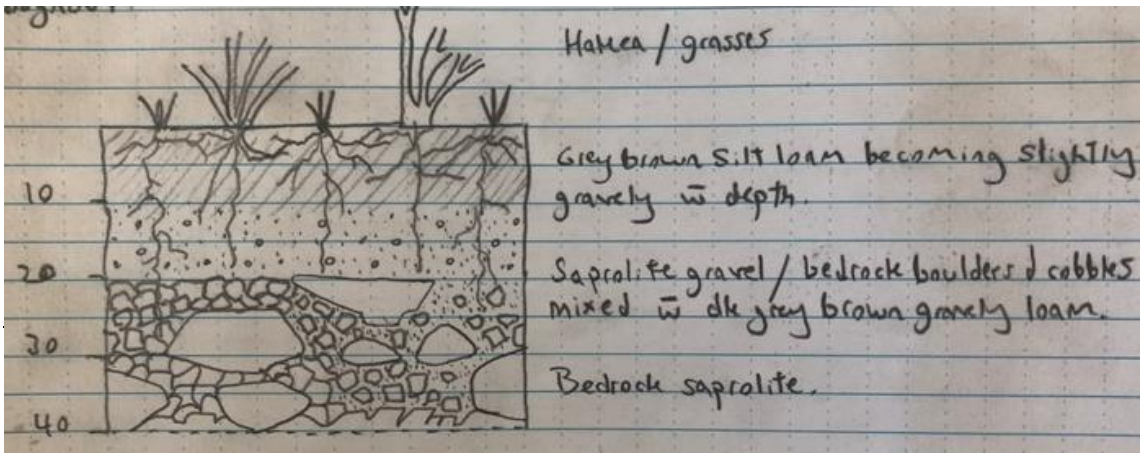


Looking 150° towards Transect 2



Southwest section of Square 2

Schematic representation of soil profile: Survey Unit 2 Transect 2 Square 2: Southwest section



Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 4	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0
Spit 3: 6	Spit 3: 6		Spit 3: 1		
	Spit 4: 2		Spit 4: 0		

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
6	12	-	1	-	-

Discussion – some 19 artefacts were retrieved from three of the six squares in this test transect. The six items in Square 1 are of the same fine-grained volcanic material and likely to be a part of a knapping event. The 12 in Square 2 are a mix of materials and could also be parts of two related flaking events. The 19 artefacts in a total excavated area of 1.5 sq m reveals a relatively low artefact density. The artefact distribution is also patchy.

Tantangara
Survey Unit: 2
Test Transect: 3
Description: The transect is oriented 90/270° and is situated on a gently sloping bench to the east [6-10°]

Square locations:

Square #	Easting	Northing
1	648967	6037854
2	648971	6037849
3	648976	6037851
4	648980	6037850
5	648986	6037850
6	648990	6037846

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Dark grey brown very fine sandy loam; plentiful root mottling
Spit 2: 10-20	Dark grey brown very sandy loam becoming lightly compacted; slightly paler and gravelly with depth; occasional bedrock; large cobble outcropping at base
Spit 3: 20-30	Dark grey brown slightly gravelly loam with occasional bedrock cobble; change to light yellow saprolite bedrock crust across base
Square 2	

Square	Stratigraphic Log
Spit 1: 0-10	Dark grey brown silty loam; root/rootlet penetration throughout
Spit 2: 10-20	Dark grey brown silty loam; becoming slightly gravelly silty loam with saprolite and small boulders/cobbles protruding in west side of pit
Spit 3: 20-30	Dark grey brown gravelly silty loam; bedrock boulders and saprolite gravel
Spit 4: 30-40	Dark grey brown gravelly silty loam; bedrock boulder/saprolite gravel mix; giving onto saprolitic bedrock across base; rootlet penetration throughout
Square 3	
Spit 1: 0-10	Dark brown sandy loam; rootlets
Spit 2: 10-20	Dark brown mottled sandy loam; some rootlets and bioturbation
Spit 3: 20-30	Lightening grey brown sandy loam with saprolitic gravels appearing at base and soil becoming a reddish brown
Spit 4: 30-40	Fine gravelly mottled grey brown loam; increasing light yellow saprolite pebbles at base
Spit 5: 40-50	Yellowing brown saprolite gravel loam mix; giving onto saprolitic bedrock across base
Square 4	
Spit 1: 0-10	Mottled dark grey brown fine sandy loam; rootlets throughout
Spit 2: 10-20	Lightening grey brown mottled fine sandy loam; becoming lightly compacted at base
Spit 3: 20-30	Medium grey brown mottled fine sandy loam; becoming firmer and with pale saprolite gravel at base; single bedrock boulder resting on level at base
Spit 4: 30-40	Fine gravelly mottled grey brown loam; yellowing in pockets with depth; onto light yellow saprolite bedrock cortex at base; rootlet penetration throughout
Square 5	
Spit 1: 0-10	Dark grey brown sandy loam with some bioturbation
Spit 2: 10-20	Dark grey brown sandy loam; heavily bioturbated
Spit 3: 20-30	Mottled dark/medium brown sandy loam; small gravels appearing at base; reduced bioturbation
Spit 4: 30-40	Yellowing grey brown sandy loam; small saprolitic gravels throughout; gravels increasing in size with depth
Spit 5: 40-50	Yellowing brown saprolite gravel loam mix; giving onto saprolitic bedrock across base
Square 6	
Spit 1: 0-10	Medium brown sandy silty loam; some mottling from bioturbation and roots
Spit 2: 10-20	Gradual change to medium brown sandy silt with occasional soft decomposing saprolitic gravel; increase in rootlet content
Spit 3: 20-30	Medium brown sandy silt; slight increase in saprolitic gravels; reduced rootlet content
Spit 4: 30-40	Change to a yellowing brown gravelly silt; gravels decomposing bedrock
Spit 5: 40-50	Yellow brown gravelly silt; increase in gravel size with depth; occasional bedrock cobble
Spit 6: 50-55	Giving onto a packed cobble bedrock base

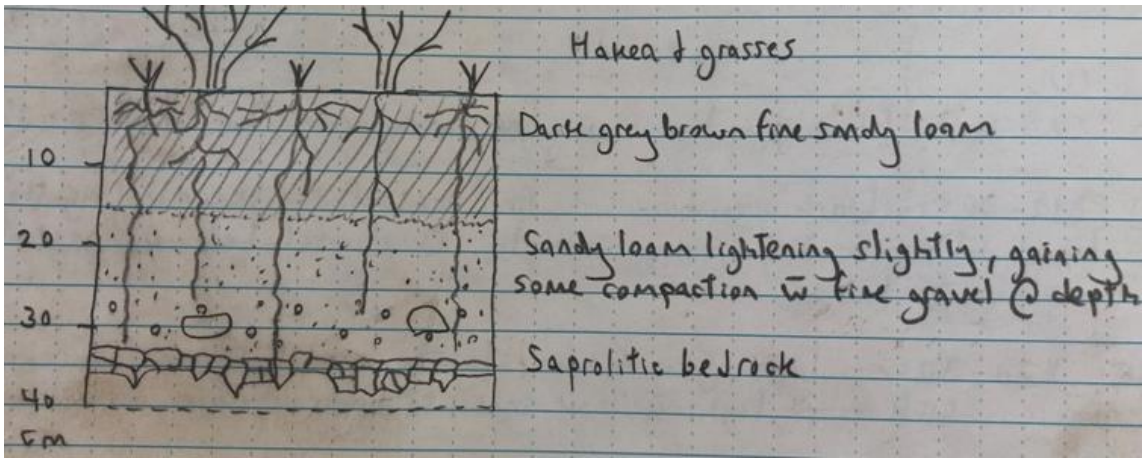


Looking 90° along Transect 3



West section of Square 4

Schematic representation of soil profile: Survey Unit 2 Transect 3 Square 4: West section



Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 1	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0
Spit 3: 0	Spit 3: 1	Spit 3: 0	Spit 3: 2	Spit 3: 0	Spit 3: 1
	Spit 4: 0	Spit 4: 2	Spit 4: 1	Spit 4: 0	Spit 4: 0
		Spit 5: 0		Spit 5: 0	Spit 5: 0
					Spit 6: 0

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
1	1	2	3	-	1

Discussion – Eight artefacts were retrieved from five of the six squares in this test transect. The artefact density is very low although the distribution is relatively continuous across the test area.

Tantangara
Survey Unit: 2
Test Transect: 4

Description: The transect is oriented 90/270° offset 10 metres south and running parallel to Transect 3.

Square locations:

Square #	Easting	Northing
1	648966	6037844
2	648973	6037840
3	648976	6037839
4	648981	6037839
5	648985	6037840
6	648991	6037836

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Medium-dark grey brown very fine sandy loam
Spit 2: 10-20	Medium-dark grey brown fine sandy loam becoming lightly compacted; medium-dark yellow brown fine sandy loam with fine yellow gravel fleck
Spit 3: 20-30	Increasingly compacted medium yellow brown fine sandy loam with heavy fine gravel yellow flecking and darker brown mottling; yellow saprolite appearing in southeast corner of pit
Spit 4: 30-40	Very fine gravelly compacted yellow brown loam; giving onto loam/saprolite mix; at base approx. 60% saprolite
Spit 5: 40-50	Gravelly loam/saprolite mix giving onto saprolite bedrock base
Square 2	
Spit 1: 0-10	Dark medium brown silty loam; rootlet penetration throughout
Spit 2: 10-20	Dark medium brown silty loam; uniform
Spit 3: 20-30	Dark medium brown silty loam becoming a lighter brown gravelly silty loam; yellow saprolite gravel flecking increasing at base
Spit 4: 30-40	Medium yellow brown saprolite gravel mix; giving onto saprolitic bedrock across base
Square 3	
Spit 1: 0-10	Dark/medium mottled loose grey brown very fine sandy loam; dense rootlet penetration throughout
Spit 2: 10-20	Medium dark grey brown mottled fine sandy loam gaining slightly in compaction; change ot medium yellowing brown loam with fine gravel flecking at base
Spit 3: 20-30	Medium dark yellow brown gravelly loam [saprolite]; increased compaction; yellow saprolite pebbles appearing at base
Spit 4: 30-35	Gravelly yellow brown loam onto light yellow saprolite; plentiful rootlet penetration
Square 4	
Spit 1: 0-10	Mottled dark brown sandy loam; loose; heavily bioturbated; rootlets throughout
Spit 2: 10-20	Mottled dark brown sandy loam; becoming lightly compacted at base
Spit 3: 20-30	Medium brown mottled sandy loam; yellow flecking; becoming firmer and with pale saprolite gravel at base

Square	Stratigraphic Log
Spit 4: 30-40	Fine gravelly mottled dark yellow brown loam; light yellow saprolite bedrock at base
Square 5	
Spit 1: 0-10	Dark grey brown sandy loam with some bioturbation
Spit 2: 10-20	Dark grey brown sandy loam; heavily bioturbated
Spit 3: 20-30	Mottled dark/medium brown sandy loam; small gravels appearing at base; reduced bioturbation
Spit 4: 30-40	Yellowing grey brown sandy loam; small saprolitic gravels throughout; gravels increasing in size with depth
Spit 5: 40-50	Yellowing brown saprolite gravel loam mix; giving onto saprolitic bedrock across base
Square 6	
Spit 1: 0-10	Medium-dark grey brown very fine sandy loam; yellowing slightly with depth and developing strong darker mottling
Spit 2: 10-20	Medium/dark yellow brown lightly compacted fine sandy loam; mottled with pale yellow fine gravel flecking at base
Spit 3: 20-30	Compacted fine gravelly yellow brown loam
Spit 4: 30-40	Medium dark yellow brown gravelly loam; change to loam saprolite mix
Spit 5: 40-50	Loam/saprolite gravel mix to a light yellow solid saprolite and bedrock base; frequent root penetration through cracks in bedrock

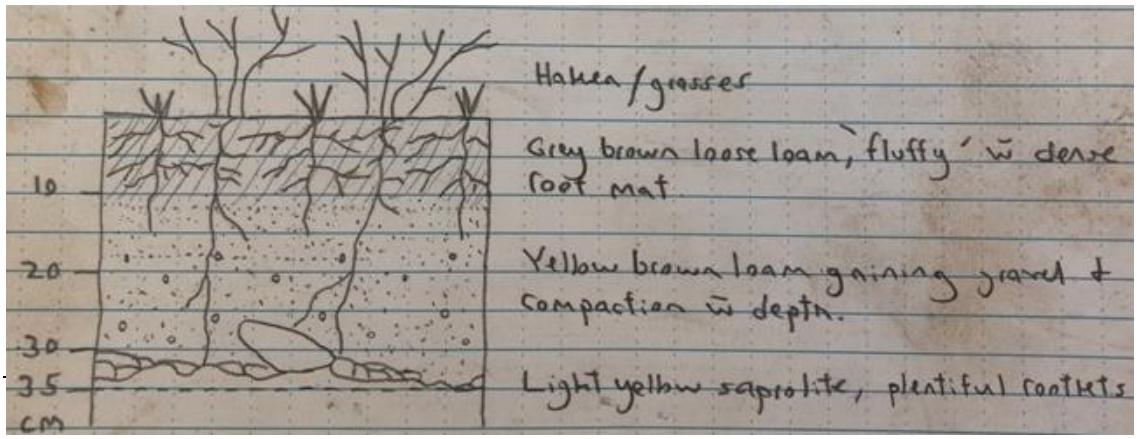


Looking 190° towards Transect 4



West section of Square 3

Schematic representation of soil profile: Survey Unit 2 Transect 4 Square 3: West section.



Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 1	Spit 2: 0	Spit 2: 0
Spit 3: 1	Spit 3: 0	Spit 3: 3	Spit 3: 0	Spit 3: 21	Spit 3: 1
Spit 4: 0	Spit 4: 1	Spit 4: 1	Spit 4: 0	Spit 4: 13	Spit 4: 0
Spit 5: 0				Spit 5: 0	Spit 5: 0

Visual representation of artefact retrieval:

Sq 1
1

Sq 2
1

Sq 3
4

Sq 4
1

Sq 5
34

Sq 6
1

Discussion – some 42 artefacts were retrieved from the six squares in this test transect. The 42 artefacts in a total excavated area of 1.5 sq m reveals low/moderate artefact density. However, the fine-grained volcanic items in Square 5 are likely to be a part of a knapping event contributing to the high artefact abundance in this test transect. The results indicate a continuous artefact distribution across the test area.

Tantangara
Survey Unit: 2
Test Transect: 5
Description: The transect is oriented 80/260° and situated on a flat crest of a spur with low elevation. This area is directly adjacent to a damp drainage line and right above the valley floor. The crest surface is uneven and lumpy. Thick vegetation cover of Hakea and other native shrubs. Very low outcropping of highly eroded volcanic bedrock.

Square locations:

Square #	Easting	Northing
1	649157	6037919
2	649160	6037918
3	649165	6037918
4	649169	6037917
5	649175	6037916
6	649179	6037917

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Heavily mottled grey brown very fine sandy loam; rootlets throughout
Spit 2: 10-20	Grey brown mottled fine sandy loam with yellow saprolite appearing at base
Spit 3: 20-30	Dark grey brown gravelly loam; giving onto saprolite/decomposing bedrock

Square	Stratigraphic Log
Square 2	
Spit 1: 0-10	Medium/dark brown sandy loam; bioturbated; grass rootlets
Spit 2: 10-20	Medium brown mottled fine sandy loam with yellow saprolite appearing at base; heavily bioturbated
Spit 3: 20-30	Dark grey brown gravelly loam; giving onto saprolite/decomposing bedrock
Square 3	
Spit 1: 0-10	Dark grey brown sandy silt; friable; rootlets
Spit 2: 10-20	Dark grey brown fine sandy silty loam; small gravels and occasional angular bedrock cobble; some rootlets
Spit 3: 20-30	Giving onto a yellow/orange brown saprolitic gravelly and cobble bedrock base
Square 4	
Spit 1: 0-10	Grey brown mottled/heavily bioturbated very fine sandy loam
Spit 2: 10-25	Dark grey brown very fine sandy loam onto saprolite bedrock [uneven base]
Square 5	
Spit 1: 0-10	Medium brown sandy loam; some bioturbation; grass rootlets
Spit 2: 10-20	Medium brown mottled fine sandy loam; giving onto a yellow brown saprolitic gravelly and cobble bedrock base
Square 6	
Spit 1: 0-10	Dark brown fine sandy silty loam; plentiful/dense rootlets
Spit 2: 10-15	Saprolitic gravel appearing at 12cm; soil becomes a dark grey brown gravelly fine sandy silt onto a saprolitic bedrock base; grass rootlets penetrate to base

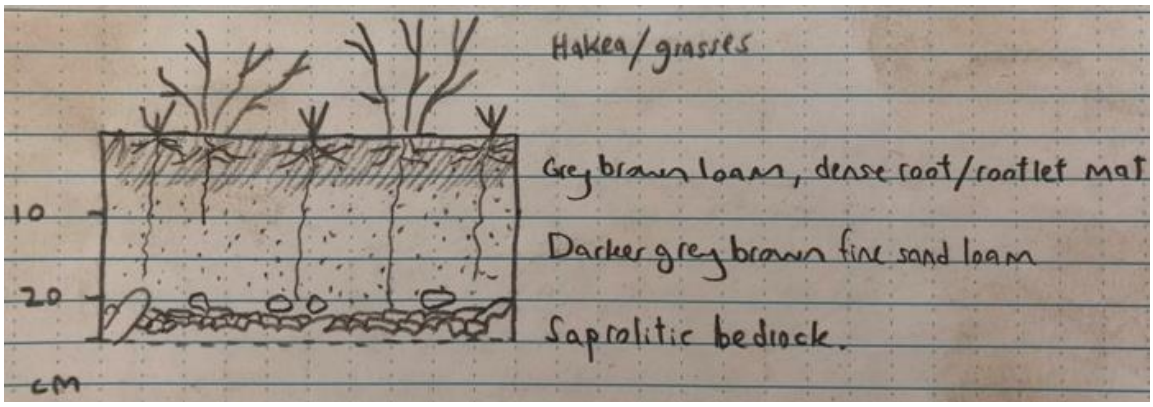


Looking 70° along Transect 5



West section of Square 5

Schematic representation of soil profile: Survey Unit 2 Transect 5 Square 4: West section



Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0
Spit 3: 0	Spit 3: 0	Spit 3: 0			

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
-	-	-	-	-	-

Discussion – No artefacts were retrieved from this test transect.

Tantangara

Survey Unit: 2

Test Transect: 6

Description: The transect is oriented 85/265° offset 10 metres and to the north of Transect 5. This transect is closer to the damp drainage line that runs along the eastern margin of the spur line.

Square locations:

Square #	Easting	Northing
1	649156	6037933
2	649161	6037932
3	649166	6037931
4	649170	6037931
5	649175	6037930
6	649180	6037930

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Medium grey brown fine sandy loam; mottled; unconsolidated; roots and rootlets throughout
Spit 2: 10-20	Medium-dark grey brown mottled fine sandy loam with yellow saprolite gravel and bedrock appearing at base

Square	Stratigraphic Log
Square 2	
Spit 1: 0-10	Medium brown sandy loam; friable; bioturbated; grass rootlets; saprolitic gravel emerging at base
Spit 2: 10-20	Medium brown mottled gravelly sandy loam with yellow saprolite gravels/bedrock appearing at base
Square 3	
Spit 1: 0-10	Dark grey brown sandy silt; friable; rootlets
Spit 2: 10-17	Dark grey brown fine sandy silty loam; small gravels and occasional angular bedrock cobble; some rootlets; giving onto a yellow/orange brown saprolitic gravelly and cobble bedrock base
Square 4	
Spit 1: 0-10	Grey brown/yellow brown mottled very fine sandy loam becoming mixed with saprolite
Spit 2: 10-18	Grey brown slightly yellowing loam/saprolite mix onto saprolite bedrock; roots and rootlets throughout
Square 5	
Spit 1: 0-10	Medium brown sandy loam; some bioturbation; grass rootlets
Spit 2: 10-20	Medium brown mottled fine sandy loam; giving onto a yellow brown saprolitic gravelly and cobble bedrock base
Square 6	
Spit 1: 0-10	Dark brown very fine sandy silty loam; saprolite loam/gravel mix near base of spit; plentiful rootlets
Spit 2: 10-15	Dark brown very fine sandy silt/gravel mix; saprolitic gravels/cobbles increasing with depth; onto a packed cobble saprolitic bedrock base; grass rootlets penetrate to base



Looking 85° along Transect 6



West section of Square 5

Schematic representation of soil profile: Survey Unit 2 Transect 6 Square 1: West section



Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 1	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
1	-	-	-	-	-

Discussion – One artefact was retrieved from this test transect, representing very low and patchy artefact density in the test area. Considering that no artefacts were found in Square 5, the eastern end of SU2 varies to the west end where artefact abundance was much greater.

Tantangara
Survey Unit: 3
Test Transect: 1
Description: The transect is oriented northeast/southwest and situated on a northeast facing broad crest with a very gentle gradient. The area is vegetated with Hakea shrubs and an understorey of native grasses and scattered heath. The landform is extremely eroded with places of bedrock outcropping and only skeletal soils remaining. Recent disturbance is relatively high and most likely caused from the rabbit and wild horses.

Square locations:

Square #	Easting	Northing
1	649002	6037619
2	648998	6037617
3	648992	6037615
4	648990	6037611
5	648986	6037609
6	648981	6037607

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Medium brown silty loam; soft compaction; plentiful grass roots; occasional angular bedrock pebble
Spit 2: 10-20	Medium brown silty loam; increasing bedrock rubble; at 15cm abrupt boundary onto the parent rock [bedrock]
Spit 3: 20-30	Yellowish brown mottled coarse gravelly loam; giving onto saprolite gravel/rubble mix
Square 2	

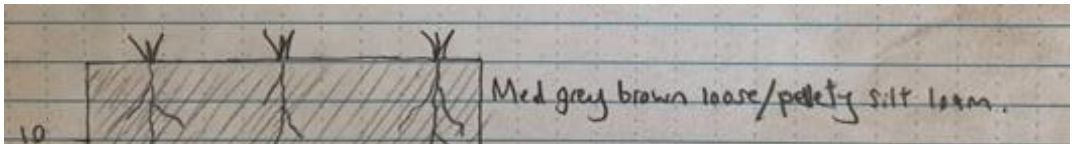
Square	Stratigraphic Log
Spit 1: 0-10	Medium dark brown silty loam; many roots
Spit 2: 10-20	Becoming medium brown and mottled; saprolite gravel appearing at base
Spit 3: 20-30	Medium brown silty loam; giving onto a yellowish brown gravelly silty loam mix at base
Spit 4: 30-40	Yellow brown mottled coarse gravelly loam; saprolite degrading bedrock base
Square 3	
Spit 1: 0-10	Medium grey brown silty loam; slightly pellety possibly disturbed by roots and bioturbation
Spit 2: 10-20	Medium grey brown silty loam; onto a yellow brown/mottled brown saprolite gravel loam with cobble of saprolite dispersal at base
Spit 3: 20-30	Yellowish brown mottled coarse gravelly loam; plentiful saprolite rubble throughout
Pit 4: 30-40	Yellowish brown mottled coarse gravelly loam/saprolite gravel and rubble mix; plentiful rootlet penetration
Square 4	
Spit 1: 0-10	Medium brown silty loam; slightly pellety; some bioturbation
Spit 2: 10-20	Medium brown silty loam; onto a yellow brown/mottled brown saprolite gravel loam with cobble of saprolite dispersal at base
Spit 3: 20-30	Yellowish brown mottled coarse gravelly loam; plentiful saprolite rubble throughout
Square 5	
Spit 1: 0-10	Medium/dark brown silty loam; soft compaction; plentiful rootlets
Spit 2: 10-20	Medium brown silty loam; gradual change to a reddish brown silty loam
Spit 3: 20-30	Reddish brown silty loam; becoming mottled; saprolite gravels appearing at c.25cm; giving onto saprolitic bedrock base
Square 6	
Spit 1: 0-10	Medium grey brown silty loam; loose; gradual change to a mottled yellowish red brown silty loam; plentiful bioturbation throughout
Spit 2: 10-20	Yellowish red brown silty loam becoming gravelly and with saprolite cobbles/gravel
Spit 3: 20-30	Yellowish red brown friable gravelly silty loam becoming very gravelly and missed with saprolite rubble throughout; packed rubble at 30cm



Looking 230° towards Transect 1



Southeast section of Square 3



Schematic representation of soil profile: Survey Unit 3 Transect 1 Square 3: Southeast section

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 1
Spit 2: 4	Spit 2: 1	Spit 2: 0	Spit 2: 1	Spit 2: 0	Spit 2: 0
Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0
	Spit 4: 0	Spit 4: 0			

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
4	1	-	1	-	2

Discussion – Eight artefacts were retrieved from four of six squares indicating a relatively continuous artefact distribution in the test area, albeit in low density.

Tantangara
Survey Unit: 3
Test Transect: 2
Description: The transect is oriented northeast/southwest and is offset c. 5 metres from Transect 1 to the southeast.

Square locations:

Square #	Easting	Northing
1	649006	6037620
2	649001	6037615
3	648997	6037613
4	648993	6037611
5	648990	6037607
6	648982	6037602

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Grey brown silty loam with outcropping bedrock rubble; plentiful rabbit digging throughout

Square	Stratigraphic Log
Spit 2: 10-20	Gravelly/rubbly grey brown silty loam onto saprolite and bedrock
Square 2	
Spit 1: 0-10	Medium brown silty loam;
Spit 2: 10-20	Medium brown silty loam
Spit 3: 20-30	Medium brown silty loam; giving onto a yellowish brown gravelly silty loam mix at base
Spit 4: 30-35	Yellow brown mottled coarse gravelly loam; saprolite and bedrock
Square 3	
Spit 1: 0-10	Medium grey brown silty loam
Spit 2: 10-20	Medium grey brown silty loam; saprolite gravel towards base
Spit 3: 20-30	Yellowish brown mottled coarse gravelly loam giving onto saprolite rubble/bedrock
Square 4	
Spit 1: 0-10	Grey brown mottled silty loam; yellowish brown mottling at base
Spit 2: 10-20	Yellow brown/mottled grey brown silty loam with saprolite gravel towards base
Spit 3: 20-30	Yellowish grey brown mottled gravelly silty loam; plentiful angular pebbles and bedrock rubble embedded at base
Square 5	
Spit 1: 0-10	Medium/dark brown silty loam; soft compaction; plentiful rootlets
Spit 2: 10-20	Medium brown silty loam; saprolite gravel towards base
Spit 3: 20-30	Yellowish brown gravelly silty loam; becoming mottled; giving onto saprolite and bedrock
Square 6	
Spit 1: 0-10	Medium/dark brown silty loam; soft compaction; plentiful rootlets
Spit 2: 10-20	Medium brown silty loam; some saprolite gravel towards base
Spit 3: 20-30	At c.25 cm becomes more yellowish brown gravelly silty loam; becoming mottled; giving onto saprolite and bedrock



Looking 45° towards Transect 2



Southeast section of Square 4

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 2	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 1	Spit 2: 2	Spit 2: 2	Spit 2: 4	Spit 2: 5	Spit 2: 3
	Spit 3: 0	Spit 3: 2	Spit 3: 1	Spit 3: 1	Spit 3: 0
	Spit 4: 4				

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6

3	6	4	5	6	3

Discussion – Some 27 artefacts were retrieved from all of the six squares indicating a continuous artefact distribution in the test area. Artefact density is low/moderate. Three raw materials are present in the collection indicting multiple episodes of reduction.

Tantangara
Survey Unit: 3
Test Transect: 3
Description: The transect is oriented southeast/northwest and situated on a broad level bench of a spur crest. The area has very shallow soils with abundant decomposing saprolite and low bedrock outcropping.

Square locations:

Square #	Easting	Northing
1	649208	6037649
2	649210	6037643
3	649211	6037638
4	649212	6037636
5	649215	6037630
6	649217	6037625

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Medium/dark brown silty loam with outcropping bedrock rubble throughout
Spit 2: 10-20	Gravelly/rubbly brown silty loam onto saprolite and bedrock
Square 2	
Spit 1: 0-10	Medium brown silty loam with large bedrock cobbles throughout
Spit 2: 10-20	At c. 15cm a clear boundary onto a dark reddish brown clayey silt overlying bedrock
Square 3	
Spit 1: 0-10	Grey brown silty loam and broken bedrock; giving onto packed broken bedrock
Square 4	
Spit 1: 0-15	Dark grey brown silty loam with frequent bedrock cobbles/gravels; giving onto a saprolite/bedrock in broken embedded form
Square 5	
Spit 1: 0-10	Dark grey brown silty loam with frequent bedrock cobbles/gravels; giving onto a saprolite/bedrock in broken embedded form
Square 6	

Square	Stratigraphic Log
Spit 1: 0-10	Dark grey brown silty loam with frequent bedrock cobbles/gravels; giving onto a saprolite/bedrock in broken embedded form



Looking ° towards Transect 3



Northwest section of Square 6

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 1				

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
-	1	-	-	-	-

Discussion – One stone artefact was retrieved indicating a sparse and very low density distribution in the test area.

Tantangara

Survey Unit: 3

Test Transect: 4

Description: The transect is oriented southeast/northwest and offset 10 metres southwest of Transect 3.

Square locations:

Square #	Easting	Northing
1	649198	6037645
2	649195	6037640
3	649196	6037636
4	649199	6037632
5	649200	6037628
6	649202	6037623

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Medium/dark brown silty loam with outcropping bedrock rubble becoming packed broken bedrock; plentiful roots/rootlets near surface

Square	Stratigraphic Log
Square 2	
Spit 1: 0-10	Dark brown silty loam with large bedrock cobbles throughout becoming packed broken bedrock
Square 3	
Spit 1: 0-10	Grey brown silty loam and broken bedrock; giving onto packed broken bedrock
Square 4	
Spit 1: 0-15	Dark grey brown silty loam with frequent bedrock cobbles/gravels; giving onto a saprolite/bedrock in broken embedded form
Square 5	
Spit 1: 0-15	Grey brown silty loam giving rapidly onto loam/broken bedrock mix; packed bedrock rubble/bedrock at base.
Square 6	
Spit 1: 0-10	Grey brown silty loam giving rapidly onto loam/broken bedrock mix; packed bedrock rubble/bedrock at base.


Looking 50° towards Transect 4


North west section of Square 5

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
-	-	-	-	-	-

Discussion – No artefacts were retrieved confirming a low density distribution in the test area.

Tantangara
Survey Unit: 3
Test Transect: 5
Description: The transect is oriented northeast/southwest, and is offset 5 metres northwest from Transect 1. Squares 1 & 2 were extended to 0.5 sq m as several artefacts were retrieved from the initial squares. Squares 1 & 2 had deep deposits compared to Squares 3 to 6. These two Squares are located lower on the slope and Square 1 is adjacent to an old vehicle track. Inconsistent soil depths may possibly be due to the movement of soil across an undulating crest of bedrock.

Square locations:

Square #	Easting	Northing
1	649002	6037624
2	648997	6037621
3	648995	6037619
4	648990	6037617
5	648984	6037614
6	648981	6037612

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Medium brown slightly pellety silty loam; plentiful rootlets; bioturbation pockets frequent
Spit 2: 10-20	Grey brown slightly pellety silty loam; plentiful rootlets; bioturbation pockets frequent
Spit 3: 20-30	Grey brown slightly pellety silty loam; plentiful rootlets; giving onto mottled yellowing grey brown slightly gravelly loam
Spit 4: 30-40	Becoming a mottled yellow brown gravelly silty loam and bedrock/saprolite rubble
Square 1b	
Spit 1: 0-10	Grey brown slightly pellety silty loam; plentiful rootlets; bioturbation pockets frequent
Spit 2: 10-20	Grey brown slightly pellety silty loam; plentiful rootlets; bioturbation pockets frequent
Spit 3: 20-30	Change at 25cm to a mottled yellowish grey brown slightly gravelly loam; occasional saprolite rubble/bedrock
Spit 4: 30-40	Packed saprolite rubble and decomposing firm bedrock appearing in the southern corner of pit
Square 2	
Spit 1: 0-10	Grey brown slightly pellety silty loam; plentiful rootlets; bioturbation pockets frequent
Spit 2: 10-20	Grey brown slightly pellety silty loam; plentiful rootlets; giving onto mottled yellowing grey brown slightly gravelly loam
Spit 3: 20-30	Change at 25cm to a mottled yellowish grey brown slightly gravelly loam; occasional bedrock boulder
Spit 4: 30-40	Becoming a mottled yellow brown gravelly silty loam and bedrock/saprolite rubble
Spit 5: 40-50	Packed saprolite rubble and decomposing firm bedrock at 45cm
Square 2b	
Spit 1: 0-10	Grey brown slightly pellety silty loam; plentiful rootlets; bioturbation pockets frequent
Spit 2: 10-20	Grey brown slightly pellety silty loam; plentiful rootlets; giving onto mottled yellowing grey brown slightly gravelly loam
Spit 3: 20-30	Mottled yellowish grey brown slightly gravelly loam; plentiful rootlets; occasional bedrock boulder; area of packed broken bedrock
Spit 4: 30-40	Becoming a mottled yellow brown gravelly silty loam and bedrock/saprolite rubble; packed broken bedrock increasing

Square	Stratigraphic Log
Spit 5: 40-50	Packed saprolite rubble and decomposing firm bedrock
Square 3	
Spit 1: 0-10	Grey brown silty loam; change to yellowing mottling with depth; occasional bedrock pebble/cobble [angular] at base; plentiful insect bioturbation throughout
Spit 2: 10-20	Yellowish mottled grey brown silty loam with saprolite gravel and rubble admixture at base
Square 4	
Spit 1: 0-10	Yellow brown friable silty loam
Spit 2: 10-20	Light textured yellow brown silty loam; bedrock rubble appears at base
Spit 3: 20-30	Light yellow brown silty loam and bedrock/saprolite rubble; firm bedrock at base
Square 5	
Spit 1: 0-10	Yellow brown mottled fine silty loam; bioturbation throughout [ants]
Spit 2: 10-20	Yellow brown mottled fine silty loam; yellowing in general with some fine gravel content at base
Spit 3: 20-30	Yellow brown slightly gravelly silty loam; giving onto a bedrock rubble and firm bedrock
Square 6	
Spit 1: 0-10	Yellow brown mottled fine silty loam; bioturbation throughout [ants]
Spit 2: 10-20	Yellow brown mottled fine silty loam; bioturbation throughout [ants]; saprolitic gravels appearing at base
Spit 3: 20-30	Yellow brown slightly gravelly silty loam; giving onto a bedrock rubble and firm bedrock; ant bioturbation at base

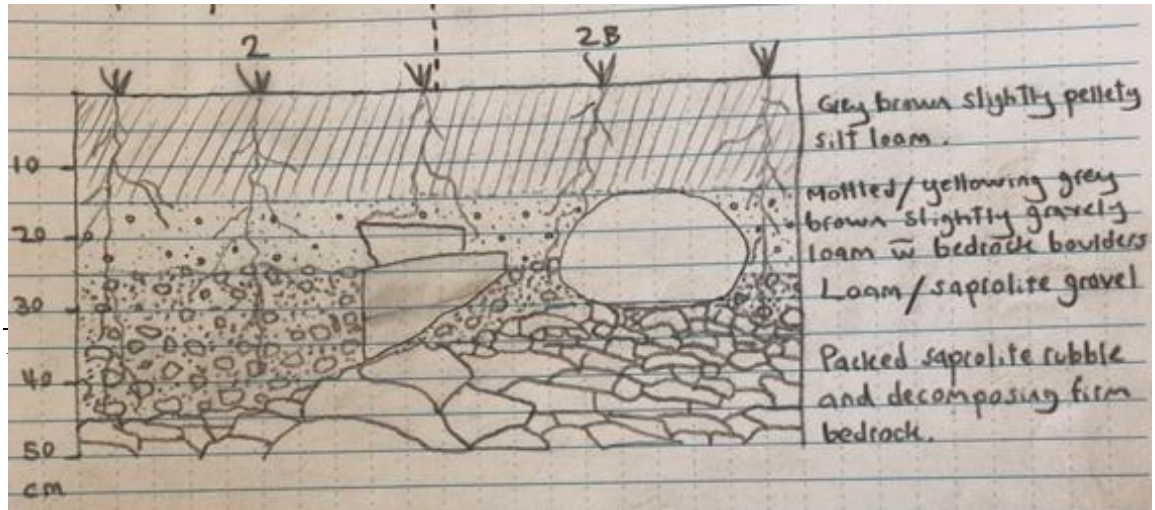


Looking 60° towards Transect 5



Northwest section of Square 2a

Schematic representation of soil profile: Survey Unit 3 Transect 5 Squares 2/2b: Northwest section



Artefact Retrieval:

Square 1	Square 1b	Square 2	Square 2b	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 2	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 12	Spit 2: 1	Spit 2: 0	Spit 2: 1
Spit 3: 22	Spit 3: 1	Spit 3: 7	Spit 3: 8		Spit 3: 1	Spit 3: 1	Spit 3: 0
Spit 4: 0	Spit 4: 0	Spit 4: 36	Spit 4: 2				
		Spit 5: 0	Spit 5: 0				

Visual representation of artefact retrieval:

Sq 1	Sq 1b		Sq 2	Sq 2b		Sq 3
24	1		43	10		12

Sq 4
2

Sq 5
1

Sq 6
1

Discussion – Some 94 artefacts were retrieved from all of the eight squares indicating a continuous artefact distribution in the test area. Artefact density is low/moderate however at least two part knapping events inflate artefact abundance. A mix of raw materials are present in the collection indicting multiple episodes of reduction.

Tantangara
Survey Unit: 3
Test Transect: 6
Description: The transect is oriented northeast/southwest and is offset c. 5 metres from Transect 5 to the northwest.

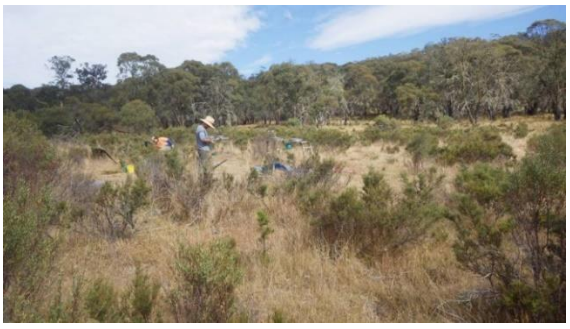
Square locations:

Square #	Easting	Northing
1	648999	6037626
2	648995	6037630
3	648990	6037625
4	648985	6037622
5	648982	6037619
6	648977	6037617

Excavation details:

Square	Stratigraphic Log
Square 1	

Square	Stratigraphic Log
Spit 1: 0-10	Pale grey brown compacted silty loam; single small semi-rounded bedrock boulder at north side of pit
Spit 2: 10-20	Pale grey brown lightly compacted silty loam with bedrock rubble appearing at base of spit
Spit 3: 20-30	Admixture of pale grey brown silty loam and bedrock rubble; packed rubble and bedrock at base
Square 2	
Spit 1: 0-10	Light grey brown silty loam; developing yellowish mottling and gravel flecking with depth; occasional bedrock fragment appearing at base
Spit 2: 10-20	Mottled yellow brown fine gravelly loam with bedrock rubble outcropping through spit and at base
Spit 3: 20-30	Mottled yellow brown gravelly loam giving onto packed bedrock/saprolite gravel and outcropping bedrock
Square 3	
Spit 1: 0-10	Dark brown softly compacted silty loam; occasional shrub roots
Spit 2: 10-20	Dark brown silty loam; change to a mottled yellow brown fine gravelly loam with bedrock rubble outcropping through spit and at base
Spit 3: 20-30	Increasing at 25cm to packed bedrock cobbles and outcropping bedrock
Square 4	
Spit 1: 0-10	Grey brown/yellowing grey brown light silty loam
Spit 2: 10-20	Yellow brown gravelly/rocky silty loam becoming slightly gravelly with depth
Spit 3: 20-30	Yellow brown gravelly/rocky silty loam; change to a mix of loam and bedrock rubble at base
Square 5	
Spit 1: 0-10	Dark brown softly compacted silty loam; occasional shrub roots
Spit 2: 10-20	Dark brown silty loam; change to a mottled yellow brown fine slightly gravelly loam with occasional bedrock cobble at base
Spit 3: 20-30	Gives onto a packed bedrock cobbles and outcropping bedrock
Square 6	
Spit 1: 0-10	Medium brown silty loam; frequent grass rootlets; soft compaction
Spit 2: 10-20	Medium brown silty loam; change at 15cm to a banding of reddish grey brown silty loam
Spit 3: 20-30	Reddish grey brown silty loam; gravels increasing with depth
Spit 4: 30-35	Gives onto a packed bedrock cobbles and outcropping bedrock



Looking 220° along Transect 6



Southwest section of Square 4

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 3	Spit 2: 0	Spit 2: 0	Spit 2: 1	Spit 2: 0	Spit 2: 0
Spit 3: 1	Spit 3: 9	Spit 3: 0	Spit 3: 1	Spit 3: 1	Spit 3: 1
					Spit 4: 0

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
4	9	-	2	1	1

Discussion – Some 17 artefacts were retrieved from five of the six squares indicating a relatively continuous artefact distribution in the test area. Artefact density is low/moderate and given the proximity to Test Transect 5, confirms the pattern of continuous artefact distribution at low/moderate density in the broader area.

Tantangara
Survey Unit: 3
Test Transect: 7
Description: The transect is oriented northeast/southwest and situated c. 5 metres from Transect 6 Square 6 to the northwest. A large snow gum is directly south of Square 6.

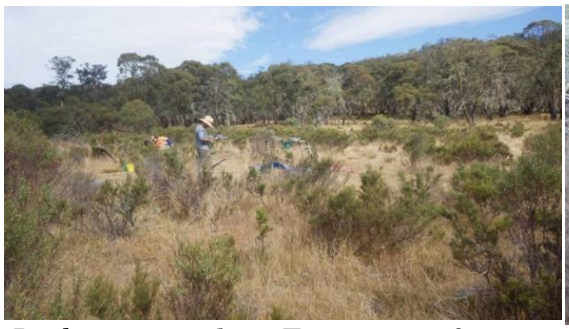
Square locations:

Square #	Easting	Northing
1	648970	6037619
2	648966	6037617
3	648963	6037615
4	648958	6037612
5	648957	6037607
6	648953	6037602

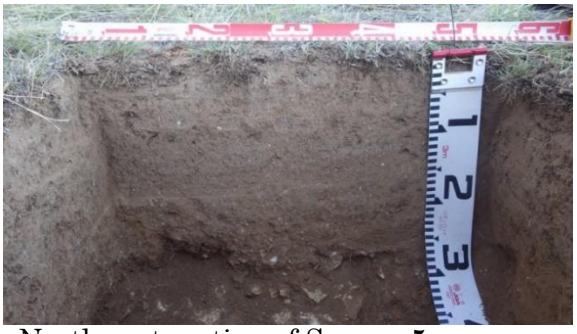
Excavation details:

Square	Stratigraphic Log
Square 1	Next to big old dead tree
Spit 1: 0-10	Yellow brown silty loam; some bedrock rubble at base

Square	Stratigraphic Log
Spit 2: 10-20	Yellow brown fine silty loam giving onto bedrock and bedrock rubble at base
Square 2	
Spit 1: 0-10	Dark brown fine silty loam; tree roots
Spit 2: 10-20	Dark brown fine silty loam; some bioturbation
Spit 3: 20-30	Dark brown fine silty loam; lightening with depth; bedrock rubble and bedrock appearing at base
Square 3	
Spit 1: 0-10	Medium brown silty loam; thick grass rootlets throughout; soft compaction
Spit 2: 10-20	At c.15cm an abrupt boundary onto bedrock rubble/broken bedrock base
Square 4	
Spit 1: 0-10	Medium grey brown silty loam
Spit 2: 10-20	Darker grey brown mottle silty loam with saprolite gravels and pebbles at depth
Spit 3: 20-30	Dark grey brown mottled silty loam with saprolite gravels; change to packed soft saprolite pebbles/cobbles for majority of spit
Square 5	
Spit 1: 0-10	Moderately compacted medium brown silty loam; frequent grass rootlets throughout
Spit 2: 10-20	Medium brown silty loam; increasing compaction with depth; bedrock rubble appearing at base
Spit 3: 20-28	Yellow brown silty loam mix with degrading bedrock rubble; giving onto bedrock base
Square 6	
Spit 1: 0-10	Medium grey brown silty loam; frequent grass and shrub roots throughout; compacted soil; tree roots appearing at base and continue into next spit
Spit 2: 10-20	Medium grey brown mottled silty loam with some saprolite gravels; tree root still present
Spit 3: 20-30	Medium brown gravelly silty loam; giving onto a fractured bedrock base



Looking 220° along Transects 6 & 7



Northwest section of Square 5

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 1	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0

Spit 2: 0	Spit 2: 0	Spit 2: 1	Spit 2: 1	Spit 2: 1	Spit 2: 0
	Spit 3: 1		Spit 3: 0	Spit 3: 1	Spit 3: 0

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
1	1	1	1	2	-

Discussion – Six artefacts were retrieved from five of the six squares indicating a relatively continuous artefact distribution in the test area. However, artefact density is very low.

Tantangara
Survey Unit: 4
Test Transect: 1
Description: The transect is oriented 75/255° and situated on a very gently sloping east facing broad crest. Transects 1 & 2 travel along the length of the crest in parallel form 10 metres apart. Transect 1 Squares 1, 2 & 3 are located on the flattish area of crest whereas Squares 4, 5 & 6 are just off the crest on a declining easterly c. 6° slope. The area is vegetated with Hakea shrubs; occasional tree and an understorey of native grasses and scattered heath. Disturbance from rabbits is mostly moderate however some areas show greater disturbance. A drainage line is c. 50 metres north of Transect 1.

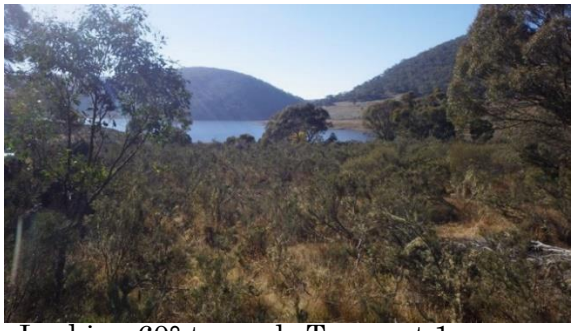
Square locations:

Square #	Easting	Northing
1	649098	6037284
2	649102	6037285
3	649106	6037284
4	649113	6037283
5	649118	6037284
6	649123	6037285

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Medium dark grey brown very fine sandy loam; pellety-heavily bioturbated [insect]; plentiful rootlets throughout
Spit 2: 10-20	Yellowing slightly dark grey brown fine sandy loam; gaining some compaction with depth; some fine gravels at base
Spit 3: 20-30	Dark yellow brown fine sandy loam with some fine saprolitic gravel; with saprolite rubble appearing in southwest part of pit
Spit 4: 30-40	Gravelly loam; giving onto light yellow saprolite bedrock
Square 2	
Spit 1: 0-10	Medium dark brown fine sandy silty loam with many grass rootlets; gradual change at c.7cm to a fine dark brown silt with occasional rootlets
Spit 2: 10-20	Fine dark brown silt; decreasing rootlets; uniform in colour and texture

Square	Stratigraphic Log
Spit 3: 20-30	Yellowing dark brown fine gravelly silty loam; soft decomposing saprolitic gravel appearing at base
Spit 4: 30-42	Decomposing bedrock gravels increasing in size and quantity; onto light yellow saprolite bedrock
Square 3	
Spit 1: 0-10	Medium dark grey brown very fine sandy loam; pellety-heavily bioturbated [insect]; plentiful rootlets throughout
Spit 2: 10-20	Fine medium dark brown sandy loam; decreasing rootlets; uniform in colour and texture
Spit 3: 20-30	Yellowing slightly dark grey brown fine sandy loam; gaining some compaction with depth; some fine gravels at base
Pit 4: 30-40	Increasingly gravelly yellow brown loam with very gravelly [saprolitic] base
Spit 5: 40-50	Compacted saprolitic coarse gravel and brown soil mix
Spit 6: 50-60	Pale yellow saprolitic gravel/decomposing bedrock dominated base
Square 4	
Spit 1: 0-10	Medium grey brown fine sandy loam; becoming firmer and mottled with depth
Spit 2: 10-20	Medium /dark grey brown fine sandy loam; yellowing slightly and becoming compacted with fine pale gravel flecking with depth
Spit 3: 20-30	Medium/dark yellow brown compacted very fine sandy loam with pale fine gravel flecking
Spit 4: 30-40	Increasingly gravelly yellow brown loam with very gravelly [saprolitic] base
Spit 5: 40-50	Compacted saprolitic coarse gravel and brown soil mix
Spit 6: 50-60	Pale yellow saprolitic gravel/decomposing bedrock dominated base
Square 5	
Spit 1: 0-10	Medium dark grey brown very fine sandy loam; some bioturbation[insect]; plentiful rootlets throughout
Spit 2: 10-20	Medium dark grey brown very fine sandy loam; some bioturbation[insect]; rootlets decreasing
Spit 3: 20-30	Medium/dark reddish brown compacted very fine sandy loam with pale fine gravel flecking appearing at base; increasing compaction
Spit 4: 30-40	Increasingly gravelly yellow brown loam with very gravelly [saprolitic] base
Spit 5: 40-50	Pale yellow saprolitic gravel/decomposing bedrock dominated base
Square 6	
Spit 1: 0-10	Medium brown sandy silty loam; many grass rootlets; small amount decomposing gravels appearing at base
Spit 2: 10-20	Gradual change to a gravelly medium brown fine sandy silt
Spit 3: 20-30	Slightly more compacted medium brown gravelly sandy silt
Spit 4: 30-40	Decomposing bedrock gravels increasing in size and quantity; onto light yellow saprolite bedrock



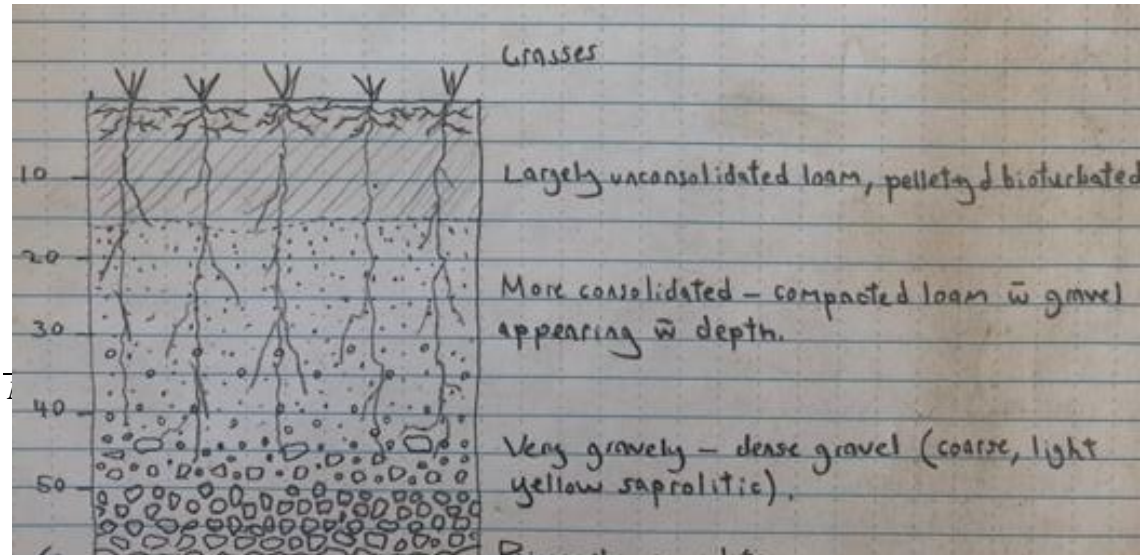
Looking 60° towards Transect 1



South section of Square 4

Schematic representation of soil profile: Survey Unit 4 Transect 1 Square 1: West section

Survey Unit 4 Transect 1 Square 4: South section



Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 1	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0
Spit 3: 0	Spit 3: 3	Spit 3: 0	Spit 3: 1	Spit 3: 0	Spit 3: 4
Spit 4: 0	Spit 4: 5	Spit 4: 2	Spit 4: 4	Spit 4: 0	Spit 4: 0
		Spit 5: 0	Spit 5: 1	Spit 5: 0	
		Spit 6: 0	Spit 6: 0		

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
1	8	2	6	-	4

Discussion – Some 21 artefacts were retrieved from five of the six squares indicating a relatively continuous artefact distribution in the test area. However, artefact density is low: 14/sq m.

Tantangara
Survey Unit: 4
Test Transect: 2
Description: The transect is oriented 75/255° and situated on a very gently sloping east facing broad crest. Transect 2 is 10 metres south of Transect 1.

Square locations:

Square #	Easting	Northing
1	649096	6037276
2	649101	6037275
3	649106	6037274
4	649111	6037274
5	649116	6037273
6	649121	6037275

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Medium dark grey brown very fine sandy loam; pellety-heavily bioturbated [insect]; plentiful rootlets throughout
Spit 2: 10-20	Medium dark grey brown mottled fine sandy loam; gaining some compaction with depth; some fine gravels at base
Spit 3: 20-30	Becoming dark yellow brown fine sandy gravelly loam; giving onto saprolite bedrock

Square	Stratigraphic Log
Square 2	
Spit 1: 0-10	Medium dark brown very fine sandy loam; bioturbated [insect]; plentiful rootlets throughout
Spit 2: 10-20	Medium dark brown very fine sandy loam; uniform in colour and texture
Spit 3: 20-30	Yellowing dark brown fine gravelly silty loam; soft decomposing saprolitic gravel appearing at base
Spit 4: 30-40	Decomposing bedrock gravel/soil mix; onto yellow saprolite bedrock
Square 3	
Spit 1: 0-10	Medium grey brown very fine sandy loam; pellety-heavily bioturbated [insect]; plentiful rootlets throughout
Spit 2: 10-20	Medium grey brown loam; becoming compacted lightly and yellowing with very fine yellow gravel flecking at base
Spit 3: 20-30	Medium dark yellow brown very fine sandy loam becoming gravelly with occasional bedrock fragment at base
Pit 4: 30-40	Medium /dark yellow brown gravelly loam; giving on to light yellow saprolite; some rootlet penetration
Square 4	
Spit 1: 0-10	Medium grey brown fine sandy loam; becoming firmer and mottled with depth
Spit 2: 10-20	Medium /dark grey brown fine sandy loam; yellowing slightly and becoming compacted with fine pale gravel flecking with depth
Spit 3: 20-30	Medium/dark yellow brown compacted very fine sandy loam with pale fine gravel flecking;
Spit 4: 30-40	Increasingly gravelly yellow brown loam with very gravelly [saprolitic] and bedrock base
Square 5	
Spit 1: 0-10	Medium dark grey brown very fine sandy loam; some bioturbation[insect]; plentiful rootlets throughout
Spit 2: 10-20	Medium dark grey brown very fine sandy loam; some bioturbation[insect]; grass rootlets decreasing; some shrub roots
Spit 3: 20-30	Medium/dark reddish brown compacted very fine sandy loam with pale fine gravel flecking appearing at base; increasing compaction
Spit 4: 30-40	Increasingly gravelly yellow brown loam with very gravelly [saprolitic] base
Spit 5: 40-50	Pale yellow saprolitic gravel/decomposing bedrock dominated base
Square 6	
Spit 1: 0-10	Medium dark grey brown fine sandy loam; many grass rootlets; bioturbation
Spit 2: 10-20	Lightening and yellowing very fine sandy loam; heavily mottled with occasional pale fine gravel flecking at base
Spit 3: 20-30	Lightly compacted medium pale yellow brown fine gravelly loam
Spit 4: 30-40	Increasingly gravelly yellow brown loam; coarse pale yellow saprolite gravel/soil mix at base
Spit 5: 40-50	Coarse saprolite gravel/soil mix, universal at base
Spit 6: 50-60	Very gravelly/gravel deposit; becoming saprolite/decomposing bedrock

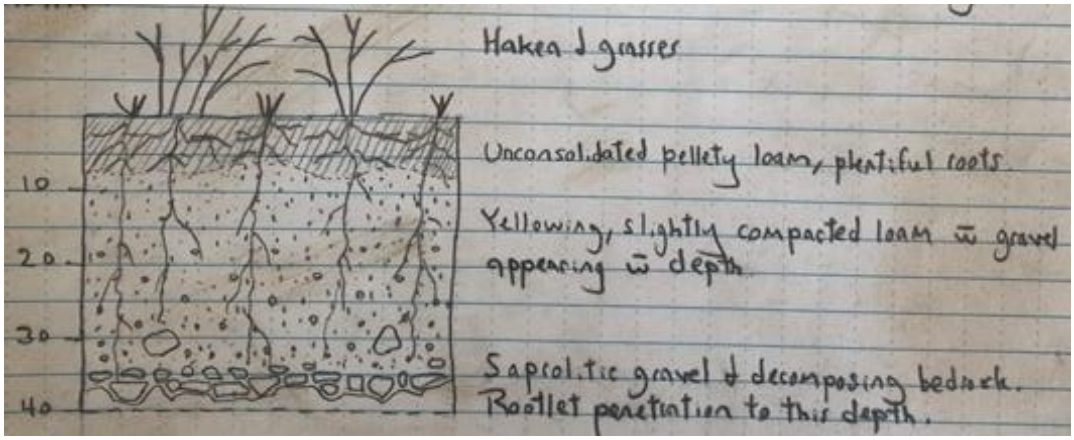


Looking 60° towards Transect 2



South section of Square 3

Schematic representation of soil profile: Survey Unit 4 Transect 2 Square 3: South section



Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 2	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 2
Spit 3: 0	Spit 3: 1	Spit 3: 0	Spit 3: 1	Spit 3: 0	Spit 3: 1
	Spit 4: 0	Spit 4: 0	Spit 4: 0	Spit 4: 13	Spit 4: 0
				Spit 5: 1	Spit 5: 0
					Spit 6: 0

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
2	1	-	1	14	3

Discussion – Some 21 artefacts were retrieved from five of the six squares indicating a relatively continuous artefact distribution in the test area. However, artefact density is low: 14/sq m. The results compare similarly to Test Transect 2.

Tantangara

Survey Unit: 4

Test Transect: 3

Description: The transect is oriented 70/250° and situated on a very gently sloping east facing broad crest. Small drainage lines run easterly along the length of crest on the northern and southern boundaries. The landform is quite broad hence a

further two test transects were excavated to investigate the subsurface potential of this area. Transect 3 is c. 20 metres south of Transect 2. Artefacts have been located on the surface of the crest.

Square locations:

Square #	Easting	Northing
1	649101	6037256
2	649105	6037259
3	649111	6037259
4	649116	6037260
5	649121	6037259
6	649126	6037260

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Medium grey brown very fine sandy loam; bioturbated [insect]; plentiful rootlets throughout
Spit 2: 10-20	Medium dark grey brown mottled fine sandy loam; gaining some compaction with depth; some fine gravels at base
Spit 3: 20-30	Becoming dark yellow brown fine sandy gravelly loam; patches of saprolite appearing at base
Spit 4: 30-40	Giving on to light yellow saprolite; some rootlet penetration
Square 2	
Spit 1: 0-10	Medium grey brown very fine sandy loam; bioturbated [insect]; plentiful rootlets throughout
Spit 2: 10-20	Grey brown loam becoming lightly compacted and yellowing with depth; some pale gravel flecking
Spit 3: 20-25	giving onto pale yellow uneven saprolite across base
Square 3	
Spit 1: 0-10	Medium grey brown very fine sandy loam; some bioturbation [insect]; plentiful rootlets throughout
Spit 2: 10-20	Medium grey brown loam; becoming compacted lightly and yellowing; saprolitic yellow gravelly base
Spit 3: 20-30	Yellow brown gravelly loam; change to coarse pale yellow saprolite/decomposing bedrock at base
Square 4	
Spit 1: 0-10	Medium dark grey brown very fine sandy loam; unconsolidated; bioturbation [insects and rabbits]
Spit 2: 10-20	Medium /dark grey brown fine sandy loam; becoming gravelly and giving onto saprolite across base
Square 5	
Spit 1: 0-10	Medium grey brown very fine sandy loam; some bioturbation [insect]; plentiful rootlets throughout
Spit 2: 10-20	Medium grey brown loam; becoming compacted lightly and yellowing; saprolitic yellow gravelly base
Spit 3: 20-30	Yellow brown gravelly loam; change to coarse pale yellow saprolite/decomposing bedrock at base
Spit 4: 30-33	Light yellow saprolite across base; some rootlet penetration
Square 6	

Square	Stratigraphic Log
Spit 1: 0-10	Medium dark grey brown very fine sandy loam; unconsolidated; bioturbation [insects and rabbits]
Spit 2: 10-20	Yellowing grey brown very fine sandy loam; becoming compacted and with fine pale gravel fleck at base
Spit 3: 20-30	Lightly compacted yellow brown slightly gravelly loam with pale yellow saprolite appearing southwest corner at base
Spit 4: 30-40	Yellow brown gravelly loam; change to coarse pale yellow saprolite/decomposing bedrock

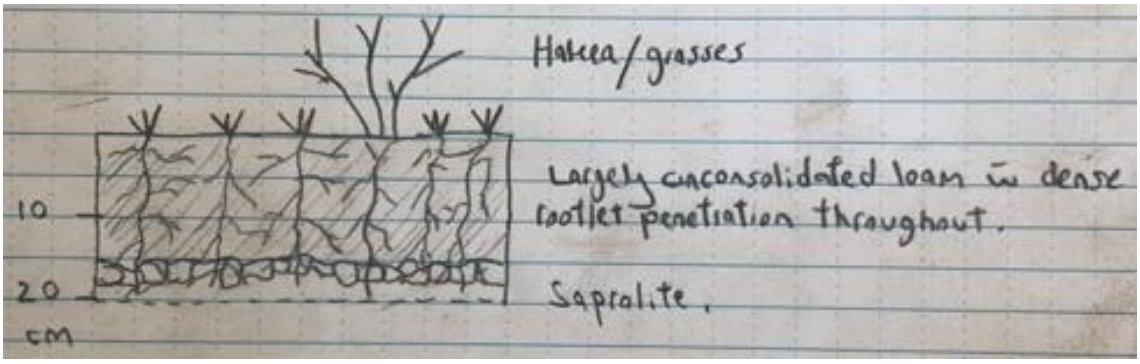


Looking 75° along Transect 3



Northwest section of Square 4

Schematic representation of soil profile: Survey Unit 4 Transect 3 Square 4: Northwest section



Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 2	Spit 1: 0	Spit 1: 0
Spit 2: 1	Spit 2: 0	Spit 2: 27	Spit 2: 44	Spit 2: 0	Spit 2: 0
Spit 3: 1	Spit 3: 1	Spit 3: 2		Spit 3: 1	Spit 3: 1
Spit 4: 2				Spit 4: 0	Spit 4: 0

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
4	1	29	46	1	1

Discussion – Some 82 artefacts were retrieved from all the six squares indicating a continuous artefact distribution in the test area. Artefact density is very moderate: 54/sq m. However, the artefact abundance is inflated due to the present of two probable part knapping events in Squares 3 and 4.

Tantangara
Survey Unit: 4
Test Transect: 4
Description: The transect is oriented 75/255 °. Transect 4 is offset 10 metres south of Transect 3.

Square locations:

Square #	Easting	Northing
1	649105	6037246
2	649111	6037246
3	649113	6037246
4	649118	6037248
5	649123	6037246
6	649128	6037247

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Medium grey brown very fine sandy loam; bioturbated [insect]; plentiful rootlets throughout
Spit 2: 10-20	Medium dark grey brown mottled very fine sandy loam; gaining some compaction with depth; some fine gravels at base; giving onto yellow saprolite bedrock base
Square 2	
Spit 1: 0-10	Medium grey brown very fine sandy loam; bioturbated [insect]; plentiful rootlets throughout; unconsolidated
Spit 2: 10-20	Grey brown loam becoming lightly compacted and yellowing with depth; saprolitic gravels appearing at c.15cm; giving onto saprolite/bedrock base
Square 3	
Spit 1: 0-10	Medium grey brown very fine sandy loam; some bioturbation [insect]; plentiful rootlets throughout; unconsolidated
Spit 2: 10-20	Medium grey brown loam; becoming compacted lightly and yellowing; at c. 15cm becomes a very saprolitic gravelly loam mix
Spit 3: 20-22	Yellow brown gravelly loam; change to coarse pale yellow saprolite/decomposing bedrock at base
Square 4	
Spit 1: 0-10	Medium dark grey brown very fine sandy loam; unconsolidated; bioturbation; grass rootlets/roots in dense mat; slight change to mottled yellowing grey brown loam at base
Spit 2: 10-20	Yellowing and mottled very fine sandy loam with some pale yellow saprolite gravel appearing at approximately 18cm
Spit 3: 20-30	Gravelly yellow brown fine sandy loam giving onto saprolite base; uneven base
Square 5	
Spit 1: 0-10	Medium grey brown very fine sandy loam; bioturbation [insect]; plentiful rootlets and roots throughout
Spit 2: 10-20	Medium grey brown loam; becoming compacted and yellowing with depth; very occasional gravel flecks at base

Square	Stratigraphic Log
Spit 3: 20-30	Compacted gravelly yellow brown loam; becoming very gravelly and giving rapidly onto pale yellow saprolite; dense rootlet and root penetration throughout
Spit 4: 30-40	Increasing coarse pale yellow saprolite/decomposing bedrock
Square 6	
Spit 1: 0-10	Medium grey brown very fine sandy loam; bioturbation [insect]; plentiful rootlets and roots throughout
Spit 2: 10-20	Medium grey brown very fine sandy loam; bioturbation
Spit 3: 20-30	Becoming lightly compacted yellow brown slightly gravelly loam at base
Spit 4: 30-40	Yellow brown gravelly loam; change to coarse pale yellow saprolite/decomposing bedrock

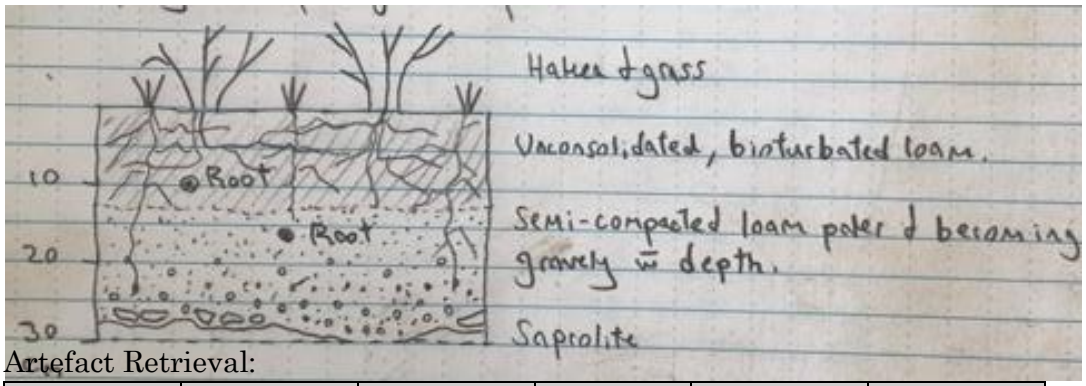


Looking 140° towards Transect 4



Southwest section of Square 5

Schematic representation of soil profile: Survey Unit 4 Transect 4 Square 5: Southwest section



Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 1	Spit 1: 0	Spit 1: 1	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 2	Spit 2: 1	Spit 2: 2	Spit 2: 0	Spit 2: 4	Spit 2: 1
		Spit 3: 0	Spit 3: 1	Spit 3: 47	Spit 3: 1
				Spit 4: 1	Spit 4: 0

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
3	1	3	1	52	2

Discussion – Some 62 artefacts were retrieved from all of the six squares indicating a continuous artefact distribution in the test area. Artefact density is low/moderate

although artefact abundance is inflated by a part knapping event in Square 5: 49.6/ sq m.

Tantangara
Survey Unit: 4
Test Transect: 5
Description: The transect is oriented 120/300° and situated at the base of a steep slope on a small narrow bench of c. 50 x 80 metres located on the western side of the main vehicle track above Transects 1 to 4. The area slopes to the east 5-6° and has an easterly aspect and is located at the edge of woodland.

Square locations:

Square #	Easting	Northing
1	648967	6037242
2	648963	6037244
3	648958	6037247
4	648955	6037250
5	648952	6037252
6	648947	6037258

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Medium dark grey brown very fine sandy loam; pellety-heavily bioturbated [insect]; plentiful rootlets throughout
Spit 2: 10-20	Medium dark grey brown mottled fine sandy loam; gaining some compaction with depth; some fine gravels at base
Spit 3: 20-30	Medium dark yellow brown fine-coarse yellow saprolite gravelly loam; poorly sorted; moderately compacted
Spit 4: 30-40	Medium dark yellow brown very coarse gravelly loam verging on gravel; size range five to pebble sized angular saprolite
Spit 5: 40-50	Medium dark yellow brown/pale yellow soil and saprolite gravel mixture; compacted gravel and cobbles at base = saprolite bedrock
Square 2	
Spit 1: 0-10	Dark grey brown mottled very fine sandy loam; roots and insect bioturbation throughout; dense root mat
Spit 2: 10-20	Yellowing mottled medium dark grey brown very fine sandy loam; compacted moderately and with fine pale-yellow gravel flecking at base
Spit 3: 20-30	Medium dark yellow brown mixed fine and coarse yellow saprolite gravelly loam; poorly sorted; moderately compacted
Spit 4: 30-40	Medium dark yellow brown very coarse gravelly loam verging on gravel; size range five to pebble sized angular saprolite
Spit 5: 40-50	Medium dark yellow brown/pale yellow soil and saprolite gravel mixture; compacted gravel and cobbles at base = saprolite bedrock
Square 3	
Spit 1: 0-10	Mottled medium dark grey brown very fine sandy loam; dense grass rootlets and occasional shrub root
Spit 2: 10-20	Medium/dark yellowing grey brown very fine sandy loam; becoming compacted and with fine pale yellow gravel flecks at base

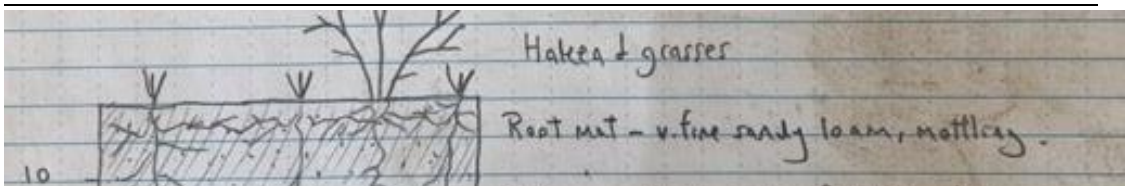
Square	Stratigraphic Log
Spit 3: 20-30	Moderately compacted gravelly medium dark yellow brown fine sandy loam; some pebble-sized pale yellow saprolite fragments at base
Spit 4: 30-40	Coarse gravelly dark yellow brown loam verging on gravel
Spit 5: 40-50	Dense gravelly loam; change to pale yellow/orange granular saprolite
Square 4	
Spit 1: 0-10	Dark brown very fine sandy loam; unconsolidated at surface; becoming firmer and mottled with depth; grass rootlets
Spit 2: 10-20	Dark brown slightly mottled very fine sandy loam; rootlets
Spit 3: 20-30	Medium/dark yellow brown slightly compacted very fine sandy loam with pale fine gravel flecking; gravels/pebbles appearing at base
Spit 4: 30-40	Moderately compacted gravelly medium dark yellow brown fine sandy loam mixed with pebble-sized pale yellow saprolite rubble
Spit 5: 40-50	Saprolitic rubble/soil mix gives onto weathered pale yellow decomposing bedrock base
Square 5	
Spit 1: 0-10	Medium dark brown very fine sandy loam; grass rootlets; unconsolidated
Spit 2: 10-20	Medium dark brown very fine sandy loam; some bioturbation[insect]; grass rootlets
Spit 3: 20-30	Medium reddish brown compacted very fine sandy loam with pale fine gravel flecking appearing in walls and at base; increasing compaction with depth
Spit 4: 30-40	Yellowing brown fine gravelly loam; saprolite gravel becoming coarser with depth; some saprolite pebbles
Spit 5: 40-45	Brownish yellow saprolitic gravel/decomposing bedrock dominated base
Square 6	
Spit 1: 0-10	Dark grey brown very fine sandy loam; many grass rootlets
Spit 2: 10-20	Dark grey brown fine sandy loam; pale yellow saprolitee gravel appearing; rootlets and root penetration throughout spit
Spit 3: 20-30	Yellowing grey brown fine gravelly loam; saprolite gravel becoming coarser with depth
Spit 4: 30-40	Mottled yellow brown/grey brown gravelly loam; saprolite gravel exhibiting fine to coarse range common at base



Looking 330° along Transect 5



Northwest section of Square 2



Schematic representation of soil profile: Survey Unit 4 Transect 5 Square 2: Northwest section

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 2	Spit 1: 2	Spit 1: 2	Spit 1: 0	Spit 1: 1
Spit 2: 0	Spit 2: 0	Spit 2: 5	Spit 2: 0	Spit 2: 0	Spit 2: 0
Spit 3: 1	Spit 3: 4	Spit 3: 4	Spit 3: 5	Spit 3: 7	Spit 3: 3
Spit 4: 1	Spit 4: 1	Spit 4: 0	Spit 4: 0	Spit 4: 2	Spit 4: 0
Spit 5: 0	Spit 5: 0	Spit 5: 0	Spit 5: 0	Spit 5: 0	

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
2	7	11	7	9	4

Discussion – Some 40 artefacts were retrieved from all the six squares indicating a continuous artefact distribution in the test area. Artefact density is low/moderate: 26/sq m.

Tantangara
Survey Unit: 4
Test Transect: 6
Description: The transect is oriented 120/300° and offset 10 metres to the southwest of Transect 5 and is located at the edge of woodland A minor drainage line with what appears to be a significant soak lies c. 25 metres south-southwest of Transect 6.

Square locations:

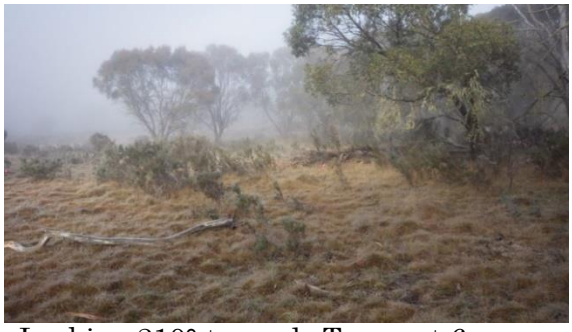
Square #	Easting	Northing
1	648942	6037249
2	648947	6037247
3	648951	6037242
4	648955	6037239
5	648959	6037236

Square #	Easting	Northing
6	648962	6037233

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Dark grey brown very fine sandy loam; plentiful rootlets throughout
Spit 2: 10-20	Lightly compacted grey brown mottled fine sandy loam; plentiful root mottling
Spit 3: 20-30	Grey brown loam with saprolite gravel; change to a saprolite rubble loam mix.
Spit 4: 30-35	Gravel/loam mix; giving onto pale-yellow saprolite gravel/broken bedrock; rootlet/root penetration well into and through base
Square 2	
Spit 1: 0-10	Dark grey brown mottled very fine sandy loam; roots and insect bioturbation throughout
Spit 2: 10-20	Dark grey brown very fine sandy loam; compacted moderately and with fine pale-yellow gravel flecking at base
Spit 3: 20-30	Dark grey brown fine sandy loam; some pale-yellow flecks continue; moderately compacted
Spit 4: 30-40	Medium dark yellow brown very coarse gravelly loam
Spit 5: 40-45	Saprolitic rubble/soil mix gives onto weathered pale yellow decomposing bedrock base
Square 3	
Spit 1: 0-10	Dark grey brown mottled very fine sandy loam; plentiful rootlets throughout
Spit 2: 10-20	Dark grey brown mottled fine sandy loam; yellowing slightly with depth; occasional pale yellow gravel fragment appearing at base
Spit 3: 20-30	Dark yellow brown gravelly loam; giving onto broken pale yellow saprolite rubble across base
Square 4	
Spit 1: 0-10	Dark brown very fine sandy loam; unconsolidated; grass rootlets
Spit 2: 10-20	Dark brown slightly mottled very fine sandy loam; rootlets
Spit 3: 20-30	Medium/dark yellow brown slightly compacted very fine sandy loam with pale fine gravel flecking; gravels/pebbles appearing at base
Spit 4: 30-40	Moderately compacted gravelly medium dark yellow brown fine sandy loam mixed with pebble-sized pale yellow saprolite rubble
Spit 5: 40-45	Saprolitic rubble/soil mix gives onto weathered pale yellow decomposing bedrock base
Square 5	
Spit 1: 0-10	Dark grey brown very fine sandy loam; dense grass rootlets; occasional shrub root
Spit 2: 10-20	Dark grey brown very fine sandy loam; yellowing with depth; some pale yellow gravel appearing at base; reduced root content
Spit 3: 20-30	Dark yellow brown gravelly loam; giving onto yellow saprolite rubble/bedrock across base
Square 6	

Square	Stratigraphic Log
Spit 1: 0-10	Dark grey brown very fine sandy loam; many grass rootlets; unconsolidated
Spit 2: 10-20	Darker grey brown fine sandy loam; plentiful small tree roots throughout; lightening slightly with depth
Spit 3: 20-30	Mottled yellow brown/grey brown gravelly loam; saprolite gravel exhibiting fine to coarse range common at base

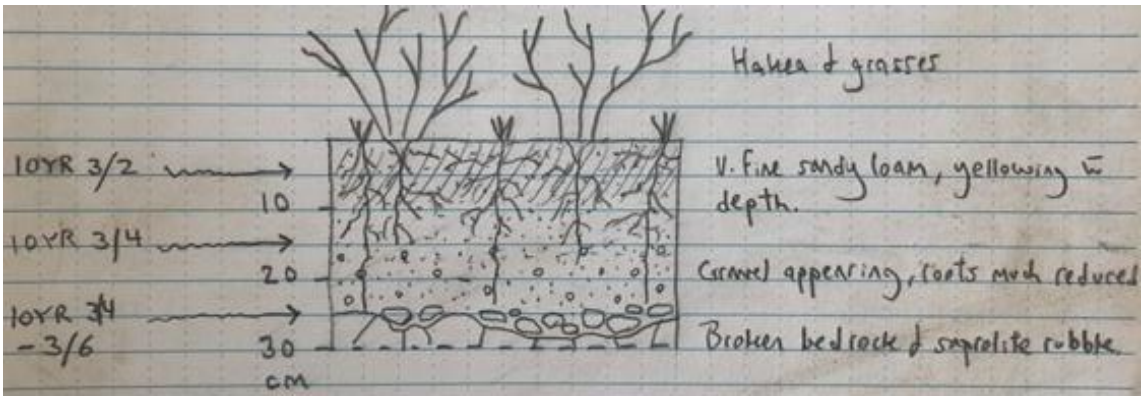


Looking 210° towards Transect 6



Northwest section of Square 5

Schematic representation of soil profile: Survey Unit 4 Transect 6 Square 5: Northwest section



Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 4	Spit 1: 0	Spit 1: 0	Spit 1: 1	Spit 1: 1	Spit 1: 0
Spit 2: 3	Spit 2: 0	Spit 2: 0	Spit 2: 1	Spit 2: 4	Spit 2: 0
Spit 3: 5	Spit 3: 2	Spit 3: 2	Spit 3: 5	Spit 3: 1	Spit 3: 8
Spit 4: 0	Spit 4: 1		Spit 4: 1		
	Spit 5: 0		Spit 5: 0		

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
12	3	2	8	6	8

Discussion – Some 39 artefacts were retrieved from all the six squares indicating a continuous artefact distribution in the test area. Artefact density is low/moderate: 26/sq m and highly comparable to Test Transect 5.

Tantangara

Survey Unit: 5
Test Transect: 1
Description: The transect is oriented 90/270° and situated on a very gently sloping bench on an east facing broad crest directly above a valley floor and creek. A deeply incised east-west drainage line is directly north of Transect 1 and is the same drainage line that was south of Transects 5 & 6 in Survey Unit 4. Transects 1 & 2 are placed on flattish area and extend upslope. Squares 3 to 6 are on a slope with a c. 5° gradient. A large wombat burrow is located to the west of Square 6.

Square locations:

Square #	Easting	Northing
1	649122	6037107
2	649116	6037110
3	649112	6037112
4	649107	6037114
5	649102	6037115
6	649097	6037116

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Dark grey brown very fine sandy loam; plentiful grass rootlets throughout
Spit 2: 10-20	Moderately compacted dark grey brown fine sandy loam; heavy root mottling
Spit 3: 20-30	Moderately compacted dark grey brown fine sandy loam; yellowing with depth; very occasional pale yellow gravel at base
Spit 4: 30-40	Yellow brown, well/highly compacted gravelly loam; very coarse gravelly loam
Spit 5: 40-45	Packed, very compacted, coarse saprolite pea gravel 100% across base
Square 2	
Spit 1: 0-10	Dark grey brown very fine sandy loam; plentiful grass rootlets throughout; some bioturbation
Spit 2: 10-20	Dark grey brown very fine sandy loam; increased bioturbation
Spit 3: 20-30	Moderately compacted dark grey brown fine sandy loam; yellowing with depth; very occasional pale yellow gravel at base
Spit 4: 30-40	Increased compaction; yellow brown coarse gravelly sandy loam
Spit 5: 40-50	Packed, very compacted, coarse saprolite pea gravel 100% across base
Square 3	
Spit 1: 0-10	Dark grey brown very fine sandy loam; plentiful grass rootlets throughout
Spit 2: 10-20	Dark grey brown very fine sandy loam; plentiful grass rootlets throughout; heavily bioturbated; mottled at base
Spit 3: 20-30	Moderately compacted dark grey brown fine sandy loam; yellowing with depth; at 29cm pale yellow gravels appear
Spit 4: 30-40	Becomes yellow brown coarse gravelly sandy loam; increasing compaction

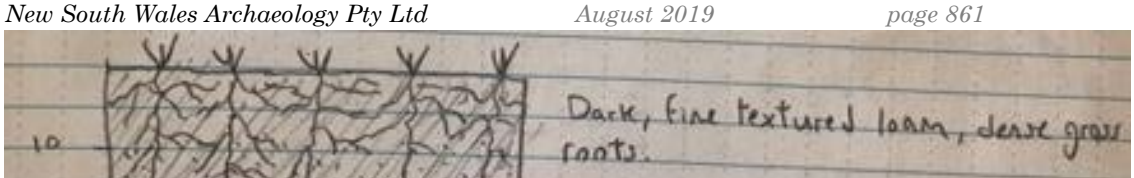
Square	Stratigraphic Log
Spit 5: 40-50	Lighter yellow brown gravelly loam; giving onto yellow saprolite rubble/bedrock across base; occasional insect tunnel; highly compacted
Square 4	
Spit 1: 0-10	Dark grey brown sticky very fine sandy loam; plentiful grass roots and heavy root mottling
Spit 2: 10-20	Dark grey brown lightly compacted very fine sandy loam; some pale [non-gravel] mottling
Spit 3: 20-30	Yellowing dark grey brown fine sandy loam; coarse gravel appearing at base
Spit 4: 30-40	Coarse gravelly loam; change to a saprolite rubble/soil mix
Spit 5: 40-50	Very compacted pale yellow saprolite gravel/rubble soil mix
Spit 6: 50-60	Gravelly layer giving onto fine gravelly heavily mottled [grey brown/pale yellow/orange] slightly clayey silt
Square 5	
Spit 1: 0-10	Dark grey brown very fine sandy loam; dense grass rootlets; heavily bioturbated [insects]
Spit 2: 10-20	Dark grey brown mottled very fine sandy loam; heavily bioturbated
Spit 3: 20-30	Mottled dark and medium grey brown sandy loam; some bioturbation persists; becoming highly compacted
Spit 4: 30-40	Compacted dark grey brown fine sandy loam; yellowing with depth; saprolitic pale yellow gravel flecking occurs at base
Spit 5: 40-45	Comes onto a gravelly layer giving onto gravelly/rubble decomposing bedrock
Square 6	
Spit 1: 0-10	Dark brown very fine sandy loam; dense grass rootlets; unconsolidated
Spit 2: 10-20	Dark brown to dark grey brown very fine sandy loam; grass rootlets; heavily bioturbated [insects]
Spit 3: 20-30	Mottled dark and medium grey brown coarse sandy loam; some bioturbation persists; increasing compaction with depth
Spit 4: 30-40	Compacted dark grey brown coarse slightly gravelly sandy loam; yellowing with depth; increasing saprolitic gravel content with depth
Spit 5: 40-45	Gravelly layer giving onto yellowish reddish brown gravelly/rubble decomposing bedrock



Looking 250° towards Transect 1



West section of Square 1



Schematic representation of soil profile: Survey Unit 5 Transect 1 Square 1: West section

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0
Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0
Spit 4: 0	Spit 4: 0	Spit 4: 0	Spit 4: 0	Spit 4: 0	Spit 4: 0
Spit 5: 0	Spit 5: 0	Spit 5: 1	Spit 5: 0	Spit 5: 0	Spit 5: 0
			Spit 6: 0		

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
-	-	1	-	-	-

Discussion – One artefact was retrieved indicating a very sparse artefact distribution and very low artefact density in the test area.

Tantangara
Survey Unit: 5
Test Transect: 2
Description: The transect is oriented 90/270° and situated on the same landform as Survey Unit 5 Transect 1. Transect 2 is on the crest of a sloping bench of a terminal spur directly above the valley floor and creek. The western end of the transect is on an east facing slope with a gentle gradient of 6-8°.

Square locations:

Square #	Easting	Northing
1	649122	6037097
2	649117	6037097
3	649112	6037100
4	649107	6037099
5	649102	6037103

Square #	Easting	Northing
6	649097	6037104

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Dark grey brown fine sandy loam; plentiful grass rootlets and shrub roots throughout; bioturbation [insect]
Spit 2: 10-20	Gradual change to a grey brown compacted very fine sandy silt with abundant bioturbation [pellety] fine pale yellow gravel flecking at base
Spit 3: 20-30	Heavily mottled yellow brown fine gravelly loam; very occasional fine grass rootlet penetration
Spit 4: 30-40	Heavily mottled yellow brown fine gravelly loam; increasing compaction; very occasional fine grass rootlet penetration
Spit 5: 40-45	Highly compacted gravelly medium yellow brown silt becoming gravellier with cobble sized saprolite fragments and gravel across base
Square 2	
Spit 1: 0-10	Dark grey brown fine sandy loam; plentiful grass rootlets and shrub roots throughout
Spit 2: 10-20	Dark grey brown fine sandy loam; rootlet penetration
Spit 3: 20-30	Dark grey brown fine sandy loam; reddening slightly with depth; fine pale gravel flecking at base
Spit 4: 30-40	Compacted red/brown mottled gravelly fine sandy loam; reddish influence on hue becoming more pronounced at base
Spit 5: 40-50	Red brown coarse gravelly clay loam; compacted with increased gravels [saprolite] size by base
Spit 6: 50-60	Highly compacted red brown coarse gravelly clay loam; yellow saprolitic rubble base
Square 3	
Spit 1: 0-10	Dark grey brown fine sandy loam; plentiful grass rootlets and shrub roots throughout
Spit 2: 10-20	Dark grey brown fine sandy loam; developing strong yellow brown mottling; fine pale yellow gravel flecking at base
Spit 3: 20-30	Heavily mottled yellow brown fine gravelly loam
Spit 4: 30-40	Heavily mottled yellow brown fine gravelly loam; compacted; some root/rootlet penetration
Spit 5: 40-50	Heavily compacted gravelly medium yellow brown silt
Spit 6: 50-60	Highly compacted gravelly medium yellow brown silt becoming more gravelly with cobble sized saprolite fragments and gravel across base
Square 4	
Spit 1: 0-10	Dark grey brown fine sandy loam; plentiful grass rootlets and shrub roots throughout
Spit 2: 10-20	Dark grey brown fine sandy loam; plentiful grass rootlets and shrub roots throughout
Spit 3: 20-30	Compacted medium grey brown fine sandy loam; developing strong yellow brown mottling; fine pale yellow gravel flecking at base

Square	Stratigraphic Log
Spit 4: 30-40	Heavily mottled yellow brown fine gravelly loam; compacted; some root/rootlet penetration; occasional saprolite pebble
Spit 5: 40-50	Highly compacted gravelly medium yellow brown silt becoming gravellier with cobble sized saprolite fragments and gravel across base
Spit 6: 50-60	Highly compacted gravelly medium yellow brown silt
Square 5	
Spit 1: 0-10	Medium dark grey brown fine sandy loam; plentiful grass roots
Spit 2: 10-20	Medium dark grey brown fine sandy loam developing strong mottling; becoming slightly yellow; occasional small shrub root
Spit 3: 20-30	Compacted yellow brown fine sandy loam; developing red brown mottling; fine pale gravel flecking at base
Spit 4: 30-40	Compacted red/brown mottled gravelly fine sandy loam; reddish influence on hue becoming more pronounced at base
Spit 5: 40-50	Compacted steadily reddening gravelly loam; slight clay content developing
Spit 6: 50-60	Red brown coarse gravelly clay loam; compacted with increased gravels [saprolite] size by base
Square 6	
Spit 1: 0-10	Dark grey brown fine sandy loam; plentiful root penetration
Spit 2: 10-20	Dark grey brown fine sandy loam; yellowing slightly with depth; fine pale gravel flecking at base
Spit 3: 20-30	Dark yellow brown fine gravelly loam; gravel expressed as pale yellow flecking throughout spit
Spit 4: 30-40	Dark yellow brown compacted mottled increasingly gravelly loam; very occasional coarse saprolite cobble
Spit 5: 40-50	Gravelly compacted yellow brown loam developing strong red brown mottling; change to a compacted gravelly red brown/yellow brown mottled clayey loam

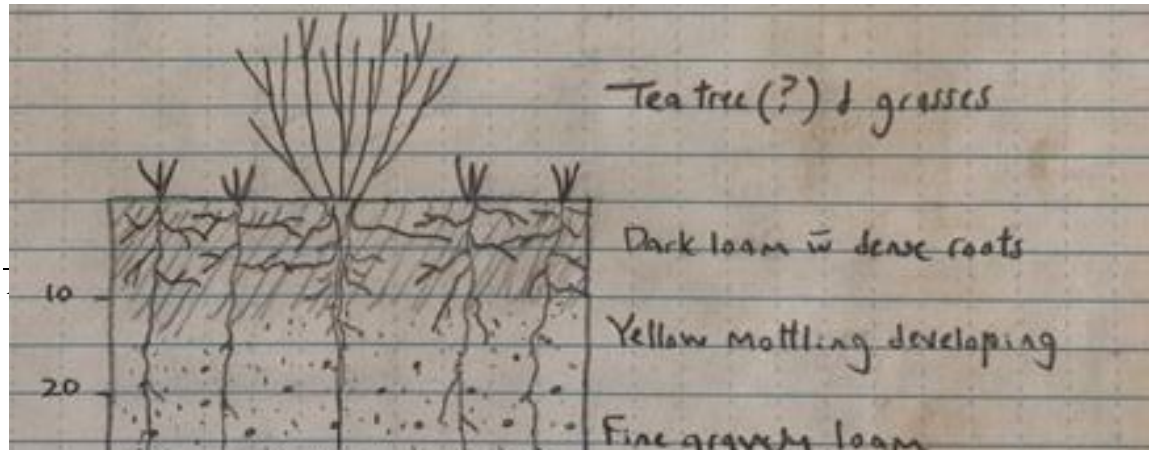


Looking 90° towards Transect 2



West section of Square 3

Schematic representation of soil profile: Survey Unit 5 Transect 2 Square 3: West section



Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 0	Spit 2: 1	Spit 2: 0	Spit 2: 0	Spit 2: 0
Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0
Spit 4: 0	Spit 4: 0	Spit 4: 6	Spit 4: 0	Spit 4: 0	Spit 4: 1
Spit 5: 0	Spit 5: 1	Spit 5: 2	Spit 5: 0	Spit 5: 0	Spit 5: 0
	Spit 6: 0	Spit 6: 0	Spit 6: 0	Spit 6: 0	

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
-	1	9	-	-	1

Discussion – Some 11 artefacts were retrieved from three of six squares indicating a relatively sparse artefact distribution and low artefact density in the test area: 7.3/sq m.

Tantangara

Survey Unit: 5

Test Transect: 3

Description: The transect is oriented 95/275° and situated on a lightly used vehicle track on a gently sloping simple slope linking the upper crest of Survey Unit 5 to the lower crest [Transects 1 & 2]. Transect 3 was placed on the more open area of land as either side of the vehicle track has dense thickets of mature *Hakea* shrubs. Transect 3 is on an east facing slope with a gradient of 7-8°. A significant drainage line lies c. 50-60 metres south of the transect and was flowing at the time of excavation.

Square locations:

Square #	Easting	Northing
1	649076	6037079
2	649072	6037082
3	649069	6037085

Square #	Easting	Northing
4	649062	6037085
5	649057	6037088
6	649053	6037090

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Dark grey brown fine sandy loam; loose and unconsolidated
Spit 2: 10-20	Dark grey brown fine sandy loam onto broken saprolite soil mix; pale yellow mottling
Spit 3: 20-25	Dark grey brown fine sandy loam; saprolite rubble mix giving onto saprolite bedrock across base
Square 2	
Spit 1: 0-10	Medium grey brown fine sandy loam; plentiful grass roots
Spit 2: 10-20	Medium grey brown fine sandy loam onto broken saprolite soil mix; reddish and some yellow mottling; plentiful bioturbation
Spit 3: 20-30	Dark grey brown/yellowing gravelly loam onto broken saprolite rubble
Spit 4: 30-32	Saprolite bedrock across base
Square 3	
Spit 1: 0-10	Dark grey brown fine sandy loam; plentiful grass rootlets throughout
Spit 2: 10-20	Dark grey brown fine sandy loam; developing yellowish mottling; fine pale yellow gravels at base
Spit 3: 20-30	Dark grey brown/yellowing gravelly loam onto broken saprolite
Square 4	
Spit 1: 0-10	Dark grey brown fine sandy loam
Spit 2: 10-20	Dark grey brown fine sandy loam onto broken saprolite soil mix; pale yellow mottling
Spit 3: 20-28	Dark grey brown fine sandy loam; saprolite rubble mix giving onto saprolite bedrock across base
Square 5	
Spit 1: 0-10	Medium grey brown fine sandy loam; plentiful grass roots
Spit 2: 10-20	Medium grey brown fine sandy loam onto broken saprolite soil mix; pale yellow mottling; some bioturbation
Spit 3: 20-30	Medium grey brown fine sandy loam; becoming slightly yellow; saprolite rubble mix giving onto saprolite bedrock across base
Square 6	
Spit 1: 0-10	Medium grey brown fine sandy loam becoming mottled at base
Spit 2: 10-20	Dark grey brown fine sandy loam with fine gravels at base
Spit 3: 20-23	Dark grey brown gravelly sandy loam; change to a dense gravel and saprolite cobbles



Looking 100° along Transect 3



West section of Square 6

Schematic representation of soil profile: Survey Unit 5 Transect 2 Square 3: West section

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0
Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0
	Spit 4: 0				

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
-	-	-	-	-	-

Discussion – No artefacts were retrieved in the six squares excavated.

Tantangara

Survey Unit: 5

Test Transect: 4

Description: The transect is oriented 115/285° and situated on a lightly used vehicle track on a gently sloping simple slope linking the upper crest of Survey Unit 5 to the lower crest [Transects 1 & 2]. Transect 4 is located along the lightly used vehicle track further up slope of Transect 3. Squares 1, 2 & 3 area on a break of slope and upper slope and Squares 4, 5 & 6 are on a crest landform.

Square locations:

Square #	Easting	Northing
1	649033	6037093
2	649030	6037093
3	649025	6037096
4	649021	6037099
5	649017	6037104
6	649011	6037105

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Dark grey brown fine sandy loam; grass roots and shrub roots dense
Spit 2: 10-20	Dark grey brown fine sandy loam onto broken saprolite soil mix; shrub root penetration
Spit 3: 20-30	Dark grey brown fine sandy loam; saprolite rubble mix giving onto saprolite bedrock across base
Square 2	
Spit 1: 0-10	Dark grey brown fine sandy loam with occasional angular cobble; grass roots and shrub roots dense
Spit 2: 10-20	Dark grey brown fine sandy loam with plentiful angular pebbles; giving onto broken saprolite/bedrock across base
Square 3	
Spit 1: 0-10	Medium brown fine sandy loam; dense grass rootlets; giving onto saprolitic broken bedrock base and rubble
Square 4	
Spit 1: 0-10	Medium grey brown fine sandy loam; spongy grass root mat; saprolite pebbles throughout giving onto saprolitic broken bedrock
Square 5	
Spit 1: 0-10	Medium grey brown fine sandy loam; spongy grass root mat; saprolite pebbles throughout giving onto saprolitic broken bedrock
Square 6	
Spit 1: 0-10	Medium grey brown fine sandy loam; spongy grass root mat; saprolite pebbles throughout giving onto saprolitic broken bedrock

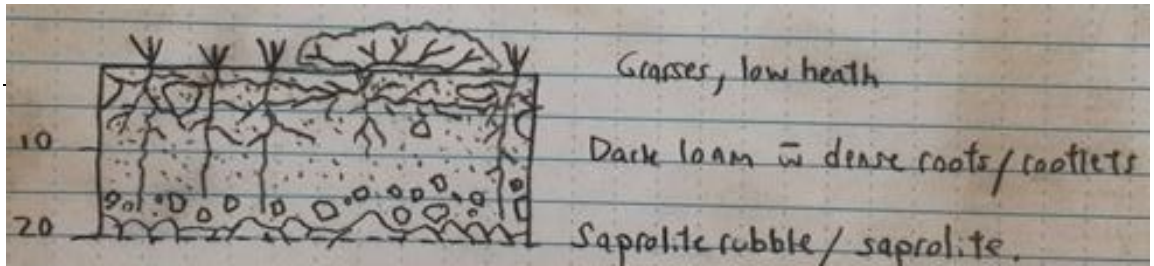


Looking 280° along Transect 4



West section of Square 4

Schematic representation of soil profile: Survey Unit 5 Transect 4 Square 2: West section



Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 0				
Spit 3: 0					

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
-	-	-	-	-	-

Discussion – No artefacts were retrieved in the six squares excavated.

Tantangara
Survey Unit: 5
Test Transect: 5
Description: The transect is oriented east/west and situated on a flattish crest adjacent to main vehicle track and to the northwest of Transects 3 and 4. The crest is open with occasional low Hakea shrub and low heath groundcover. Most of the crest has low outcropping of highly eroded volcanic rock and only skeletal soils remain. The area has also been subjected to rabbit and horse impacts. Occasional mature snow gums located along the edge of crest.

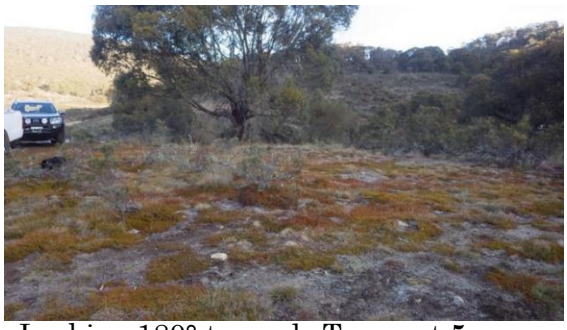
Square locations:

Square #	Easting	Northing
1	648999	6037118
2	648995	6037119
3	648991	6037120
4	648985	6037124
5	648983	6037127
6	648979	6037127

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Dark grey brown very fine sandy loam mixed with saprolite rubble onto broken bedrock at base; plentiful grass and shrub roots throughout
Square 2	

Square	Stratigraphic Log
Spit 1: 0-10	Dark grey brown very fine sandy loam mixed with angular weathered bedrock rubble; overlying broken bedrock base; root penetration throughout
Square 3	
Spit 1: 0-10	Dark grey brown very fine sandy loam; plentiful grass rootlets and heath roots; bedrock rubble/soil mix; onto broken bedrock base
Square 4	
Spit 1: 0-10	Dark grey brown very fine sandy loam; plentiful grass rootlets and heath roots; bedrock rubble/soil mix; onto broken bedrock base
Square 5	
Spit 1: 0-10	Dark grey brown very fine dry [almost powdery] sandy loam; plentiful grass rootlets and heath roots; bedrock rubble/soil mix; onto broken bedrock base
Square 6	
Spit 1: 0-10	Dark grey brown very fine sandy loam mixed with angular bedrock cobble and pebbles; onto a packed bedrock gravel [cobbles and pebbles] roots and rootlets throughout

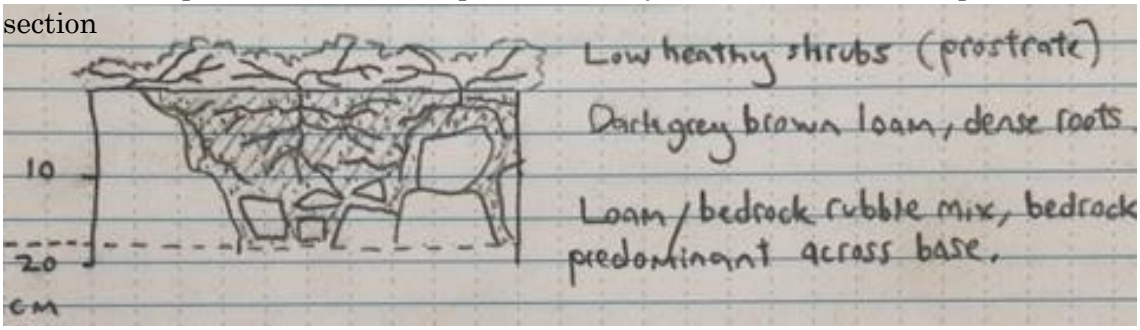


Looking 180° towards Transect 5



East section of Square 4

Schematic representation of soil profile: Survey Unit 5 Transect 5 Square 4: East section



Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0

Spit 2: 1			Spit 2: 0		

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
1	-	-	-	-	-

Discussion – One artefact was retrieved indicating a very sparse and very low density artefact distribution.

Tantangara
Survey Unit: 5
Test Transect: 6
Description: The transect is orientated east/west and situated on a flattish crest adjacent to main vehicle track. The crest is open with occasional low Hakea shrub and low heath groundcover. Most of the crest has low outcropping of highly eroded volcanic rock and only skeletal soils remain. The area has also been subjected to rabbits and horses. Occasional mature snow gums located along the edge of crest.

Square locations:

Square #	Easting	Northing
1	649004	6037126
2	649001	6037128
3	648996	6037131
4	648990	6037132
5	648985	6037136
6	648983	6037138

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Dark grey brown very fine sandy loam; and occasional angular bedrock cobble; bedrock rubble common at base; grass and shrub roots throughout
Spit 2: 10-20	Dark grey brown fine sandy loam mixed with angular bedrock rubble; broken bedrock extent approximately 80% at base; root penetration throughout
Square 2	
Spit 1: 0-10	Dark grey brown fine sandy loam mixed with angular bedrock rubble; overlying broken bedrock base; root penetration throughout
Square 3	
Spit 1: 0-10	Medium brown fine sandy loam; plentiful grass rootlets and heath roots; giving onto saprolitic broken bedrock base and rubble
Square 4	
Spit 1: 0-10	Dark grey brown loam; plentiful grass rootlets and heath roots
Spit 2: 10-18	Dark grey loam/bedrock rubble mix; bedrock predominant across base
Square 5	

Square	Stratigraphic Log
Spit 1: 0-10	Medium grey brown fine sandy loam; spongy grass root mat; saprolite pebbles throughout giving onto saprolitic broken bedrock
Square 6	
Spit 1: 0-10	Dark grey brown very fine sandy loam mixed with angular bedrock cobble and pebbles; onto a packed bedrock gravel [cobbles and pebbles] roots and rootlets throughout

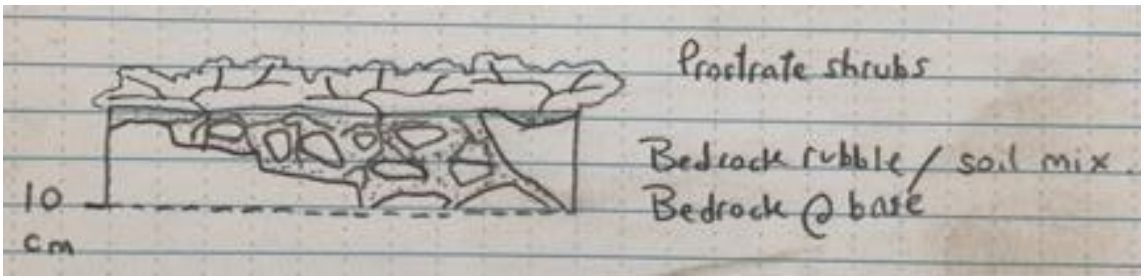


Looking 90° along Transect 6



West section of Square 2

Schematic representation of soil profile: Survey Unit 5 Transect 6 Square 3: West section



Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0			Spit 2: 0		

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
-	-	-	-	-	-

Discussion – No artefacts were retrieved.

Tantangara

Survey Unit: 5

Test Transect: 7

Description: The transect is oriented east/west and is located close (c. 30-40 metres north) to a drainage line with a significant spring. The landform is a very low elevated rise on a simple slope – sloping to the east. The area is an open Eucalypt snow gum woodland with occasional shrub and complete ground cover of long native grasses. Numerous Eucalypt saplings of various growth stages are scattered across the crest. Transect 7 is on an east facing slope with a gradient of 6-7°.

Square locations:

Square #	Easting	Northing
1	648789	6037156
2	648786	6037157
3	648783	6037158
4	648778	6037160
5	648776	6037163
6	648770	6037164

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Dark grey brown fine sandy loam; grass rootlets; some bioturbation
Spit 2: 10-20	Dark grey brown fine sandy loam; yellowing with depth with gravel appearing at c. 15cm; dense, coarse gravel and saprolite cobbles mixed with loam across base
Spit 3: 20-30	Dark yellow brown gravelly loam with angular bedrock cobbles dispersal throughout; giving onto dense coarse saprolite gravel across base
Square 2	
Spit 1: 0-10	Dark grey brown fine sandy loam; grass roots and occasional tree rootlet at base
Spit 2: 10-20	Dark grey brown fine sandy loam with occasional cobble size broken bedrock; yellowing with depth with gravel appearing; dense, coarse gravel and saprolite cobbles mixed with loam across base
Spit 3: 20-30	Dark yellow brown gravelly loam with angular bedrock cobbles dispersal throughout; giving onto dense coarse saprolite gravel across base [most cobbles have a tabular/semi-tabular form and appear to be lying regularly flat on or within the gravel]
Square 3	
Spit 1: 0-10	Dark grey brown fine sandy loam; grass rootlets
Spit 2: 10-20	Dark grey brown fine sandy loam; slight yellowing with depth
Spit 3: 20-30	Dark yellow brown gravelly loam with angular bedrock cobbles appearing at base
Spit 4: 30-35	Dark yellow brown gravelly loam; giving onto dense coarse saprolite gravel across base
Square 4	
Spit 1: 0-10	Dark grey brown fine sandy loam; grass rootlets; some bioturbation
Spit 2: 10-20	Dark grey brown fine sandy loam with occasional saprolite pebble; yellowing with depth; gravel appearing at base
Spit 3: 20-30	Dark yellow brown gravelly loam; two large bedrock cobbles removed; increasing compaction
Spit 4: 30-40	Dense coarse saprolite gravel/cobble mix; onto more evenly sorted coarse saprolite gravel across base
Square 5	
Spit 1: 0-10	Medium dark brown sandy loam with tree rootlets common; single large bedrock cobble in southwest corner [protruding through spit]

Square	Stratigraphic Log
Spit 2: 10-20	Yellowing medium dark brown fine sandy loam; gravel appearing and increasing notably with depth
Spit 3: 20-30	Dark yellow brown very coarse gravelly loam; onto saprolite gravel and occasional cobble
Spit 4: 30-40	Dense coarse saprolite gravel/cobble mix; onto more evenly sorted coarse saprolite gravel across base; gravel developing and reddish colouring
Square 6	
Spit 1: 0-10	Medium grey brown sandy loam; tree roots and grass rootlets common throughout; some bioturbation
Spit 2: 10-20	Yellowing medium brown sandy loam; gravel appearing at base; occasional saprolitic pebble
Spit 3: 20-30	Dense coarse saprolite gravel/cobble mix; onto more evenly sorted coarse saprolite gravel across base

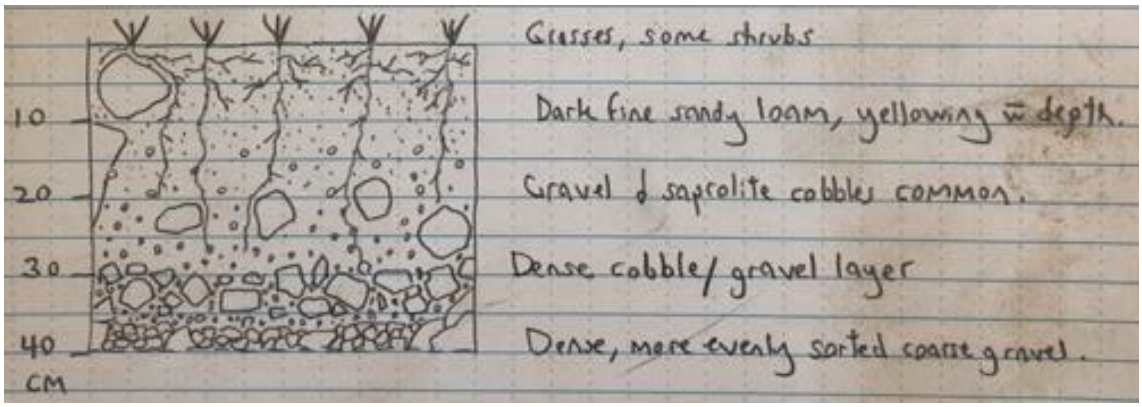


Looking 270° along Transect 7



West section of Square 5

Schematic representation of soil profile: Survey Unit 5 Transect 7 Square 5: West section



Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 1	Spit 1: 0
Spit 2: 0	Spit 2: 0	Spit 2: 3	Spit 2: 0	Spit 2: 9	Spit 2: 0
Spit 3: 0	Spit 3: 2	Spit 3: 1	Spit 3: 2	Spit 3: 0	Spit 3: 0
		Spit 4: 0	Spit 4: 0	Spit 4: 0	

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
-	2	4	2	10	-

Discussion – Some 18 artefacts were retrieved from 4 of 6 squares indicating a patchy artefact distribution. Artefact density is low: 12/sq m.

Tantangara

Survey Unit: 5

Test Transect: 8

Description: The transect is oriented 115/295° and is situated on an east facing slope on a micro landform in an open area of grassland adjacent to woodland. The landscape is a series of very low rises running in an easterly direction longitudinally down the spur.

Square locations:

Square #	Easting	Northing
1	648763	6037082
2	648760	6037084
3	648755	6037089
4	648750	6037091
5	648748	6037096
6	648745	6037099

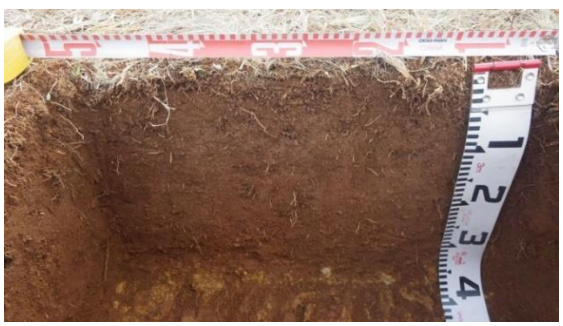
Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Dark grey brown fine sandy loam; plentiful roots
Spit 2: 10-20	Grey brown fine sandy loam; yellowing with depth and with fine pale gravel fleck appearing at base
Spit 3: 20-30	Yellow brown fine gravelly loam; lightly compacted with pale yellow gravel fleck throughout
Spit 4: 30-40	Yellowish brown gravelly loam; plentiful pale yellow saprolite fragments appearing at base
Square 2	
Spit 1: 0-10	Dark grey brown fine sandy loam; plentiful roots
Spit 2: 10-20	Grey brown fine sandy loam; yellowing with depth and with fine pale gravel fleck appearing at base
Spit 3: 20-30	Yellow brown fine gravelly loam; lightly compacted with pale yellow gravel fleck throughout

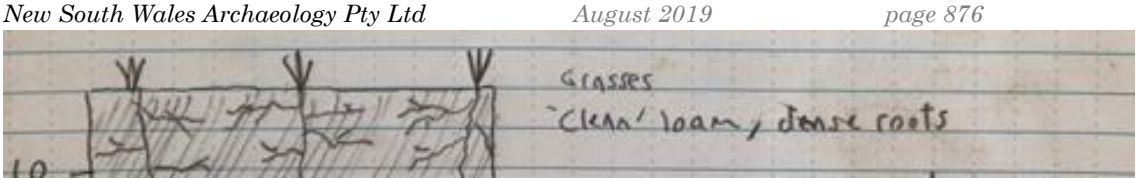
Square	Stratigraphic Log
Spit 4: 30-40	Yellowish/red gravel/rubble mixed with loam; plentiful pale yellow saprolite fragments appearing at base
Square 3	
Spit 1: 0-10	Dark grey brown fine sandy loam; plentiful roots
Spit 2: 10-20	Grey brown fine sandy loam; yellowing with depth and with fine pale gravel fleck appearing at base; reddish hue developing
Spit 3: 20-30	Yellow red brown fine gravelly loam; lightly compacted with pale yellow gravel fleck throughout
Spit 4: 30-40	Yellowish/red gravelly loam; plentiful pale yellow saprolite fragments appearing at base
Square 4	
Spit 1: 0-10	Dark grey brown fine sandy loam; plentiful roots
Spit 2: 10-20	Grey brown fine sandy loam; yellowing with depth and with fine pale gravel fleck appearing at base
Spit 3: 20-30	Yellow red brown fine gravelly loam; lightly compacted with pale yellow gravel fleck throughout; reddish hue developing
Spit 4: 30-40	Yellowish/red gravelly loam; plentiful pale yellow saprolite fragments appearing at base
Square 5	
Spit 1: 0-10	Dark/medium grey brown fine sandy loam; plentiful roots
Spit 2: 10-20	Increasingly firm/compacted dark grey brown sandy loam; yellowing with depth and exhibiting some fine pale yellow gravel flecking at base
Spit 3: 20-30	Compacted yellow brown gravelly loam; increasing saprolite gravel and pebbles with depth
Spit 4: 30-40	Gravelly yellow brown rubble/loam mix; giving onto pale yellow saprolite across base
Square 6	
Spit 1: 0-10	Dark/medium grey brown fine sandy loam; plentiful roots
Spit 2: 10-20	Increasingly firm/compacted dark grey brown sandy loam; yellowing with depth and exhibiting some fine pale yellow gravel flecking at base
Spit 3: 20-30	Compacted yellow brown gravelly loam; increasing gravel with depth; coarse saprolite pea gravel throughout; reddish hue developing
Spit 4: 30-40	Gravelly yellow brown loam; giving onto pale yellow saprolite across base



Looking 290° along Transect 8



West-northwest section of Square 6



Schematic representation of soil profile: Survey Unit 5 Transect 7 Square 5: West section

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0
Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0
Spit 4: 0	Spit 4: 0	Spit 4: 1	Spit 4: 0	Spit 4: 0	Spit 4: 0

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
-	-	1	-	-	-

Discussion – One artefact was retrieved indicating a very patchy and very low density artefact distribution.

Tantangara
Survey Unit: 8
Test Transect: 1
Description: The transect is oriented southeast/northwest and is situated on a low, level crest of a spur, part of series of low elevated southeast/northwest running spurs, and adjacent to a drainage line. The drainage line shows signs of horse and wombat damage, pugging and burrows in the banks.

Square locations:

Square #	Easting	Northing
1	649049	6036122
2	649044	6036128
3	649041	6036130
4	649038	6036133
5	649035	6036137
6	649032	6036141

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Grey brown silty loam; moderate compaction; many rootlets
Spit 2: 10-20	Grey brown silty loam; moderate compaction; decreasing rootlet content
Spit 3: 20-30	Firm/compacted grey brown to brown silty loam; plentiful grey fine gravel flecking and mottling at base
Spit 4: 30-40	Heavily compacted grey brown/brown silty loam; gravel flecking/mottling at base
Square 2	
Spit 1: 0-10	Grey brown semi-compacted silty loam; thick rootlet bed for first 5cm
Spit 2: 10-20	Grey brown semi-compacted fine sandy silty loam; rootlets throughout; plentiful bioturbation mottling
Spit 3: 20-30	Firm/compacted grey brown to brown silty loam; plentiful grey fine gravel flecking and mottling at base
Spit 4: 30-40	Highly compacted brown fine gravelly silt; plentiful light grey gravel flecking/mottling at base
Square 3	
Spit 1: 0-10	Grey brown silty loam; some bioturbation and many rootlets
Spit 2: 10-20	Grey brown silty loam; slightly increasing compaction; decreasing rootlets and bioturbation
Spit 3: 20-30	Highly compacted brown fine gravelly silt; plentiful light grey gravel flecking/mottling at base
Square 4	
Spit 1: 0-10	Grey brown lightly compacted silty loam
Spit 2: 10-20	Grey brown lightly compacted silty loam; lightening/slight yellowing with depth
Spit 3: 20-30	Yellow brown mottled/gravel flecked silty loam; quite compacted at base
Square 5	
Spit 1: 0-10	Grey brown lightly compacted silty loam; some mottling
Spit 2: 10-20	Grey brown lightly compacted silty loam; some mottling
Spit 3: 20-30	Change at 25cm to a highly compacted brown fine gravelly silt; plentiful light grey gravel flecking/mottling at base
Square 6	
Spit 1: 0-10	Grey brown silty loam; lightly compacted; thick rootlet bed for first 5cm
Spit 2: 10-20	Grey brown silty loam; lightly compacted
Spit 3: 20-30	Grey silty loam; becoming highly compacted; lightening/slight yellowing with depth
Spit 4: 30-40	Highly compacted brown fine gravelly silt; plentiful light grey gravel flecking/mottling at base
Spit 5: 40-50	Highly compacted brown fine gravelly silt; plentiful light grey gravel flecking/mottling
Spit 6: 50-60	Highly compacted brown fine gravelly silt; plentiful light grey gravel flecking/mottling; occasional saprolitic pebbles through spit and increasing at base to decomposing bedrock


Looking 320° towards Transect 1


Northeast section of Square 6

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 1	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0
Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0
Spit 4: 0	Spit 4: 0				Spit 4: 0
					Spit 5: 0
					Spit 6: 0

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
0	1	0	0	0	0

Discussion – One artefact was retrieved indicating a very patchy and very low density artefact distribution.

Tantangara
Survey Unit: 8
Test Transect: 2
Description: The transect is oriented southeast/northwest and is located 10 metres northwest of Transect 1.

Square locations:

Square #	Easting	Northing
1	649024	6036150
2	649022	6036153
3	649021	6036158
4	649018	6036162
5	649016	6036165
6	649012	6036170

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Yellowish brown silty loam; plentiful rootlets throughout
Spit 2: 10-20	Yellow brown; finely mottled; lightly compacted silty loam
Spit 3: 20-30	Yellow brown mottled; compacted silty loam; light grey gravel flecking at base

Square	Stratigraphic Log
Spit 4: 30-40	Yellow brown compacted pale gravel flecked silt; gravel appears to be saprolitic and gradually increasing with depth
Square 2	
Spit 1: 0-10	Grey brown silty loam; plentiful rootlets throughout
Spit 2: 10-20	Grey brown silty loam; increasing compaction with depth
Spit 3: 20-30	Firm/compacted grey brown to brown silty loam; plentiful grey fine gravel flecking and mottling at base
Square 3	
Spit 1: 0-10	Dark grey brown silty loam; many rootlets; moderately compacted
Spit 2: 10-20	Dark grey brown silty loam; slightly increasing compaction; decreasing rootlets
Spit 3: 20-30	Highly compacted brown fine gravelly silt; plentiful light grey gravel flecking/mottling at base
Square 4	
Spit 1: 0-10	Grey brown lightly compacted silty loam; plentiful grass roots to 5cm and shrub roots to base
Spit 2: 10-20	Grey brown lightly compacted silty loam; decreasing roots
Spit 3: 20-30	Yellow brown mottled/gravel flecked silty loam; quite compacted at base
Square 5	
Spit 1: 0-10	Grey brown silty loam 'top soil' giving onto yellow brown silty loam; plentiful grass and shrub rootles throughout
Spit 2: 10-20	Yellow brown silty loam; rootlets throughout; bioturbation mottling well developed by base
Spit 3: 20-30	Compacted yellow brown mottled silty loam with fine gravel flecking at base
Square 6	
Spit 1: 0-10	Dark grey brown silty loam; many rootlets; moderately compacted
Spit 2: 10-20	Dark grey brown silty loam; slightly increasing compaction; decreasing rootlets
Spit 3: 20-30	Highly compacted brown fine gravelly silt; plentiful light grey gravel flecking/mottling at base



Looking 145° towards Transect 2



Southeast section of Square 1

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0

Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0
Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0
Spit 4: 0					

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
-	-	-	-	-	-

Discussion – No artefacts were retrieved.

Tantangara
Survey Unit: 8
Test Transect: 3
Description: The transect is oriented east-southeast/west-northwest and is offset c.22 metres southwest of Transect 2 Square 6; on a crest of a spur at a lower elevation than Transects 1 & 2. Two Test Squares [1 & 2] were excavated in this transect.

Square locations:

Square #	Easting	Northing
1	648996	6036150
2	648991	6036152

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Grey brown silty loam; plentiful rootlets throughout; bioturbation [insect]
Spit 2: 10-20	Grey brown; finely mottled; lightly compacted silty loam; becoming yellowish with depth
Spit 3: 20-30	Yellow brown mottled; compacted silty loam; light grey gravel flecking at base;
Spit 4: 30-40	Yellow brown compacted pale gravel flecked silt
Spit 5: 40-50	Yellow brown compacted pale gravel flecked silt
Spit 6: 50-60	Yellow brown mottled and compacted silty loam becoming more compacted and gravel flecked with depth
Square 2	
Spit 1: 0-10	Grey brown silty loam; gradual change to a yellow brown silty loam
Spit 2: 10-20	Yellow brown silty loam; increasing compaction with depth; plentiful rootlet penetration throughout
Spit 3: 20-30	Yellow brown mottled and compacted silty loam becoming more compacted and gravel flecked with depth



Looking 270° towards Transect 3



East-southeast section of Square 2

Artefact Retrieval:

Square 1	Square 2
Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 0
Spit 3: 0	Spit 3: 0
Spit 4: 0	
Spit 5: 0	
Spit 6: 0	

Visual representation of artefact retrieval:

Sq 1
-

Sq 2
-

Discussion – No artefacts were retrieved.

Tantangara Road

Survey Unit: Tantangara Road 1

Test Transect: 1

Description: The transect is oriented 0/180° and is situated on a very narrow terrace landform flanked by Gang Gang creek and Tantangara Road. The general area is highly disturbed – piles of gravel; road works ie. spear drains; braided vehicle tracks, old fallen and burnt trees, wombat holes and earthen mounds [purpose unknown]. Transects 1 and 2 are in areas of least surface disturbance. The vegetation consists of an occasional mature Eucalypt and a thick groundcover of native grasses.

Square locations:

Square #	Easting	Northing
1	646710	6025543
2	646713	6025547
3	646714	6025550
4	646715	6025553
5	646718	6025557
6	646720	6025563

Excavation details:

Square	Stratigraphic Log
Square 1	

Square	Stratigraphic Log
Spit 1: 0-10	Grey brown fine sandy loam; mottling to yellow brownish with depth
Spit 2: 10-20	Grey brown fine sandy loam; mottling to yellow brownish with depth
Spit 3: 20-30	Becoming yellow brown fine sandy loam; occasional fine gravels; two tabular pebbles
Spit 4: 30-40	Yellow brown fine sandy loam; slightly gravelly; change at 38cm to yellow brown fine gravelly sandy loam
Spit 5: 40-50	Yellow brown fine gravelly sandy loam; giving onto cobble bed intermixed with fine yellow brown sandy loam
Square 2	
Spit 1: 0-10	Grey brown fine sandy loam; dense grass rootlets
Spit 2: 10-20	Grey brown/brown fine sandy loam; occasional small gravel; rootlet penetration to base
Spit 3: 20-30	Yellowing brown slightly gravely fine loam with tabular/angular pebbles
Spit 4: 30-40	Change to a clean yellow brown fine sandy loam
Spit 5: 40-50	Change to a clean yellow brown fine sandy loam
Spit 6: 50-60	Change to a clean yellow brown fine sandy loam; developing subtle pale flecking with depth
Square 3	
Spit 1: 0-10	Light/medium brown very fine sandy loam; rootlets throughout
Spit 2: 10-20	Medium brown to yellowing fine sandy loam; tree rootlets in northeast corner
Spit 3: 20-30	Yellow brown fine sandy loam; change to fine gravelly loam; plenty of bioturbation mottling [worm and cicada]
Spit 4: 30-40	Yellow brown fine gravelly loam giving onto coarse gravelly/pebbly mix [gravel is ballast like material]
Spit 5: 40-50	Yellow brown sandy loam/gravelly and pebbly mix
Spit 6: 50-60	Yellow brown sandy loam/gravelly and pebbly mix; occasional large cobble
Square 4	
Spit 1: 0-10	Medium/dark brown silty loam; abundant charcoal and rootlets; change to a reddish brown silty loam at base
Spit 2: 10-20	Reddish brown very fine silty loam; frequent small tree roots
Spit 3: 20-30	Reddish brown sandy silty loam; occasional sub-rounded gravels
Spit 4: 30-40	Reddish brown sandy loam/gravel and pebbly mix; occasional large cobble in base
Square 5	
Spit 1: 0-10	Yellow brown/grey mottled (charcoal from surface) fine sandy loam; single large cobble in southwest corner
Spit 2: 10-20	Yellow brown/grey mottled fine sandy loam to a clean yellow brown fine sandy loam; tree rootlets throughout; cobble in southwest corner has become a small boulder
Spit 3: 20-30	Yellow brown clean fine sandy loam
Spit 4: 30-40	Yellow brown clean fine sandy loam; giving onto yellow brown gravelly fine sandy loam with pebbles appearing at base
Square 6	

Square	Stratigraphic Log
Spit 1: 0-10	Medium brown fine silty loam; abundant grass rootlets; moderate amount of bioturbation
Spit 2: 10-20	Yellow brown mottled very fine silty loam; moderate to frequent small tree roots
Spit 3: 20-30	Yellow brown mottled fine silty loam; moderate to frequent small tree roots
Spit 4: 30-40	Yellow brown clean fine sandy loam; giving onto yellow brown gravelly fine sandy loam with pebbles appearing at c.35cm and continue to base



Looking 10° along Transect 1



Looking 245° towards Transect 1

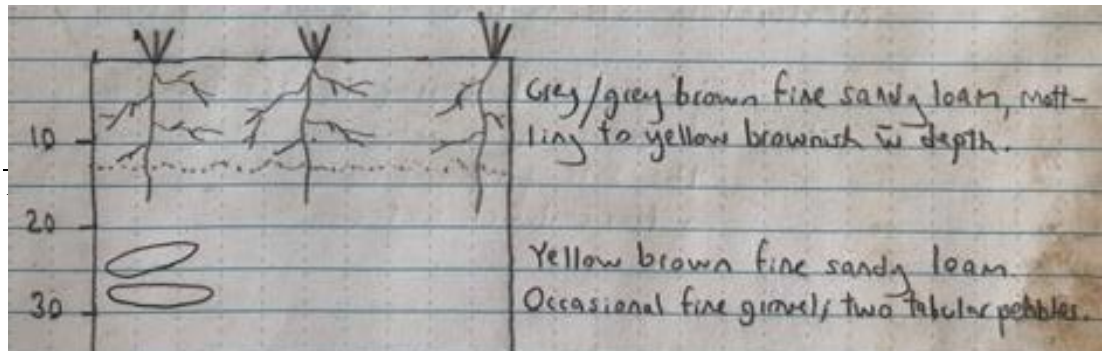


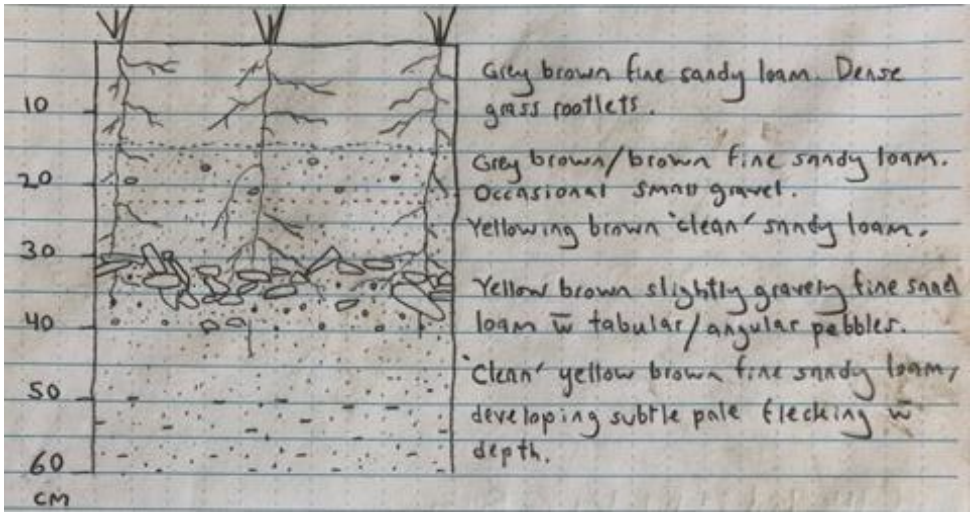
North section of Square 1



West section of Square 2

Schematic representation of soil profile: Survey Unit Tantangara Road Transect 1 Square 2: West section.





Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0
Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0
Spit 4: 0	Spit 4: 0	Spit 4: 0	Spit 4: 0	Spit 4: 0	Spit 4: 0
Spit 5: 0	Spit 5: 0	Spit 5: 0			
	Spit 6: 0	Spit 6: 0			

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
-	-	-	-	-	-

Discussion – No artefacts were retrieved.

Tantangara Road

Survey Unit: Tantangara Road 1

Test Transect: 2

Description: The transect is oriented 0/180° and is offset parallel 10 metres from Transect 1 to the east, therefore closer to Gang Gang Creek.

Square locations:

Square #	Easting	Northing
1	646714	6025540
2	646716	6025544
3	646717	6025548
4	646718	6025553

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Dark grey brown sandy loam; plentiful rootlets throughout; loose
Spit 2: 10-20	Dark grey brown sandy loam; gradually becoming yellowish and slightly gravelly with depth
Spit 3: 20-30	Yellow brown gravelly fine sandy loam; giving onto loam/pebble/cobble mix across base
Square 2	
Spit 1: 0-10	Dark grey brown sandy loam; plentiful rootlets throughout; moderate bioturbation [insects]
Spit 2: 10-20	Dark grey brown mottled sandy loam; gradually becoming yellowish and slightly gravelly with depth
Spit 3: 20-30	Yellow brown gravelly fine sandy loam; giving onto loam/pebble/cobble mix across base
Square 3	
Spit 1: 0-10	Dark grey brown sandy loam; many rootlets
Spit 2: 10-20	Yellowish brown sandy loam; gradually becoming more yellowish and slightly gravelly with depth
Spit 3: 20-30	Yellow brown gravelly fine sandy loam; light grey gravel flecking/mottling; giving onto
Square 4	
Spit 1: 0-10	Grey brown fine sandy loam; plentiful grass roots
Spit 2: 10-20	Grey brown fine sandy loam; gradual change to yellow brown fine sany loam
Spit 3: 20-30	Yellow brown fine sandy loam; giving onto yellow brown slightly gravelly fine sandy loam; pale gravel flecking at base
Spit 4: 30-35	Yellow brown gravelly fine sandy loam; giving onto loam/pebble/cobble mix across base



Looking 10° towards Transects 1 & 2



North section of Square 1

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4

Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0
Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0
			Spit 4: 0

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4
-	-	-	-

Discussion – No artefacts were retrieved.

Tantangara
Survey Unit: 7
Test Transect: 1
Description: The transect is situated on a relatively flat to very gently undulating spur crest approximately 60 metres wide. The area to the east of transect 1 is littered with European debris and is generally disturbed. The area of transect is grassland and appears relatively undisturbed.

Square locations:

Square #	Easting	Northing
1	648562	6039495
2	648556	6039495
3	648552	6039495
4	648546	6039494
5	648540	6039494
6	648535	6039494

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Grey brown very sandy loam, plentiful rootlets throughout, heavy bioturbation
Spit 2: 10-20	Grey brown very fine sandy loam becoming compacted yellowish grey brown fine sandy loam with occasional pale gravel fleck. Heavy bioturbation mottling
Spit 3: 20-30	Medium yellowish grey brown fine sandy loam [compacted with pale gravel mottling slightly increasing]
Spit 4: 30-40	Medium yellowish grey brown slightly gravelly fine sandy loam; abruptly increased gravel content at base [pale yellow saprolitic gravel/pebbles appearing at base]
Spit 5: 40-50	Packed yellow saprolitic gravel/decomposing bedrock at base.
Square 2	
Spit 1: 0-10	Very fine sandy light yellow brown loam. Dense rootlet mat
Spit 2: 10-20	Compacted light yellow brown fine sandy loam; angular/coarse bedrock gravels at base with broken bedrock appearing
Spit 3: 20-22	Broken bedrock/gravel with fractured bedrock at base.
Square 3	
Spit 1: 0-10	Pale grey brown very fine sandy loam. Dense rootlets

Square	Stratigraphic Log
Spit 2: 10-20	Pale grey brown very fine sandy loam with coarse gravel appearing; giving onto pale grey broken bedrock at base.
Square 4	
Spit 1: 0-10	Medium /light orange brown very fine sandy loam. Plentiful rootlets
Spit 2: 10-20	Medium/yellow light grey brown very fine sandy loam, becoming more compacted with depth. Slight yellowing and occasional pale gravel fleck at base
Spit 3: 20-30	Medium yellow grey brown very fine sandy loam with pale gravel becoming common at base
Spit 4: 30-35	Medium yellow grey brown gravelly loam transitioning to a pale broken saprolitic gravel with saprolite at base.
Square 5	
Spit 1: 0-10	Medium/light grey brown very fine sandy loam
Spit 2: 10-20	Medium/light grey brown very fine sandy loam, some fine grey fleck at base
Spit 3: 20-30	Compacted grey brown very fine sandy loam, darkening sith depth
Spit 4: 30-40	Compacted mottled medium dark grey brown fine sandy loam. Fine saprolite gravel common at base.
Square 6	
Spit 1: 0-10	Medium grey very fine sandy loam, dense rootlets
Spit 2: 10-20	Compacted medium grey very fine sandy loam, plentiful bioturbation mottling
Spit 3: 20-30	Compacted medium grey very fine sandy loam developing dark yellow mottling and fine pale gravel flecking with depth
Spit 4: 30-40	Compacted mottled yellow /medium grey fine sandy loam, occasional pale and orange gravel fragment appearing at base
Spit 5: 40-50	Compacted heavily mottled yellow/grey slightly gravelly very fine sandy loam giving onto yellowing gravelly loam/reddish orange packed saprolite gravels at base.

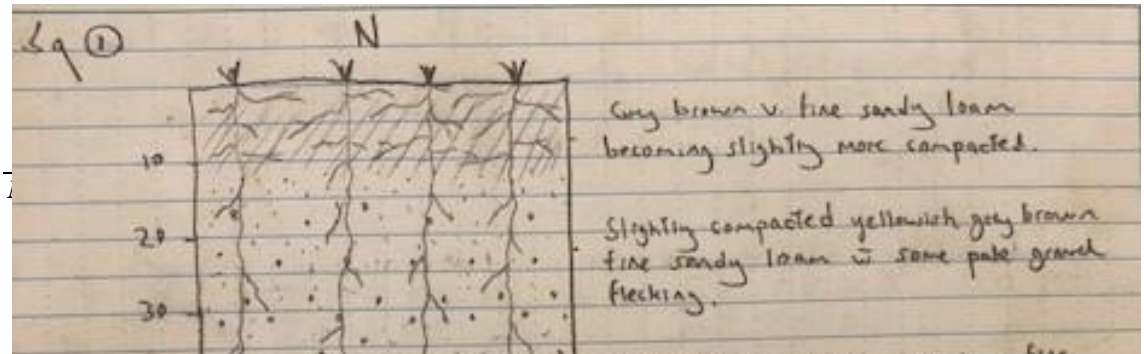


Looking 270° towards Transect 1



North section of Square 1

Schematic representation of soil profile Survey Unit 7 Transect 1 Square 1 North section:



pH levels:
0-10 = 5.5
10-20 = 5.5/6
20-30 = 5.5
30-40 = 5.5
40-50 = 5.5

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0
Spit 3: 0	Spit 3: 0		Spit 3: 0	Spit 3: 0	Spit 3: 0
Spit 4: 0			Spit 4: 1	Spit 4: 0	Spit 4: 0
Spit 5: 0					Spit 5: 0

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
-	-	-	1	-	-

Discussion – No artefacts were retrieved.

Tantangara
Survey Unit: 7
Test Transect: 2
Description: Transect 2 is on the same landform as Transect 1. The area of transect is grassland and appears relatively undisturbed. The subsurface deposit was very similar to Transect 1.

Square locations:

Square #	Easting	Northing
1	648554	6039507
2	648549	6039506
3	648544	6039505
4	648539	6039504
5	648532	6039502
6	648527	6039501

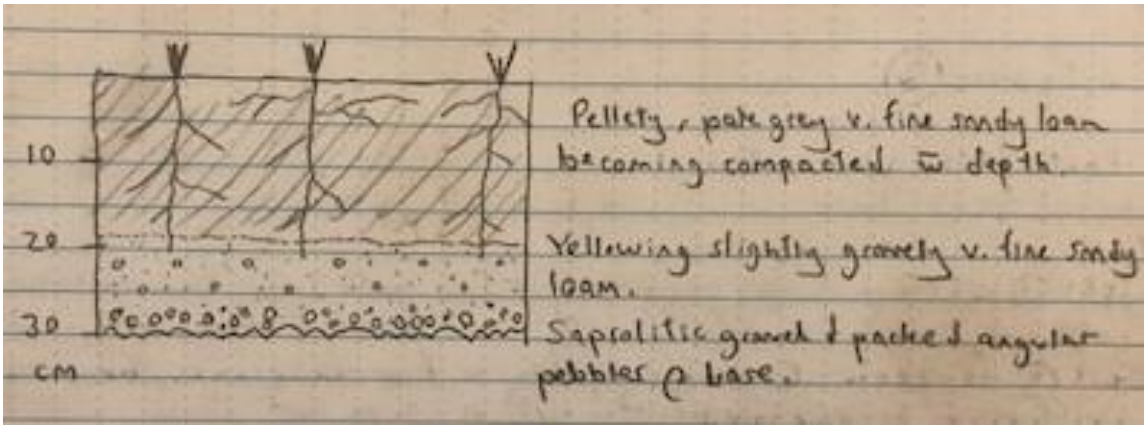
Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Pale grey pellety very fine sandy loam with dense rootlet mat
Spit 2: 10-20	Pale grey pellety very fine sandy loam becoming compacted and more uniform in texture. Gives onto a yellowing grey very fine sandy loam with pale yellow gravel at base.
Spit 3: 20-30	Yellow grey compacted slightly gravelly fine sandy loam, giving onto a packed pale yellow saprolitic gravel/pebble level at base
Square 2	
Spit 1: 0-10	Light grey pellety, slightly gravelly very fine sandy loam
Spit 2: 10-20	Light grey pellety, slightly gravelly very fine sandy loam giving onto packed pale grey/yellow saprolite gravel and decomposing bedrock.
Square 3	
Spit 1: 0-10	Light grey pellety very fine sandy loam. Dense rootlets
Spit 2: 10-20	Light grey pellety very fine sandy loam, becoming uniform in texture and compacted
Spit 3: 20-30	Light grey/yellow mottled compact very fine sandy loam with occasional pale gravel fleck
Spit 4: 30-40	Compacted and mottled grey/yellow very fine sandy loam with relatively common fine yellow and orange gravel flecking at base.
Square 4	
Spit 1: 0-10	Light grey pellety very fine sandy loam
Spit 2: 10-20	Light grey becoming grey brown mottled and increasingly compacted very fine sandy loam
Spit 3: 20-30	Medium grey brown mottled compacted very fine sandy loam with fine gravel flecking appearing
Spit 4: 30-40	Medium grey brown mottled compacted very fine sandy loam with yellowing hue with increasing orange/yellow gravel
Spit 5: 40-50	Compacted yellow brown mottled very fine sandy loam with orange/yellow fine gravel
Spit 6: 50-60	Compacted yellow brown gravel mottled very fine sandy loam
Square 5	
Spit 1: 0-10	Light grey pellety very fine sandy loam
Spit 2: 10-20	Compacted and increasingly evenly textured light grey/medium brown mottled very fine sandy loam
Spit 3: 20-30	Compacted and mottled brown very fine sandy loam. Some yellow gravel flecking at base of spit
Spit 4: 30-40	Compacted mottled brown and yellowish brown very fine sandy loam. Increasing yellow/orange gravels with depth
Square 6	
Spit 1: 0-10	Light grey pellety very fine sandy loam
Spit 2: 10-20	Increasing compacted light grey/grey brown very fine sandy loam, becoming mottled and more even textured with depth
Spit 3: 20-30	Compacted medium grey brown becoming brown mottled very fine sandy loam. Yellowing with depth
Spit 4: 30-40	Compacted, heavily mottled yellow brown fine sandy loam.


Looking 180° towards Transect 2


South section of Square 1

Schematic representation of soil profile Survey Unit 7 Transect 2 Square 1 North section:



pH levels:
0-10 = 5/5.5
10-20 = 5.5
20-30 = 5.5

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 1	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0
Spit 3: 0		Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0
		Spit 4: 0	Spit 4: 0	Spit 4: 0	Spit 4: 0
			Spit 5: 0		
			Spit 6: 0		

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
-	1	-	-	-	-

Discussion – One artefact was retrieved indicating a very patchy and very low density distribution.

Tantangara
Survey Unit: 15

Test Transect: 3
Description: The transect is located on a very gently sloping spur crest [trending E-W], and approximately 25 metres wide. The area appears to be relatively undisturbed. The transect is situated within woodland comprised of snow gum and grasses. This landform is at the base of a north south trending ridge on the west side of Tantangara Dam. Transect 3 is on the southern bank of a periodically spring fed drainage line.

Square locations:

Square #	Easting	Northing
1	648502	6039579
2	648498	6039577
3	648492	6039578
4	648484	6039578
5	648479	6039579
6	648474	6039578

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Medium grey brown pellets and rootlet-rich very fine sandy loam
Spit 2: 10-20	Above becoming compacted and more uniformly textured medium brown very fine sandy loam
Spit 3: 20-30	Above yellowing slightly with occasional fine pale gravel fleck
Spit 4: 30-40	Yellowing, compact brown very fine sandy loam, occasional pale gravel fleck, increasing with depth. Coarse yellow bedrock [saprolite] cobble in NW corner.
Square 2	
Spit 1: 0-10	Grey brown pellety medium grey brown very fine sandy loam; dense grass root mat
Spit 2: 10-20	Above becoming more compacted and uniform with bioturbation mottling
Spit 3: 20-30	Trending to paler, yellowing compacted and mottled very fine sandy loam
Spit 4: 30-40	Medium yellowish brown mottled very fine sandy loam with sparse pale yellow saprolite gravel flecking
Spit 5: 40-50	Medium yellowish brown compacted slightly gravelly very fine sandy loam
Spit 6: 50-60	Above with increasing saprolitic gravel content, becoming close to uniform content across base.
Square 3	Square 3 abandoned due to extensive tree roots
Square 4	
Spit 1: 0-10	Medium grey brown pellety and rootlet rich very fine sandy loam
Spit 2: 10-20	Above developing pale mottling and becoming compacted and more uniformly textured
Spit 3: 20-30	Above, yellowing with depth and with occasional pale saprolite gravel fleck across base
Spit 4: 30-40	Yellowish brown mottled slightly gravelly very fine sandy loam
Spit 5: 40-50	Above slightly increased gravel content and clast size

Square	Stratigraphic Log
Spit 6: 50-60	Compacted, medium yellow brown gravelly loam [pale saprolite bedrock gravel]
Square 5	
Spit 1: 0-10	Medium dark pellety grey brown very fine sandy loam
Spit 2: 10-20	Above becoming compacted and more evenly textured
Spit 3: 20-30	Above yellowing slightly with depth. Sparse, pale saprolitic gravel appearing
Spit 4: 30-40	Mottled yellow brown gravelly loam
Square 6	
Spit 1: 0-10	Light/medium grey brown pellety very fine sandy loam
Spit 2: 10-20	Compacted, grey brown very fine sandy loam. More evenly textured with depth
Spit 3: 20-30	Above becoming more compacted with depth and with strong yellowish mottling
Spit 4: 30-40	Heavily mottled yellow brown very fine sandy loam with sparse pale gravel flecking
Spit 5: 40-50	Compacted, pale yellow brown gravelly loam [pale saprolitic bedrock gravel]

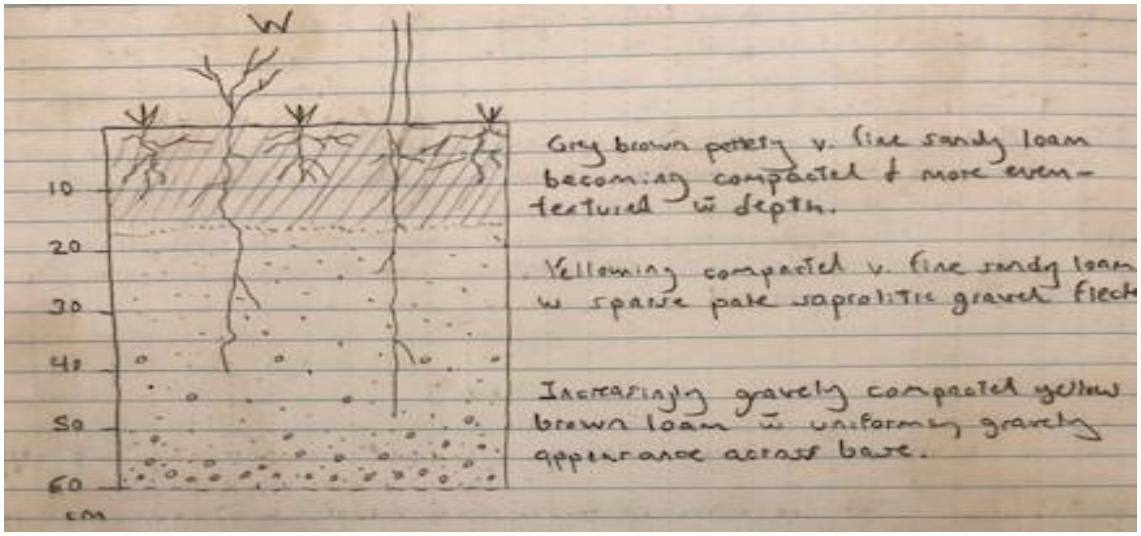


Looking 90° towards Transect 3



East section of Square 2

Schematic representation of soil profile Survey Unit 15 Transect 3 Square 2 West section:



pH levels:

0-10 = 5.5/6
10-20 = 5.5/6
20-30 = 5/5.5
30-40 = 5/5.5
40-50 = 5/5.5
50-60 = 5.5

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0		Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 0		Spit 2: 0	Spit 2: 0	Spit 2: 0
Spit 3: 4	Spit 3: 1		Spit 3: 3	Spit 3: 0	Spit 3: 0
Spit 4: 0	Spit 4: 0		Spit 4: 0	Spit 4: 0	Spit 4: 0
	Spit 5: 0		Spit 5: 0		Spit 5: 1
	Spit 6: 0		Spit 6: 0		

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
4	1	-	3	-	1

Discussion – Nine artefacts were retrieved from four of the six squares indicating a patchy and low density artefact distribution.

Tantangara
Survey Unit: 15
Test Transect: 4
Description: The transect is oriented E-W and located on a broad crest/shoulder feature with an easterly aspect. The landform is c.1250m AHD. Vegetation is an open Eucalypt woodland. Plentiful rabbit diggings and burrows with the area. Transect 4 is flanked by some rocky bedrock outcrops.

Square locations:

Square #	Easting	Northing
1	648589	6039913
2	648581	6039914
3	648578	6039915
4	648571	6039914
5	648567	6039916
6	648563	6039916

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Yellowish brown very slightly gravelly very fine sandy loam
Spit 2: 10-15/20	Increasing angular gravels and abruptly giving onto packed saprolitic gravels/decomposing bedrock.
Square 2	
Spit 1: 0-10	Medium grey brown semi-compacted very fine sandy loam
Spit 2: 10-20	Above, mottled yellowing with depth. Reddish/yellow gravel and pebbles appearing at base

Square	Stratigraphic Log
Spit 3: 20-30	Compacted yellow brown slightly gravelly very fine sandy loam. Some bedrock cobbles evident
Spit 4: 30-40	Compacted yellow brown gravelly very fine sandy loam
Square 3	
Spit 1: 0-10	Medium light grey brown slightly compacted very fine sandy loam
Spit 2: 10-20	Above, developing slight yellowish mottling towards base
Spit 3: 20-30	Compact and mottled yellowing grey brown very fine sandy loam; gravels appearing with depth and becoming dominant towards base. At base – packed/dense pale yellow angular gravel with some brown loam
Square 4	
Spit 1: 0-10	Heavily bioturbated medium brown very fine sandy loam
Spit 2: 10-20	Above with mixed angular bedrock gravel; packed/dense saprolitic gravel at base
Square 5	
Spit 1: 0-10	Heavily bioturbated medium grey brown gravelly loam giving onto packed gravel/saprolite [bedrock]..
Square 6	
Spit 1: 0-10	Medium grey brown pellety very fine sandy loam. Plentiful grass roots.
Spit 2: 10-20	Above becomes more uniform in texture and compacted with depth; heavy/strong yellow brown mottling at base; small bedrock boulders appearing
Spit 3: 20-30	Compacted heavily mottled yellowing very fine sandy silt with occasional small bedrock boulder and increasing gravel content
	Compacted yellow brown gravel loam [gravel=medium/coarse yellow/reddish bedrock saprolite fragments].

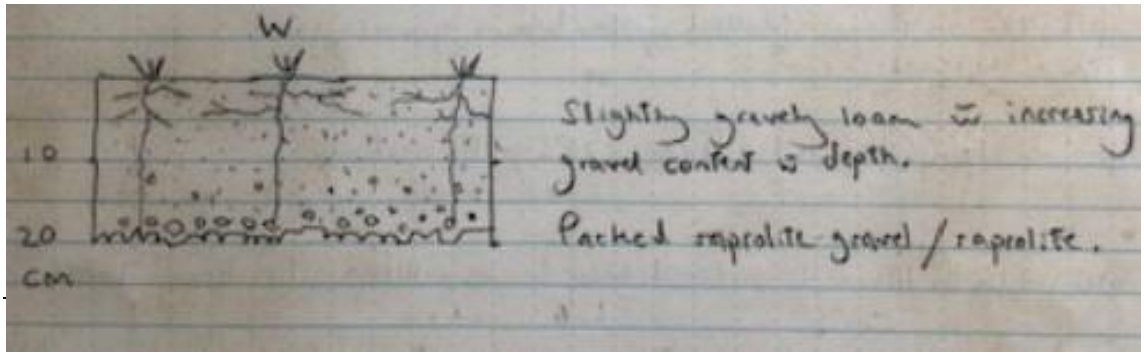


Looking 90° along Transect 4

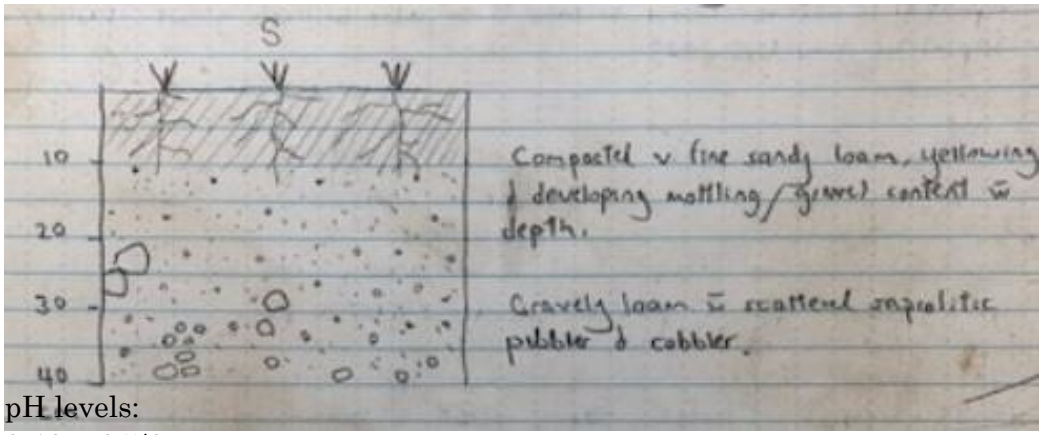


South section of Square 2

Schematic representation of soil profile Survey Unit 15 Transect 4 Square 1: West section:



Schematic representation of soil profile Survey Unit 15 Transect 4 Square 2 South section:



pH levels:
0-10 = 6.5/6
10-20 = 5.5/6
20-30 = 5.5
30-40 = 5.5

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 1	Spit 1: 0	Spit 1: 1	Spit 1: 5	Spit 1: 0	Spit 1: 0
Spit 2: 3	Spit 2: 2	Spit 2: 0	Spit 2: 15		Spit 2: 0
	Spit 3: 7	Spit 3: 0			Spit 3: 0
	Spit 4: 3				Spit 4: 0

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
4	12	1	20	-	-

Discussion – Some 37 artefacts were retrieved from four of the six squares. The artefact distribution is relatively patchy and artefact density is low/moderate.

Tantangara
Survey Unit: 15
Test Transect: 5
Description: The transect is in the same area and parallel to Transect 4 [broad shoulder of very gentle gradient and an easterly aspect]. Vegetation is Eucalypt woodland which looks to be regenerating. Bedrock outcropping along transect. The area hosts significant rabbit activity.

Square locations:

Square #	Easting	Northing
1	648596	6039922

Square #	Easting	Northing
2	648591	6039923
3	648586	6039922
4	648580	6039923
5a	648575	6039923
5b	648575	6039920
6	648572	6039924

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Dark grey brown very fine sandy loam
Spit 2: 10-20	Above, becoming compacted and developing reddish yellow mottling
Spit 3: 20-30	Rapid transition to reddish yellow brown mottled co pact very fine sandy loam
Spit 4: 30-40	Above developing fine gravel fleck with depth. Small bedrock boulders outcropping NW corner.
	Compacted gravelly reddish yellow-brown very fine sandy loam with small bedrock boulders occupying western half of floor.
Square 2	
Spit 1: 0-10	Medium grey brown mottled very fine sandy loam; slight gravel flecking with depth.
Spit 2: 10-20	Above transitioning rapidly to reddish yellow saprolite gravel/loam mix. Small saprolite boulder in SE corner.
Spit 3: 20-30	Compacted reddish yellow loamy saprolitic gravel giving onto pale yellow saprolite/bedrock.
Square 3	
Spit 1: 0-10	Medium dark grey brown very fine sandy loam
Spit 2: 10-20	Above increasingly compacted and with strong yellow brown bioturbation
Spit 3: 20-30	Heavily mottled, compacted yellow brown very fine sandy loam giving onto packed slightly loamy gravel layer. [reddish yellow angular saprolite gravel including pebbles in western half].
Square 4	
Spit 1: 0-10	Medium grey brown compacted very fine sandy loam. Strong bioturbation mottling with depth
Spit 2: 10-20	Above continues, reasonably homogenous – some very fine orange gravel flecking with depth
Spit 3: 20-30	Above giving onto orange/yellow saprolite/bedrock
Square 5a	
Spit 1: 0-10	Medium grey brown very fine sandy loam, compacted
Spit 2: 10-20	AS above, continues, developing yellowish mottling at base
Spit 3: 20-30	Heavily mottled yellow brown/grey brown trending to yellow brown very fine sandy loam. Some orange/yellow gravels towards base
Spit 4: 30-40	Slightly gravelly yellow brown very fine sandy loam giving onto packed orange saprolite coarse gravels.
Square 5b	Directly to south of 5a – abuts.
Spit 1: 0-10	Grey brown very fine sandy loam, plentiful grass roots

Square	Stratigraphic Log
Spit 2: 10-20	Compacted and even textured grey brown very fine sandy loam, some sparse orange gravel appearing at base
Spit 3: 20-30	Above, rapidly developing heavy coarse orange gravel [saprolite] content. Yellowing and mottling considerably less than in 5a.
Square 6	
Spit 1: 0-10	Medium dark grey brown very fine sandy loam. Occasional charcoal fragments
Spit 2: 10-20	Mottled grey brown very fine sandy loam. Relatively even-textured; occasional charcoal fragment. Yellowish mottling at base
Spit 3: 20-30	Mottled grey brown/yellow brown very fine sandy loam. Occasional orange gravel fleck with depth. Compacted.
Spit 4: 30-40	Above giving onto coarse orange saprolite material.

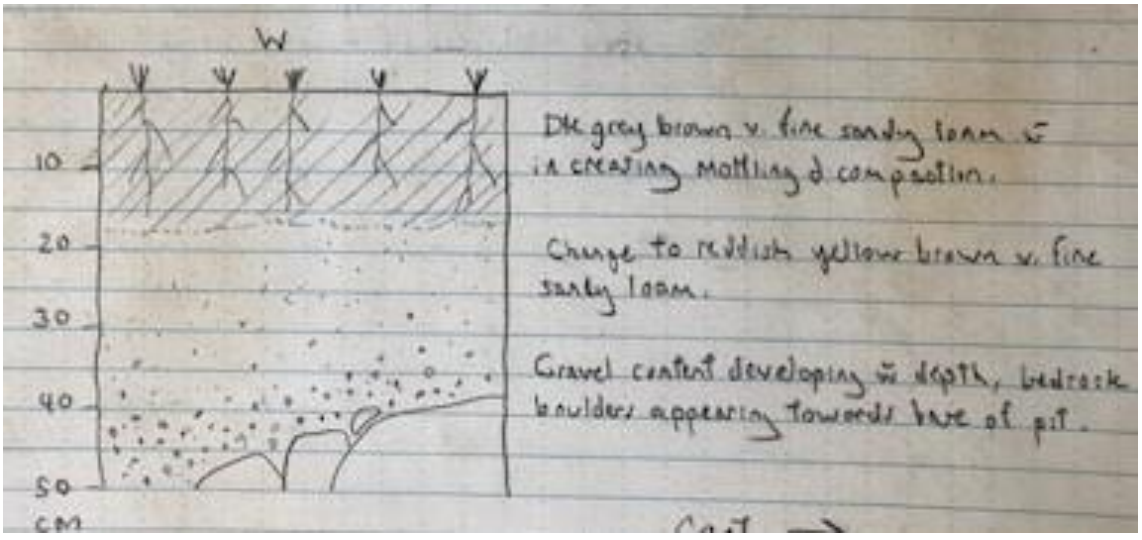


Looking 90° towards Transect 5

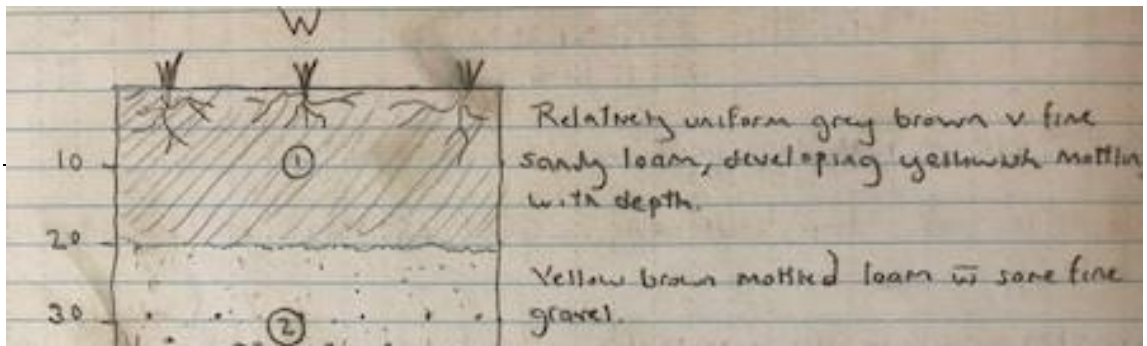


West section of Square 5a

Schematic representation of soil profile Survey Unit 15 Transect 5 Square 1 West section:



Schematic representation of soil profile Survey Unit 15 Transect 5 Square 5a West section:



pH levels:
1 = 6.5
2 = 5.5
(see above diagram for location of pH recordings)

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5a	Square 5b	Square 6
Spit 1: 0	Spit 1: 2	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 1	Spit 1: 0
Spit 2: 6	Spit 2: 5	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 3	Spit 2: 2
Spit 3: 31	Spit 3: 2	Spit 3: 2	Spit 3: 0	Spit 3: 58	Spit 3: 121	Spit 3: 5
Spit 4: 2				Spit 4: 0		Spit 4: 0
Spit 5: 0						

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5a	Sq 5b	Sq 6
39	9	2	-	58	133	7

Discussion – Some 248 artefacts were retrieved from six of the seven squares. The artefact distribution is relatively continuous and artefact density is high. Artefact density is inflated due to the part knapping events in Squares 1 and 5a/b. Nevertheless, artefact abundance is high in this area.

Tantangara
Survey Unit: 15
Test Transect: 6
Description: The transect is situated on a sloping shoulder of a spur crest with an easterly aspect. To the south and east of transect is an abrupt break of slope. A drainage line and an area of damp terrain lies immediately to the southwest. A higher ridge formation is approximately 80 metres west of Transect 6 and has steep sides.

Square locations:

Square #	Easting	Northing
1	648645	6040019

2	648642	6040021
3	648638	6040023
4	648631	6040024
5	648628	6040025
6	648623	6040027

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Reasonably compacted medium reddish brown very fine sandy loam
Spit 2: 10-20	Mottled and compacted medium reddish brown very fine sandy loam; sparse fine orange gravel flecking with depth. Small bedrock boulders appearing
Spit 3: 20-30	Above, lightening and reddening with coarse gravels appearing at base. Occasional bedrock boulder scattered
Spit 4: 30-40	Medium red brown loamy coarse gravel and small boulder
Square 2	
Spit 1: 0-10	Slightly pellety grey brown/reddish grey brown very fine sandy loam. Small tree roots
Spit 2: 10-20	Above, becoming more compacted and even-textured with heavy reddish mottling. Small tree root penetration though this spit
Spit 3: 20-30	Compacted red brown very fine sandy loam with coarse gravel appearing, occasional bedrock pebble and small boulder protruding at base
Square 3	
Spit 1: 0-10	Slightly pellety, compacted grey brown very fine sandy loam, reddening slightly with depth.
Spit 2: 10-20	Mottled and compacted red brown very fine sandy loam, occasional fine orange gravel at base.
Spit 3: 20-30	Compacted red brown loam. Occasional fine gravel fragment
Spit 4: 30-40	Above developing notably increased gravel content; small bedrock boulders/cobbles through spit and protruding at base
Square 4	
Spit 1: 0-10	Pale/medium grey brown very fine sandy loam. Plentiful grass roots. Darker mottling and increased compaction towards base
Spit 2: 10-20	Medium/dark reddening brown very fine sandy loam, occasional orange gravel fragment. Small tree roots penetrating
Spit 3: 20-30	Above, compact, reddens with depth and increased fine gravels
Spit 4: 30-40	Red brown compacted increasingly gravelly very fine sandy loam. Saprolitic gravel including pebbles at base.
Square 5	On dirt vehicle track
Spit 1: 0-10	Compacted grey brown/reddish grey brown very fine sandy loam with very occasional reddish gravel fleck near base
Spit 2: 10-20	Above grading to compacted, even-textured very fine sandy loam [red brown]
Spit 3: 20-30	Above, becoming mottled and with sparse coarse saprolitic gravel particle; small bedrock boulders protruding at base
Square 6	

Square	Stratigraphic Log
Spit 1: 0-10	Grey brown/reddish grey brown compacted very fine sandy loam. Plentiful grass roots
Spit 2: 10-20	Reddish grey brown very fine sandy loam becoming compacted with heavy brown mottling. Some fine pale gravel flecks at base
Spit 3: 20-30	Compacted red brown slightly gravelly, very fine sandy loam. Small bedrock boulders throughout spit
Spit 4: 30-35	As above, slightly increased gravel content. Boulder protruding at base.

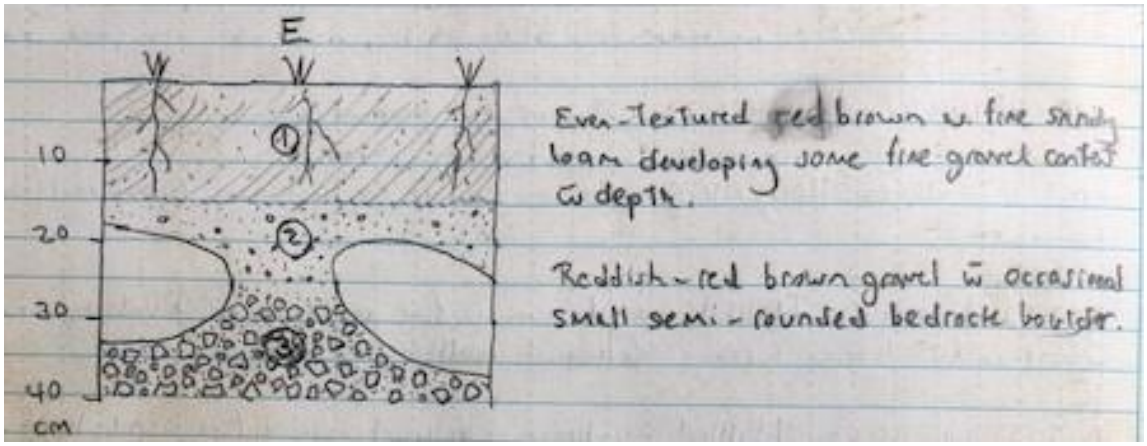


Looking 270° towards Transect 6



East section of Square 1

Schematic representation of soil profile Survey Unit 15 Transect 6 Square 1 East section:



pH levels:
1 = 6.5
2 = 5.5
3 = 5.5
(see above diagram for location of pH recordings)

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 3	Spit 1: 4	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0
Spit 3: 0	Spit 3: 1	Spit 3: 3	Spit 3: 0	Spit 3: 0	Spit 3: 0
Spit 4: 0		Spit 4: 0	Spit 4: 0		Spit 4: 0

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
-	4	7	-	-	-

Discussion – Some 11 artefacts were retrieved from two of the six squares. The artefact distribution is patchy and artefact density is low: 7.3/sq m.

Tantangara
Survey Unit: 15
Test Transect: 7
Description: Transect 7 is offset immediately north of transect 6. Transect 7 is located on the same landform feature as transect 6, a sloping shoulder on a spur crest.

Square locations:

Square #	Easting	Northing
1	648644	6040028
2	648643	6040027
3	648640	6040027
4	648633	6040032
5	648628	6040034
6	648625	6040035

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Grey brown very sandy loam, grass roots common; increasing compaction with depth
Spit 2: 10-20	Above, developing reddish mottling. Occasional orange gravel clast.
Spit 3: 20-30	Above-compacted; orange and pale saprolitic gravels becoming common towards base. Tabular bedrock cobbles in NW and NE corners
Spit 4: 30-40	Very gravelly red brown loam [saprolitic gravels]. occasional bedrock pebble/cobble. Small tree roots penetrate to this level.
Square 2	
Spit 1: 0-10	Medium grey brown very fine sandy loam. Plentiful bioturbation mottling and cavities
Spit 2: 10-20	Compacted and reddening mottled grey brown very fine sandy loam. Occasional pale gravel flecking
Spit 3: 20-30	Compacted, mottled red brown slightly gravelly loam; small bedrock boulders appearing
Spit 4: 30-40	Above, increased gravel, some small bedrock boulders protruding at base
Square 3	
Spit 1: 0-10	Slightly reddish grey brown fine sandy loam. Plentiful bioturbation and rootlet mottling

Square	Stratigraphic Log
Spit 2: 10-20	Above, increasing compaction, reddish mottling, some fine pale gravel flecking at base
Spit 3: 20-30	Mottled, compacted and increasingly gravelly red brown loam; small bedrock boulders protruding at base
Square 4	
Spit 1: 0-10	Medium grey brown bioturbated/root mixed very fine sandy loam
Spit 2: 10-20	Above, becoming compacted and developing reddish mottling with occasional gravel fleck. Bedrock boulder appearing
Spit 3: 20-30	Red brown gravelly loam with occasional bedrock small boulder protruding
Square 5	
Spit 1: 0-10	Red brown compacted slightly gravelly very fine sandy loam
Spit 2: 10-20	Compacted red brown gravelly very fine sandy loam; mottled with small bedrock boulders protruding
Square 6	Square not excavated

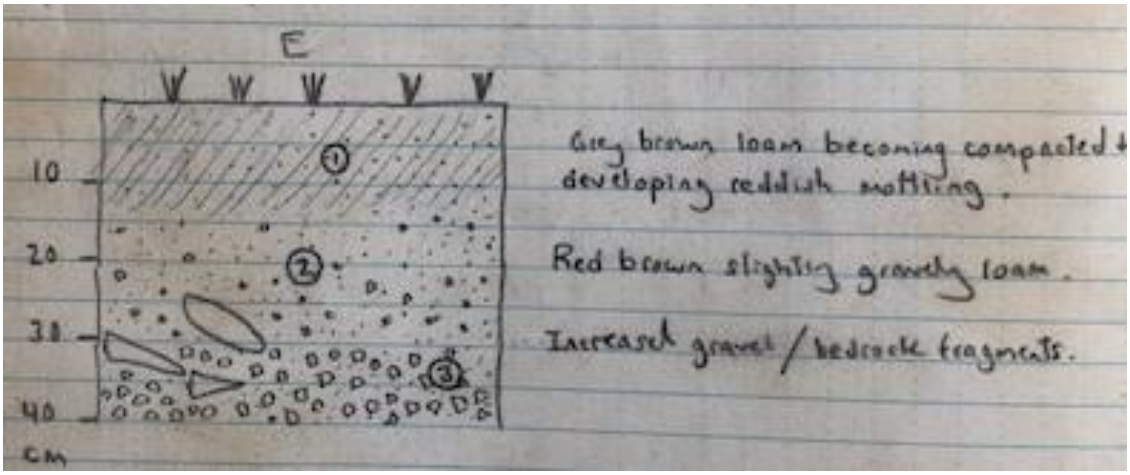


Looking 90° towards Transect 7



East section of Square 1

Schematic representation of soil profile Survey Unit 15 Transect 7 Square 1 East section:



pH levels:
1 = 6.5
2 = 5.5/6

3 = 5.5/6
(see above diagram for location of pH recordings)

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 1	Spit 1: 0	Spit 1: 0	
Spit 2: 2	Spit 2: 0	Spit 2: 0	Spit 2: 1	Spit 2: 0	
Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 2		
Spit 4: 2	Spit 4: 1	Spit 4: 0	Spit 4: 0		

Visual representation of artefact retrieval:

Sq 1
4

Sq 2
1

Sq 3
1

Sq 4
3

Sq 5
-

Discussion – Nine artefacts were retrieved from four of the five squares. The artefact distribution is relatively patchy and artefact density is low/moderate.

Tantangara
Survey Unit: 15
Test Transect: 8
Description: The transect is oriented 25/205° and is situated on the upper slope of a shoulder feature of a very gentle gradient. This feature is part of a higher crest formation. The aspect is of this slope is to the east. Transect 8 is in open *Eucalypt* woodland and grasses. Shallow wombat diggings are evident at the northern end. The transect area has occasional bedrock outcrops.

Square locations:

Square #	Easting	Northing
1	648703	6040160
2	648707	6040161
3	648709	6040167
4	648712	6040170
5	648715	6040175
6	648718	6040176

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Reddish grey brown very slightly gravelly fine sandy loam
Spit 2: 10-20	Reddening and mottled grey brown slightly gravelly fine sandy loam. Bedrock boulder in SW corner
Spit 3: 20-30	Compact, medium red brown gravelly loam with occasional bedrock cobble/boulder
Square 2	
Spit 1: 0-10	Medium grey brown mottled very slightly gravelly very fine sandy loam. Old (dead) tree roots [10cm diameter] throughout
Spit 2: 10-20	Above with reddish brown mottling and increasing fine gravel. Dead tree roots throughout.
Square 3	

Square	Stratigraphic Log
Spit 1: 0-10	Dark grey brown very fine sandy loam, plentiful bioturbation/rootlet cavities
Spit 2: 10-20	Above, developing reddish mottling
Spit 3: 20-30	Compacted, mottled red brown very fine sandy loam. Occasional fine pale gravel. Small bedrock boulders throughout spit in SW corner.
Spit 4: 30-40	Compacted, increasingly gravelly loam with small bedrock boulders throughout SW corner and appearing across base of spit.
Square 4	
Spit 1: 0-10	Grey brown/reddish grey brown very fine sandy loam
Spit 2: 10-20	Above, increasing compaction and developing strong reddish mottling. Occasional gravel fragment and bedrock pebble at base
Spit 3: 20-30	Strongly reddening, becoming red brown gravel – mottled loam. Occasional angular bedrock cobbles and small boulders
Spit 4: 30-40	Red brown gravelly loam with bedrock cobbles
Square 5	
Spit 1: 0-10	Reddish grey brown fine sandy loam
Spit 2: 10-20	Mottled reddish brown fine sandy loam; occasional gravel fleck at base
Spit 3: 20-30	Red brown fine sandy loam giving directly onto very gravelly level with occasional bedrock pebble and angular cobble.
Spit 4: 30-40	Very gravelly red brown loam
Square 6	
Spit 1: 0-10	Reddish grey brown very slightly gravelly fine sandy loam
Spit 2: 10-20	Above, increasing compaction and heavy reddish mottling; gravels increasing with depth
Spit 3: 20-30	Reddish brown gravelly loam
Spit 4: 30-40	Red brown gravelly loam, saprolitic pebbles appearing at base

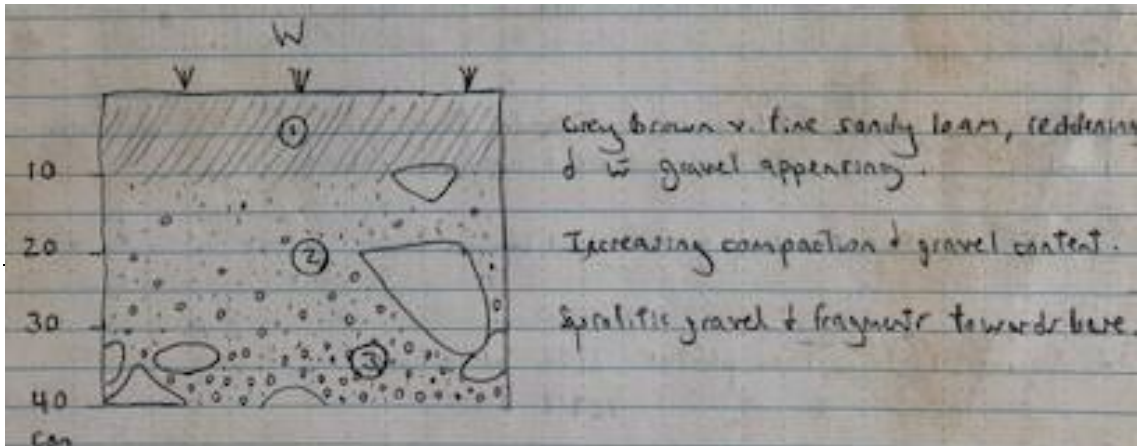


Looking 25° towards Transect 8



West section of Square 4

Schematic representation of soil profile Survey Unit 15 Transect 8 Square 4 West section:



pH levels:
1 = 6.5
2 = 6.5
3 = 5.5
(see above diagram for location of pH recordings)

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 1	Spit 1: 2	Spit 1: 1	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 1	Spit 2: 0	Spit 2: 3	Spit 2: 1	Spit 2: 3	Spit 2: 0
Spit 3: 1		Spit 3: 0	Spit 3: 0	Spit 3: 3	Spit 3: 0
		Spit 4: 0	Spit 4: 0	Spit 4: 0	Spit 4: 0

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
3	2	4	1	6	-

Discussion – Some 16 artefacts were retrieved from five of the six squares. The artefact distribution is relatively continuous and artefact density is low: 10/sq m.

Tantangara
Survey Unit: 15
Test Transect: 9
Description: The transect is orientated north/south and is situated on the upper slope of a shoulder feature of a very gentle gradient. The aspect is of this slope is to the east. Transect 9 is in open *Eucalypt* woodland. The area has frequent rabbit burrows and occasional bedrock outcrop exposures. A deep drainage line and spring head is situated immediately to south of the Test Transect.

Square locations:

Square #	Easting	Northing
1	648708	6040115
2	648709	6040116
3	648712	6040121
4	648712	6040125
5	648715	6040128
6	648718	6040132

Excavation details:

Square	Stratigraphic Log
Square 1	

Square	Stratigraphic Log
Spit 1: 0-10	Reddish brown fine sandy loam
Spit 2: 10-20	Mottled reddish brown fine sandy loam; frequent shale-like gravels and stone occurring at approximately 15cm and increasing in frequency with depth
Square 2	
Spit 1: 0-10	Brown fine sandy loam
Spit 2: 10-20	Brown fine sandy loam with trow boulders c.30cm diameter occurring and continues with depth. Boulders are grey with conglomerate/sandstone qualities
Spit 3: 20-30	Above, with increasing clay content and bedrock gravels.
Square 3	
Spit 1: 0-10	Brown fine sandy loam; large boulders occurring in NE corner at c.5cm depth and continue into next spit.
Spit 2: 10-20	reddish brown clayey loam with increasing clay content sith depth; giving onto a gravelly bedrock base
Square 4	
Spit 1: 0-10	Brown fine sandy loam; at c.5cm deep a boulder appears in SE corner of pit
Spit 2: 10-20	Very gradual boundary into reddish brown loam with increasing clay content and occasional stones and gravels
Spit 3: 20-30	Above, with increasing gravel and clay content. Change to a loam clay at base
Spit 4: 30-40	Above; becoming a red-brown loam gravelly clay
Spit 5: 40-50	Red-brown light clay with frequent bedrock gravels
Square 5	
Spit 1: 0-10	Brown fine sandy loam with occasional gravels
Spit 2: 10-20	Same as above
Spit 3: 20-30	Diffuse and mottled change into red-brown clayey loam with increasing clay content with depth; occasional small boulders and stones; rabbit burrows appear at this depth and continue which has disturbed stratigraphic integrity; burrows continue through pit
Spit 4: 30-40	Above, but largely disturbed by rabbit burrows
Spit 5: 40-50	Red-brown loamy clay with frequent shale gravels increasing in content with depth
Spit 6: 50-60	Above, but with increased gravel content
Spit 7: 60-70	Clear bedrock base of shale-type rock; rabbit burrows cease at this depth.
Square 6	
Spit 1: 0-10	Brown sandy loam; loose compaction
Spit 2: 10-20	Above, with occasional small boulders throughout
Spit 3: 20-30	Becoming a red-brown clayey loam with a small amount of gravels appearing
Spit 4: 30-40	Red-brown loamy clay; clay and gravels increasing with depth

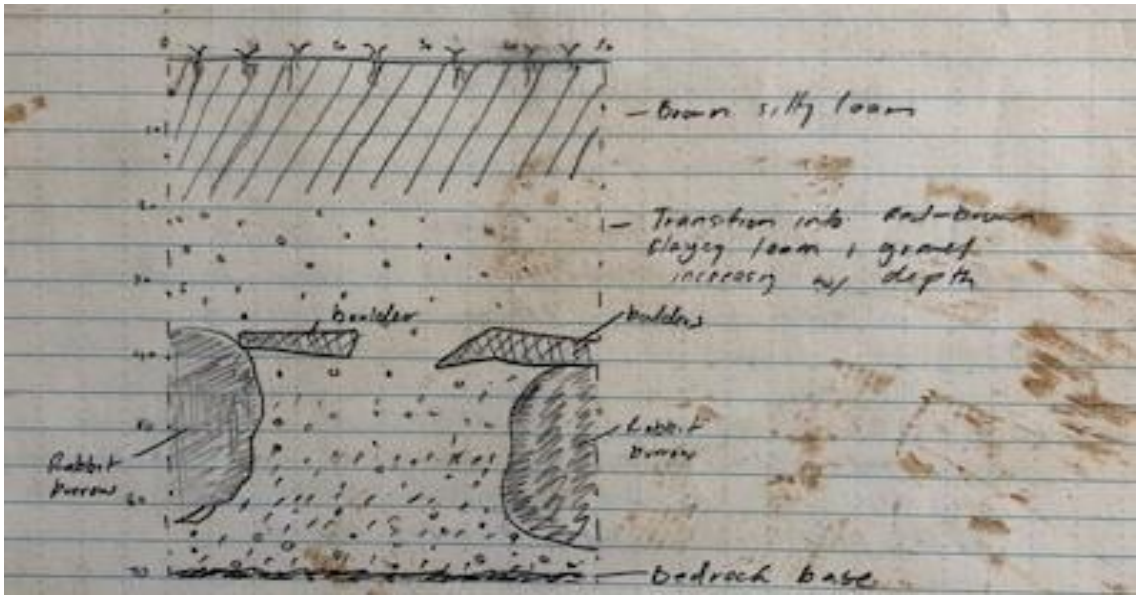


Looking 15° towards Transects 9



North section of Square 5

Schematic representation of soil profile Survey Unit 15 Transect 9 Square 6 North section:



Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 2	Spit 1: 1	Spit 1: 4	Spit 1: 2	Spit 1: 0	Spit 1: 0
Spit 2: 4	Spit 2: 7	Spit 2: 3	Spit 2: 4	Spit 2: 1	Spit 2: 4
			Spit 3: 1	Spit 3: 37	Spit 3: 0
			Spit 4: 0	Spit 4: 0	Spit 4: 0
			Spit 5: 0	Spit 5: 0	
				Spit 6: 0	
				Spit 7: 0	

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
6	8	7	7	38	4

Discussion – Some 70 artefacts were retrieved from all of the six squares. The artefact distribution is continuous and artefact density is low/moderate. A part chert knapping event contributes to the abundance of artefacts in Square 5.

Tantangara
Survey Unit: 15
Test Transect: 10
Description: The transect is orientated east-west and is situated on a shoulder of an the upper slope of a very gentle gradient. This landform is immediately to the east of the north/south trending ridge on the west side of Tantangara Dam. The aspect is of this slope is to the east. Transect 10 is an open area surrounded by woodland. Isolated small boulders outcrop towards the eastern end.

Square locations:

Square #	Easting	Northing
1	648801	6040277
2	648790	6040279
3	648786	6040283
4	648783	6040283
5	648774	6040287
6	648770	6040288

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Brown fine sandy loam; soft compaction with almost nil gravel content; a homogenous soil profile
Spit 2: 10-20	As above; no change
Spit 3: 20-25	Continues as above with bedrock gravels and small boulders becoming frequent with depth
Square 2	
Spit 1: 0-10	Brown fine sandy loam; soft compaction with almost nil gravel content; a homogenous soil profile
Spit 2: 10-20	As above; no change
Spit 3: 20-30	Above, small gravels appearing throughout soil profile
Spit 4: 30-40	Gradually becoming a brown loamy clay with frequent red/orange weathered bedrock layer.
Square 3	
Spit 1: 0-10	Brown fine sandy loam; soft compaction with almost nil gravel content; a homogenous soil profile
Spit 2: 10-20	As above; no change
Spit 3: 20-30	Gradual increase in clay content; becoming a clayey loam with weathered red/orange sandstone at base
Spit 4: 30-40	Increase in bedrock interface between clayey loam and the degraded bedrock.
Square 4	
Spit 1: 0-10	Brown fine sandy loam; soft compaction with almost nil gravel content; a homogenous soil profile
Spit 2: 10-20	As above; no change

Square	Stratigraphic Log
Spit 3: 20-30	Brown sandy loam with gradual boundary onto a loamy clay which transitions into the interface of the degraded sandstone red/orange layer
Square 5	
Spit 1: 0-10	Brown fine sandy loam; soft compaction with almost nil gravel content; a homogenous soil profile
Spit 2: 10-20	As above; no change
Spit 3: 20-30	Brown sandy loam with gradual boundary onto a loamy clay which transitions into the interface of the degraded sandstone red/orange layer
Square 6	
Spit 1: 0-10	Brown fine sandy loam; soft compaction with almost nil gravel content; a homogenous soil profile
Spit 2: 10-20	As above; no change
Spit 3: 20-30	Brown sandy loam with gradual boundary onto a loamy clay which transitions into the interface of the degraded sandstone red/orange layer

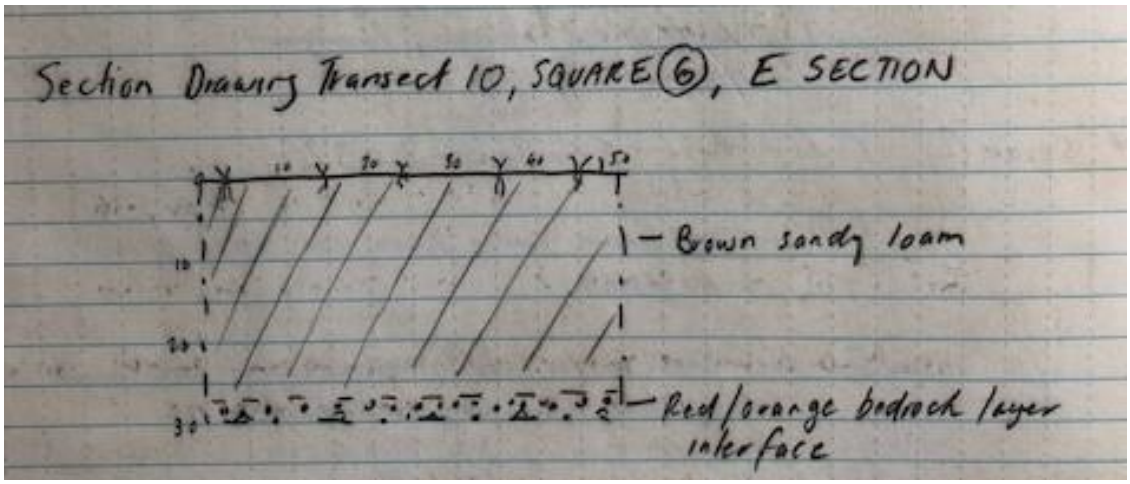


Looking 90° towards Transect 10



South section of Square 1

Schematic representation of soil profile Survey Unit 15 Transect 10 Square 6 East section:



Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 1	Spit 1: 0

Spit 2: 1	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 1
Spit 3: 0	Spit 3: 5	Spit 3: 0	Spit 3: 1	Spit 3: 2	Spit 3: 6
	Spit 4: 0	Spit 4: 0			

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
1	5	-	1	3	7

Discussion – Some 17 artefacts were retrieved from five of six squares indicating a relatively continuous artefact distribution. Artefact density is low: 11/sq m.

Tantangara
Survey Unit: 15
Test Transect: 11
Description: Transect 11 is offset 10 metres north of Transect 10 on the same shoulder landform.

Square locations:

Square #	Easting	Northing
1	648799	6040294
2	648793	6040295
3	648789	6040295
4	648784	6040297
5	648778	6040298
6	648774	6040301

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Brown-red mottled sandy loam; soft compaction
Spit 2: 10-20	As above; but with increasing clay content
Spit 3: 20-30	At approximately 35cm a large bedrock boulder protrudes from eastern half of pit – increasing clay content
Spit 4: 30-40	Loamy clay dark red/brown becoming almost true clay at base
Square 2	
Spit 1: 0-10	Brown sandy loam; loose compaction and uniform
Spit 2: 10-20	As above
Spit 3: 20-25	At approximately 25cm large boulders representing degrading bedrock is encountered; forming impenetrable layer
Square 3	
Spit 1: 0-10	Brown sandy loam; loose compaction; slightly mottled
Spit 2: 10-20	As above
Spit 3: 20-30	Becoming a brown/red-brown mottled clayey loam; increasing clay content with depth
Spit 4: 30-40	Loamy clay dark red/brown becoming almost true clay at base
Square 4	
Spit 1: 0-10	Brown sandy loam; loose compaction; slightly mottled
Spit 2: 10-20	As above
Spit 3: 20-30	As above

Square	Stratigraphic Log
Spit 4: 30-40	Becomes a layer of bedrock at base
Square 5	
Spit 1: 0-10	Brown sandy loam; loose compaction; slightly mottled
Spit 2: 10-20	As above
Spit 3: 20-30	Gradual transition onto a red-brown clayey loam; some small bedrock boulders and stones appear
Spit 4: 30-40	As above with increasing gravel and clay content coming onto a degraded bedrock base
Square 6	
Spit 1: 0-10	Brown sandy loam; loose compaction; slightly mottled
Spit 2: 10-20	As above
Spit 3: 20-30	Gradual transition onto a red-brown clayey loam; some small bedrock boulders and stones appear
Spit 4: 30-40	Stark increase in bedrock stones and boulders making further excavation impenetrable.

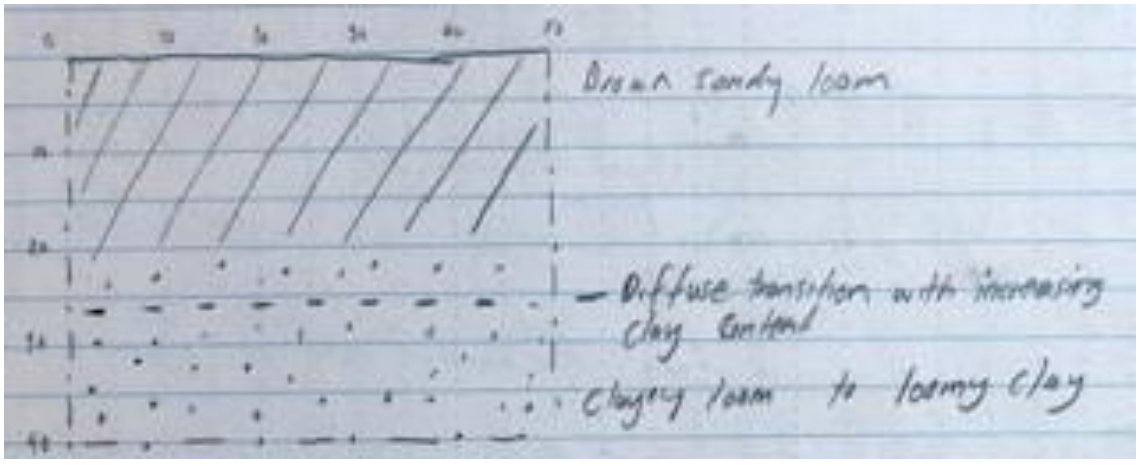


Looking 270° towards Transects 10 and 11



East section of Square 1

Schematic representation of soil profile Survey Unit 15 Transect 11 Square 3 North section:



Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 2	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0

Spit 3: 0	Spit 3: 0	Spit 3: 4	Spit 3: 6	Spit 3: 2	Spit 3: 7
Spit 4: 1		Spit 4: 10	Spit 4: 13	Spit 4: 2	Spit 4: 0

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
1	2	14	19	4	7

Discussion – Some 47 artefacts were retrieved from all of the six squares indicating a continuous artefact distribution. Artefact density is low/moderate: 31/sq m.

Tantangara
Survey Unit: 15
Test Transect: 12
Description: The transect is oriented 85/265° and is situated on the same landform as Transects 10 & 11. Transect 12 is lending further west to the base of a steep slope beneath the ridge. Squares abutting the steep slope are better protected than those extending east on the shoulder/crest. The aspect is easterly.

Square locations:

Square #	Easting	Northing
1	648775	6040283
2	648773	6040280
3	648767	6040281
4	648763	6040281
5	648757	6040281
6	648750	6040281

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Brown sandy loam; loose compaction and uniform
Spit 2: 10-20	As above
Spit 3: 20-30	Gradual change into a light brown A2 soil horizon with small gravel s less than 1cm. Bedrock boulders/stones appear at this level
Spit 4: 30-40	Increase in gravel content and bedrock; gradual transition onto red-brown degraded bedrock interface layer.
Square 2	
Spit 1: 0-10	Brown sandy loam; uniform colour and texture
Spit 2: 10-20	Continues as above
Spit 3: 20-30	Continues as above
Spit 4: 30-40	Gradual transition into a light brown A2 horizon soil
Spit 5: 40-50	Increase in gravel content and bedrock; gradual transition onto degraded bedrock layer
Square 3	
Spit 1: 0-10	Brown sandy loam; uniform colour and texture
Spit 2: 10-20	Continues as above
Spit 3: 20-30	Continues as above
Spit 4: 30-40	Gradual transition into a light brown A2 horizon soil

Square	Stratigraphic Log
Spit 5: 40-50	Increase in gravel content and bedrock; gradual transition onto degraded bedrock layer. Gradually deeper soils encountered upslope because of soil aggradation from the steep slope next to the ridge
Square 4	
Spit 1: 0-10	Brown sandy loam; uniform colour and texture
Spit 2: 10-20	Continues as above
Spit 3: 20-30	Continues as above
Spit 4: 30-40	Gradual transition into a light brown A2 horizon soil
Spit 5: 40-50	Increase in gravel content and bedrock; gradual transition onto degraded bedrock layer. Gradually deeper soils encountered upslope because of soil aggradation from the steep slope next to the ridge
Square 5	
Spit 1: 0-10	Brown sandy loam; uniform colour and texture
Spit 2: 10-20	Continues as above; large tree root lies horizontally across eastern half of pit
Spit 3: 20-30	Continues as above
Spit 4: 30-40	Gradual transition into a light brown A2 horizon soil
Spit 5: 40-50	Increase in gravel content and bedrock; gradual transition onto degraded bedrock layer. Gradually deeper soils encountered upslope because of soil aggradation from the steep slope next to the ridge
Square 6	
Spit 1: 0-10	Brown sandy loam; uniform colour and texture
Spit 2: 10-20	Continues as above; large tree root lies horizontally across eastern half of pit
Spit 3: 20-30	Continues as above
Spit 4: 30-40	Gradual transition into a light brown A2 horizon soil
Spit 5: 40-50	Continues as above with no changes.

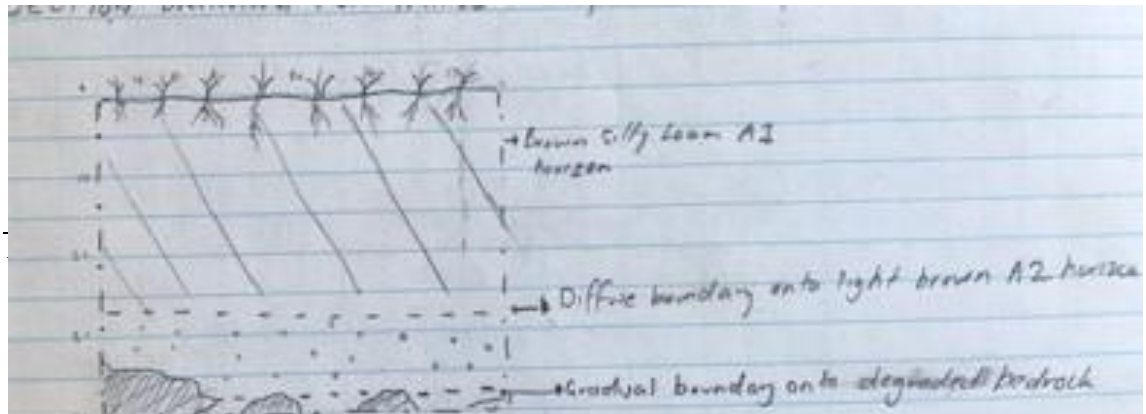


Looking 265° towards Transect 12



North section of Square 6

Schematic representation of soil profile Survey Unit 15 Transect 12 Square 1 East section:



Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0
Spit 3: 0	Spit 3: 2	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0
Spit 4: 1	Spit 4: 0	Spit 4: 0	Spit 4: 0	Spit 4: 0	Spit 4: 0
Spit 5: 0	Spit 5: 0	Spit 5: 0	Spit 5: 0	Spit 5: 0	Spit 5: 0

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
1	2	-	-	-	-

Discussion – Some three artefacts were retrieved from two of six squares indicating a patchy artefact distribution and very low artefact density: 2/sq m.

Tantangara
Survey Unit: 15
Test Transect: 13
Description: The transect is oriented 100/280° and is situated on the same landform as Transects 10, 11 & 12. Transect 13 is 10 metres north of transect 11 on a parallel axis. The transect is lending further west to the base of a steep slope at the base of a ridgeline. The aspect is easterly.

Square locations:

Square #	Easting	Northing
1	648782	6040310
2	648777	6040313
3	648775	6040315
4	648768	6040316
5	648762	6040320
6	648756	6040327

Excavation details:

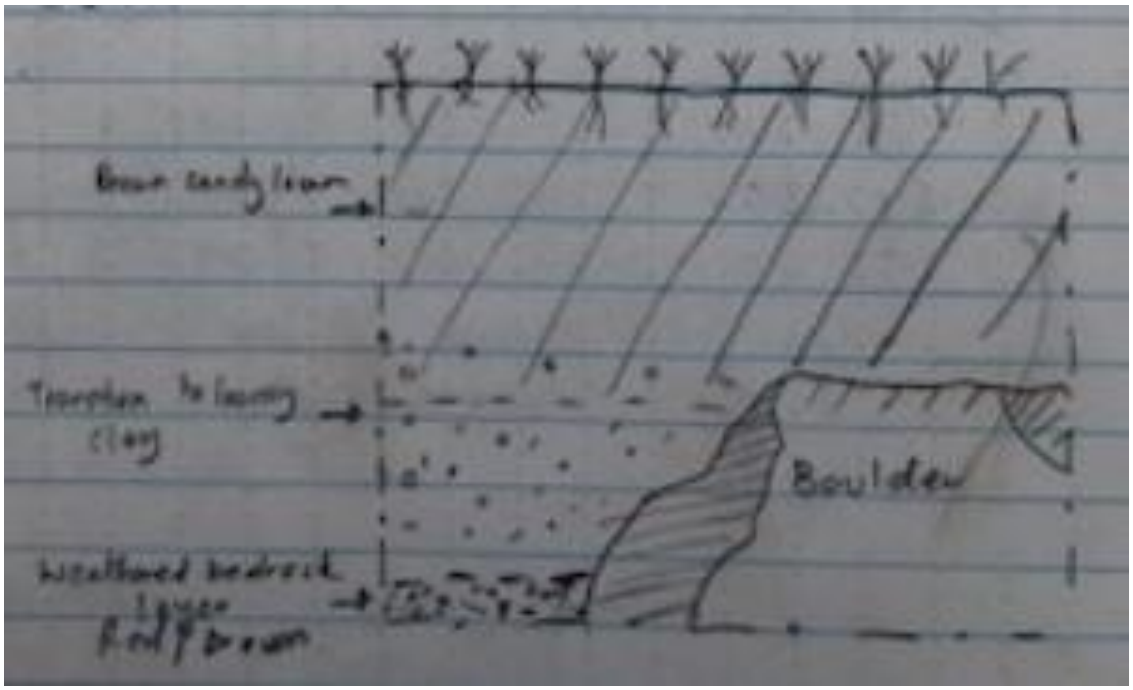
Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Brown silty loam; soft compaction; frequent grass roots; bioturbation from insects; homogenous soil
Spit 2: 10-20	As above; decreasing grass roots

Square	Stratigraphic Log
Spit 3: 20-30	Large boulders [greater than 30cm diameter] occur at around 25cm depth and take over half of the pit and extend into next spit
Spit 4: 30-40	In areas without boulders soil gradually transitions into a red-brown loamy clay and then into a degraded bedrock base
Square 2	
Spit 1: 0-10	Brown silty loam; soft compaction; frequent grass roots; bioturbation from insects; homogenous soil
Spit 2: 10-20	Large boulders [greater than 30cm diameter] occur at around 10cm depth
Spit 3: 20-30	As above; boulders continue
Spit 4: 30-40	In areas without boulders soil gradually transitions into a red-brown loamy clay and then into a degraded bedrock base
Square 3	
Spit 1: 0-10	Brown loamy sand; boulder c.30cm diameter identified in NE corner of pit
Spit 2: 10-20	As above; becoming a degraded bedrock layer at 15cm deep and continues to base
Square 4	
Spit 1: 0-10	Brown loamy sand
Spit 2: 10-20	As above
Spit 3: 20-30	Degraded bedrock and small boulders occur at approximately 25cm deep and continue to base
Square 5	
Spit 1: 0-10	Brown silty loam; occasional degraded bedrock stone inclusions
Spit 2: 10-20	As above
Spit 3: 20-30	A gradual transition at 25cm deep into red-brown loamy clay with gravel inclusions; transitioning to a degraded bedrock interface at base
Square 6	
Spit 1: 0-10	Brown silty loam; occasional degraded bedrock stone inclusions
Spit 2: 10-20	Continues as above
Spit 3: 20-30	A gradual transition at 25cm deep into red-brown loamy clay with gravel inclusions; transitioning to a degraded bedrock interface at base


Looking 280° towards Transect 13


North section of Square 1

Schematic representation of soil profile Survey Unit 15 Transect 13 Square 1 North section.



Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 1	Spit 1: 0	Spit 1: 0	Spit 1: 1	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 0	Spit 2: 1	Spit 2: 0	Spit 2: 0	Spit 2: 0
Spit 3: 0	Spit 3: 2	Spit 3: 0		Spit 3: 9	Spit 3: 0
Spit 4: 0	Spit 4: 0				

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
1	2	1	1	9	-

Discussion – Some 14 artefacts were retrieved from five of six squares indicating a relatively continuous artefact distribution. Artefact density is low: 9.3/sq m.

Tantangara
Survey Unit: 14
Test Transect: 14
Description: The transect is oriented 267/77° and is situated on an east facing shoulder off a broad ridge crest (the north/south ridge west of the dam). Vegetation is grassland with regenerating scatters of Eucalypts. Outcrops of pyroclastic rock occur in the landform. Square 1 approximately 80 metres west and upslope from a spring.

Square locations:

Square #	Easting	Northing
1	648754	6040536
2	648749	6040535
3	648742	6040536
4	648739	6040535
5	648733	6040535
6	648728	6040536

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Mottled brown very fine sandy loam. Plentiful grass rootlets
Spit 2: 10-20	Above becoming compacted and yellowing with fine yellow saprolite gravel
Spit 3: 20-30	Compacted gravelly yellowing grey brown very fine sandy loam becoming very gravelly; appearance of cobbles and boulders
Spit 4: 30-35	Increasing saprolitic cobbles and boulders across base
Square 2	
Spit 1: 0-10	Very fine sandy medium grey brown loam
Spit 2: 10-20	Yellowing very fine sandy loam and gaining moderate compaction with fine yellow gravels appearing at 12cm.
Spit 3: 20-30	Yellowish grey brown fine gravelly loam giving onto saprolitic boulders and gravel
Square 3	
Spit 1: 0-10	Grey brown very fine sandy loam
Spit 2: 10-20	Above; gaining compaction; some fine gravel content appearing at base
Spit 3: 20-30	Grey brown slightly gravelly loam giving onto saprolitic cobbles and boulders across base
Square 4	
Spit 1: 0-10	Lightly compacted grey brown very fine sandy loam; very occasional fine saprolite gravel appearing at base
Spit 2: 10-20	Continuing as above, yellowing with depth
Spit 3: 20-30	Yellowing grey brown very slightly gravelly fine sandy loam developing strong orange/yellow gravel mottling at base
Spit 4: 30-40	Soil/gravel mix becoming saprolite gravel/rock fragments at base
Square 5	
Spit 1: 0-10	Medium grey brown very fine sandy loam
Spit 2: 10-20	Yellowing and gaining compaction. Strong bioturbation mottling

Square	Stratigraphic Log
Spit 3: 20-30	Mottled yellow brown very fine sandy loam; some very fine orange/yellow saprolite gravel at base. Bedrock boulders appearing at points
Spit 4: 30-40	Compacted slightly gravelly yellowish grey brown loam with common bedrock boulders.
Square 6	
Spit 1: 0-10	Bioturbation mottled grey brown very fine sandy loam
Spit 2: 10-20	Above gaining compaction and developing a reddish yellow hue with depth
Spit 3: 20-30	Reddish yellow brown loam. Some fine gravel, small bedrock boulder appearing at 23cm in west wall.
Spit 4: 30-40	Above; increasing gravel content, small bedrock boulders occasional across base

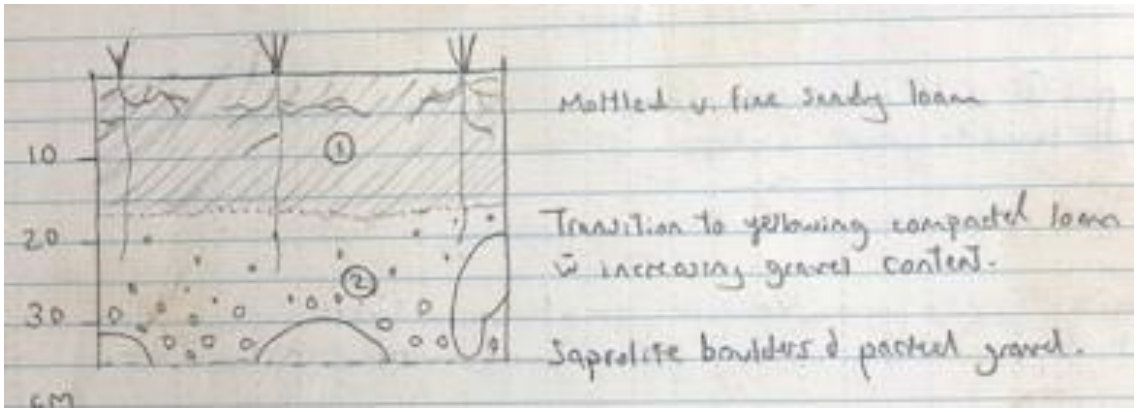


Looking 255° along Transect 14



West section of Square 1

Schematic representation of soil profile Survey Unit 14 Transect 14 Square 1 West section:



pH levels:
1 = 5/5.5
2 = 5.5/6
(see above diagram for location of pH recordings)

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6

Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 1	Spit 1: 0
Spit 2: 0	Spit 2: 0	Spit 2: 12	Spit 2: 0	Spit 2: 0	Spit 2: 0
Spit 3: 10	Spit 3: 0	Spit 3: 0	Spit 3: 9	Spit 3: 6	Spit 3: 0
Spit 4: 1			Spit 4: 3	Spit 4: 0	Spit 4: 0

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
11	-	12	12	7	-

Discussion – Some 42 artefacts were retrieved from four of six squares indicating a relatively continuous artefact distribution. Artefact density is low/moderate: 28/sq m.

Tantangara
Survey Unit: 14
Test Transect: 15
Description: Transect 15 is offset 10 metres south of Transect 14.

Square locations:

Square #	Easting	Northing
1	648746	6040525
2	648741	6040524
3	648739	6040523
4	648732	6040523
5	648727	6040523
6	648724	6040521

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Grey brown very fine sandy loam; yellowing mottling at base
Spit 2: 10-20	Yellowing mottled grey brown very fine sandy loam. Increased compaction
Spit 3: 20-30	Above with fine gravel appearing, some bedrock cobbles and small boulders
Spit 4: 30-40	Yellow brown gravelly loam giving onto saprolite gravel and boulders
Square 2	
Spit 1: 0-10	Grey brown very fine sandy loam, dense grass rootlets
Spit 2: 10-20	Above, developing yellowish mottling and gaining compaction
Spit 3: 20-30	Compacted mottled yellowish grey brown loam with very fine gravel content appearing at base. Bedrock boulder appearing at NE corner
Spit 4: 30-40	Compacted yellowing grey brown fine gravelly loam with bedrock boulders and cobbles common at base
Square 3	
Spit 1: 0-10	Grey brown very fine sandy loam
Spit 2: 10-20	Above becoming compact with yellowing mottling, some gravel at base. Small bedrock boulder in SE corner

Square	Stratigraphic Log
Spit 3: 20-30	Yellow mottled gravelly grey brown loam giving onto saprolite gravel and boulders across base
Square 4	
Spit 1: 0-10	Medium grey brown very fine sandy loam
Spit 2: 10-20	Above, gaining compaction and developing yellowish mottling. Bedrock boulder appearing in centre of pit
Spit 3: 20-30	Yellowish brown very fine sandy loam; compact with fine yellow/orange gravel. Boulder in centre of pit
Spit 4: 30-40	Fine gravelly yellow brown loam with bedrock boulders and cobbles. Yellowish red slightly clayey saprolitic deposit appearing at base
Square 5	
Spit 1: 0-10	Grey brown very fine sandy loam with reddish yellow mottling at base
Spit 2: 10-20	Above, grading to reddish yellow brown mottled fine gravelly loam
Spit 3: 20-30	Above giving onto saprolitic gravel/cobble level
Square 6	
Spit 1: 0-10	Grey brown mottled very fine sandy loam
Spit 2: 10-20	Above gaining compaction and yellowing with depth. Occasional small angular gravel fragments at base
Spit 3: 20-30	Slightly gravelly to gravelly yellow brown loam. Saprolite pebbles and cobbles appearing throughout
Spit 4: 30-40	Yellow brown to reddish brown saprolitic gravel/bedrock rubble.

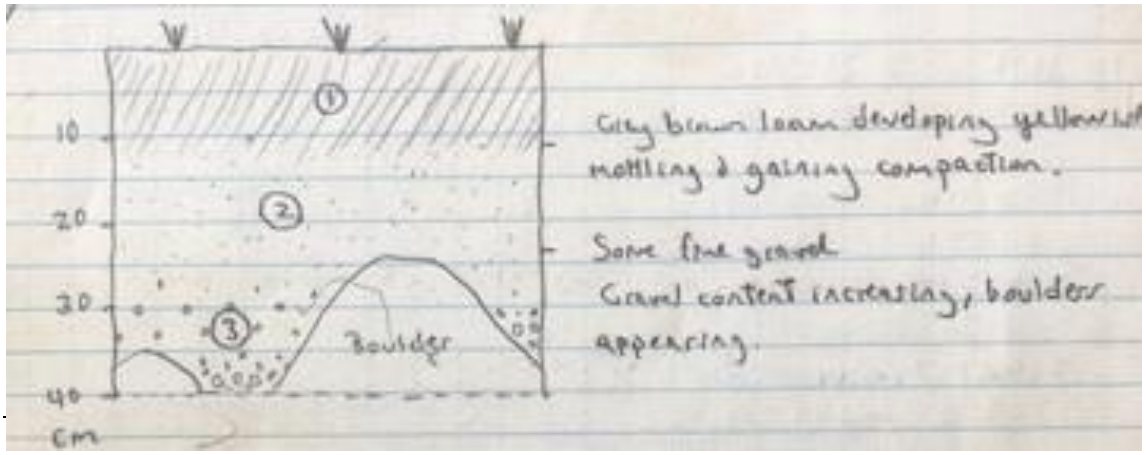


Looking 250° along Transect 15



South section of Square 1

Schematic representation of soil profile Survey Unit 14 Transect 15 Square 2 North section:



pH levels:
1 = 5.5/6
2 = 6
3 = 6
(see above diagram for location of pH recordings)

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 3	Spit 1: 0
Spit 2: 0	Spit 2: 0	Spit 2: 1	Spit 2: 0	Spit 2: 7	Spit 2: 0
Spit 3: 1	Spit 3: 9	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 11
Spit 4: 0	Spit 4: 2		Spit 4: 1		Spit 4: 1

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
1	11	1	1	10	12

Discussion – Some 36 artefacts were retrieved from all of six squares indicating a continuous artefact distribution. Artefact density is low/moderate: 24/sq m. The results are comparable to the neighbouring Test Transect 14.

Tantangara
Survey Unit: 14
Test Transect: 16
Description: This transect is oriented 280/100° and is situated on a ridge top crest with a northerly to open aspect. Vegetation is grassland with regenerating Eucalypts as well as scattered stands of mature Eucalypts. Some bedrock exposures occur throughout the area.

Square locations:

Square #	Easting	Northing
1	648613	6040537
2	648607	6040538
3	648603	6040541
4	648597	6040543
5	648592	6040544
6	648587	6040546

Excavation details:

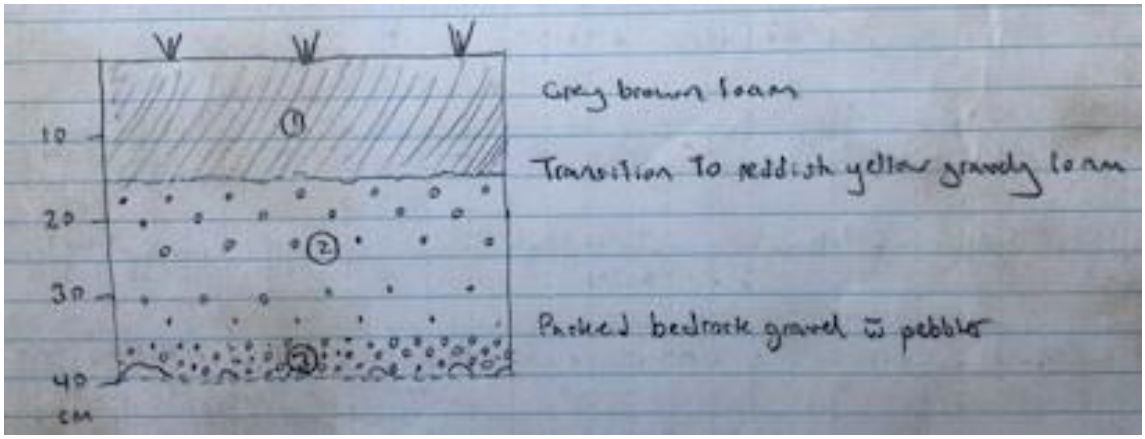
Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Mottled grey brown very fine sandy loam, occasional charcoal fragment. Fine reddish angular gravel at base

Square	Stratigraphic Log
Spit 2: 10-20	Compacted slightly gravelly grey brown loam developing strong reddish yellow mottling and giving onto reddish yellow fine gravelly loam
Spit 3: 20-30	Compacted yellow gravelly loam. Tree roots penetrating
Spit 4: 30-40	Above with increased more dense gravel content, becoming bedrock gravel with pebbles across base.
Square 2	
Spit 1: 0-10	Grey brown very fine sandy loam, developing reddish yellow mottling
Spit 2: 10-20	Above with reddish yellow hue developing and fine gravel appearing
Spit 3: 20-30	Medium dark gravelly loam giving abruptly onto broken bedrock.
Square 3	
Spit 1: 0-10	Medium dark grey brown mottled very fine sandy loam, some reddish yellow mottling at base. Bedrock boulder in NE corner through spit
Spit 2: 10-20	Reddish yellow brown gravelly loam giving onto packed bedrock gravel and bedrock fragments. Bedrock boulder in NE through to base
Square 4	
Spit 1: 0-10	Medium dark grey brown mottled very fine sandy loam [occasional gravel] becoming heavily mottled with increased gravel at base
Spit 2: 10-20	Red-yellow mottled gravelly loam giving onto saprolite pebbles and packed gravel
Square 5	
Spit 1: 0-10	Medium dark grey brown very fine sandy loam, heavily mottled; some fine reddish yellow gravel flecks at base
Spit 2: 10-20	Above, becoming compacted and yellowing
Spit 3: 20-30	Heavily mottled grey brown to reddish yellow fine gravelly loam
Spit 4: 30-40	Above, giving onto reddish yellow very gravelly subsoil. Bedrock gravels commonly 1cm diameter or greater.
Square 6	
Spit 1: 0-10	Heavily mottled medium dark grey brown very fine sandy loam. Reddish yellow mottling at base
Spit 2: 10-20	Heavily mottled grey brown to reddish yellow brown loam, some fine gravel flecking
Spit 3: 20-30	Above, progressing to reddish yellow brown gravelly subsoil with packed bedrock gravels and pebbles at base.


Looking 100° along Transect 16


East section of Square 1

Schematic representation of soil profile Survey Unit 14 Transect 16 Square 1 East section:



pH levels:
1 = 6.5
2 = 5.5
3 = 4.5/5
(see above diagram for location of pH recordings)

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0
Spit 3: 0	Spit 3: 1			Spit 3: 0	Spit 3: 0
Spit 4: 0				Spit 4: 0	

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
-	1	-	-	-	-

Discussion – One artefact was retrieved indicting a very patchy and very low density artefact distribution.

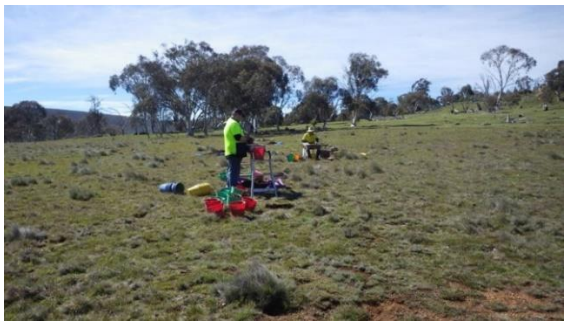
Tantangara
Survey Unit: 14
Test Transect: 17
Description: This transect is oriented SE-NW and is situated on a gently sloping crest [northern end of ridgeline] with a northerly to open aspect. Vegetation is grassland.

Square locations:

Square #	Easting	Northing
1	648549	6040610
2	648545	6040613
3	648542	6040617
4	648540	6040622
5	648536	6040624
6	648533	6040629

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Dark brown loam, some fine gravel at base
Spit 2: 10-20	Little discernible colour change but increased gravel content gives onto packed bedrock gravel and bedrock
Square 2	
Spit 1: 0-10	Dark brown very slightly gravelly loam
Spit 2: 10-20	Little discernible colour change but increased gravel content gives onto broken bedrock gravel and bedrock
Square 3	
Spit 1: 0-10	Dark brown loam, some fine gravel at base
Spit 2: 10-20	Little discernible colour change but increased gravel content gives onto packed bedrock gravel and bedrock
Square 4	
Spit 1: 0-10	Dark brown loam, some fine gravel at base
Spit 2: 10-20	Little discernible colour change but increased gravel content gives onto packed bedrock gravel/pebbles and bedrock
Square 5	
Spit 1: 0-10	Dark brown loam, some fine gravels
Spit 2: 10-20	Above, developing heavy reddish yellow-brown mottling and giving onto reddish yellow-brown gravelly subsoil for approximately 3cm, overlying bedrock
Square 6	
Spit 1: 0-10	Dark brown fine gravelly loam, gravel content increasing with depth
Spit 2: 10-20	No discernible colour change, notably increased bedrock gravel content in last 5cm. Gives onto broken bedrock/bedrock.

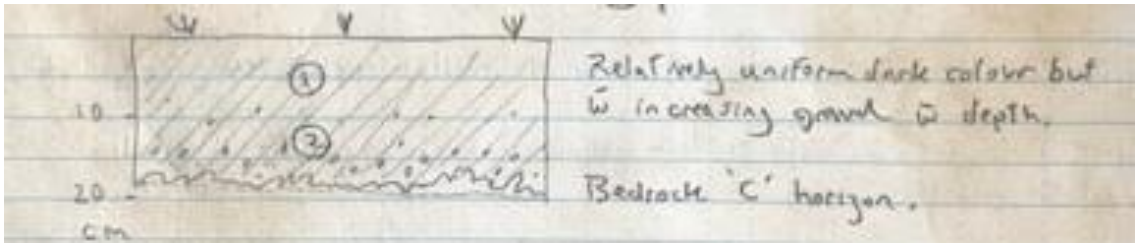


Looking 310° along Transect 17



South section of Square 2

Schematic representation of soil profile Survey Unit 14 Transect 17 Square 1 West section:



pH levels:
1 = 5.5
2 = 5.5
(see above diagram for location of pH recordings)

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0

Visual representation of artefact retrieval:

Sq 1
-

Sq 2
-

Sq 3
-

Sq 4
-

Sq 5
-

Sq 6
-

Discussion – No artefacts were retrieved from this Test Transect.

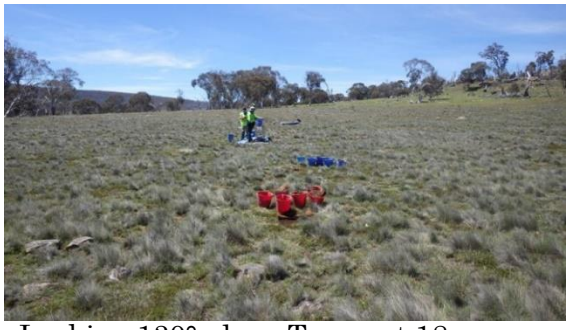
Tantangara
Survey Unit: 14
Test Transect: 18
Description: This transect is oriented SE-NW and is a downslope extension of transect 17. Transect 18 is situated on a gently sloping ridge top crest, at the northern end of the ridge. The transect is located grassland at the edge of a shrub zone. Low bedrock outcropping common in area. Uniform soil/stratigraphy for this transect.

Square locations:

Square #	Easting	Northing
1	648491	6040666
2	648488	6040669
3	648485	6040673
4	648482	6040677
5	648478	6040681
6	648476	6040686

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Dark brown gravelly loam overlying broken bedrock/bedrock.
Square 2	
Spit 1: 0-10	Dark brown gravelly loam overlying broken bedrock/bedrock.
Square 3	
Spit 1: 0-10	Dark brown gravelly loam overlying broken bedrock/bedrock.
Square 4	
Spit 1: 0-10	Dark brown gravelly loam overlying broken bedrock/bedrock.
Square 5	
Spit 1: 0-10	Dark brown gravelly loam overlying broken bedrock/bedrock.
Square 6	
Spit 1: 0-10	Dark brown gravelly loam overlying broken bedrock/bedrock.

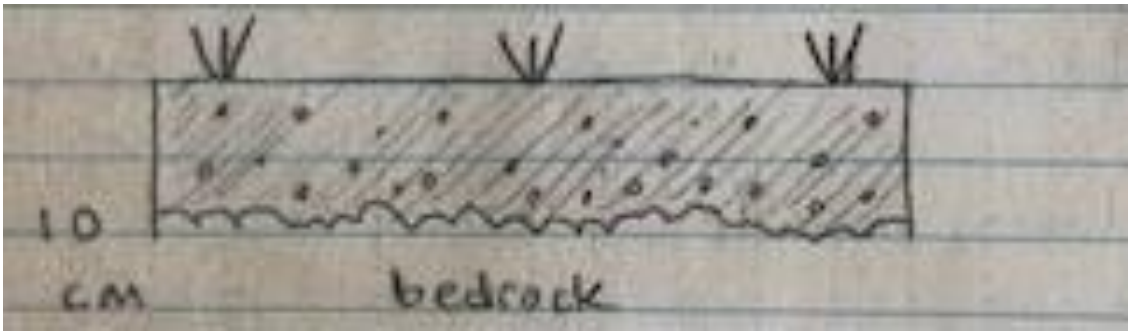


Looking 130° along Transect 18



South section of Square 1

Schematic representation of soil profile Survey Unit 14 Transect 18 Square 1 South section:



pH levels:
Spit 1 = 5.5
(see above diagram for location of pH recordings)

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
-	-	-	-	-	-

Discussion – No artefacts were retrieved from this Test Transect.

Tantangara
Survey Unit: 14
Test Transect: 19
Description: This transect is oriented SE-NW and is situated in a minor depression on the crest of a ridgeline. Transect area is grassland on the edge of Eucalypt woodland.

Square locations:

Square #	Easting	Northing
1	648599	6040669
2	648597	6040673
3	648594	6040677
4	648591	6040682
5	648588	6040686
6	648584	6040691

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Dark grey brown very fine sandy loam. Plentiful bioturbation/rootlet pockets and associated mottling.
Spit 2: 10-20	Above, becoming compacted; no true colour change
Spit 3: 20-30	Above, developing yellow hue, fine orange gravel flecks at base
Spit 4: 30-40	Heavily mottled and gravelly yellow brown loam subsoil; very gravelly at base, occasional bedrock pebble
Square 2	
Spit 1: 0-10	Medium dark grey brown very fine sandy loam
Spit 2: 10-20	Above, becoming compacted and developing yellow mottling and yellow brown hue. Fine yellow/orange gravel flecking at base
Spit 3: 20-30	Mottled yellow brown loamy subsoil, becoming uniform yellow brown towards base, small bedrock boulder in NW corner
Spit 4: 30-40	Yellow brown loamy sub soil, fine angular gravel appearing towards base. Boulder continues through spit in NW corner
Spit 5: 40-50	Gravelly yellow brown subsoil becoming dense, compact bedrock gravel at base. Occasional large bedrock cobble.
Square 3	
Spit 1: 0-10	Dark grey brown very fine sandy loam. Plentiful bioturbation/rootlet pockets and associated mottling.
Spit 2: 10-20	Above, becoming compacted; no true colour change
Spit 3: 20-30	Above, developing yellow hue, fine orange gravel flecks at base
Spit 4: 30-40	Heavily mottled and gravelly yellow brown loam subsoil; very gravelly at base, occasional bedrock pebble
Square 4	
Spit 1: 0-10	Dark grey brown very fine sandy loam. Plentiful bioturbation/rootlet pockets and associated mottling.
Spit 2: 10-20	Above, becoming compacted; no true colour change
Spit 3: 20-30	Above, developing yellow hue, fine orange gravel flecks at base

Square	Stratigraphic Log
Spit 4: 30-40	Heavily mottled and gravelly yellow brown loam subsoil; very gravelly at base, occasional bedrock pebble
Square 5	
Spit 1: 0-10	Dark grey brown very fine sandy loam. Plentiful bioturbation/rootlet pockets and associated mottling.
Spit 2: 10-20	Above, becoming compacted; no true colour change
Spit 3: 20-30	Above, developing yellow hue, fine orange gravel flecks at base
Spit 4: 30-40	Heavily mottled and gravelly yellow brown loam subsoil; very gravelly at base, occasional bedrock pebble
Square 6	
Spit 1: 0-10	Dark grey brown very fine sandy loam. Plentiful bioturbation/rootlet pockets and associated mottling.
Spit 2: 10-20	Above, becoming compacted; no true colour change
Spit 3: 20-30	Above, developing yellow hue, fine orange gravel flecks at base
Spit 4: 30-40	Heavily mottled and gravelly yellow brown loam subsoil; very gravelly at base, occasional bedrock pebble

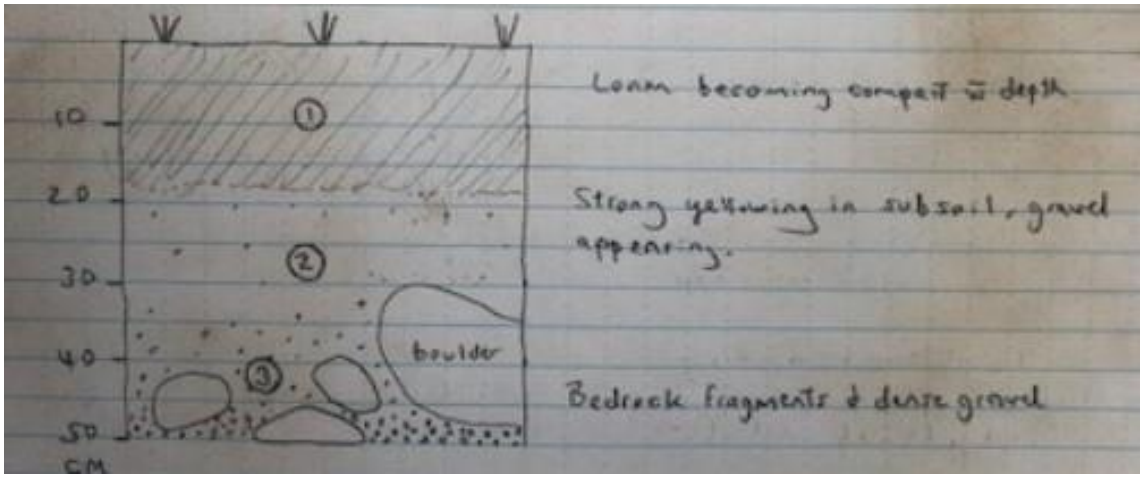


Looking 310° along Transect 19



Northwest section of Square 2

Schematic representation of soil profile Survey Unit 14 Transect 19 Square 2 Northwest section:



pH levels:
1 = 6.5/6
2 = 5.5
3 = 5.5

(see above diagram for location of pH recordings)

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 1	Spit 2: 0
Spit 3: 0	Spit 3: 2	Spit 3: 0	Spit 3: 0	Spit 3: 3	Spit 3: 0
Spit 4: 0	Spit 4: 1	Spit 4: 0	Spit 4: 0	Spit 4: 0	Spit 4: 0
	Spit 5: 0				

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
-	3	-	-	4	-

Discussion – Seven artefacts were retrieved from two of six squares indicating a very patchy and very low density artefact distribution: 4.6/sq m.

Tantangara
Survey Unit: 14
Test Transect: 20
Description: This transect is oriented SE-NW and is offset 10 metres north of transect 19.

Square locations:

Square #	Easting	Northing
1	648606	6040677
2	648603	6040683
3	648600	6040686
4	648596	6040690
5	648591	6040696
6	648588	6040699

Excavation details:

Square	Stratigraphic Log
Square 1	
Spit 1: 0-10	Grey brown very fine sandy loam, some yellow brown mottling at base
Spit 2: 10-20	Yellow brown moderately compacted very fine sandy loam. Bedrock boulder throughout at northern end
Spit 3: 20-30	Above gives onto broken bedrock/bedrock base.
Square 2	
Spit 1: 0-10	Medium grey brown mottled very fine sandy loam
Spit 2: 10-20	Above gaining moderate compaction and with yellow brown mottling at base
Spit 3: 20-30	Mottled yellow brown very fine sandy loam subsoil, very occasional five gravel fleck
Spit 4: 30-40	Moderately compacted very fine sandy yellow brown loam subsoil with occasional pale gravel fleck.

Square	Stratigraphic Log
Square 3	
Spit 1: 0-10	Medium grey brown mottled very fine sandy loam
Spit 2: 10-20	Above gaining moderate compaction and with yellow brown mottling at base
Spit 3: 20-30	Mottled yellow brown very fine sandy loam subsoil, very occasional five gravel fleck
Spit 4: 30-40	Moderately compacted very fine sandy yellow brown loam subsoil with occasional pale gravel fleck and bedrock boulder exposed at base.
Square 4	
Spit 1: 0-10	Medium grey brown mottled very fine sandy loam
Spit 2: 10-20	Mottled yellow brown very fine sandy loam subsoil, very occasional five gravel fleck
Spit 3: 20-30	Moderately compacted very fine sandy yellow brown loam subsoil with occasional pale gravel fleck and bedrock boulder exposed at base, SW corner.
Square 5	
Spit 1: 0-10	Medium grey brown mottled very fine sandy loam
Spit 2: 10-20	Mottled yellow brown very fine sandy loam subsoil, very occasional five gravel fleck
Spit 3: 20-30	Moderately compacted very fine sandy yellow brown loam subsoil with occasional pale gravel fleck.
Square 6	
Spit 1: 0-10	Medium grey brown mottled very fine sandy loam, bedrock boulders appearing at 5cm throughout northern half of pit
Spit 2: 10-20	Mottled yellow brown very fine sandy loam subsoil, very occasional five gravel fleck, bedrock boulders continue throughout northern half of pit
Spit 3: 20-30	Moderately compacted very fine sandy yellow brown loam subsoil with occasional pale gravel fleck, bedrock boulders continue throughout northern half of pit to base.

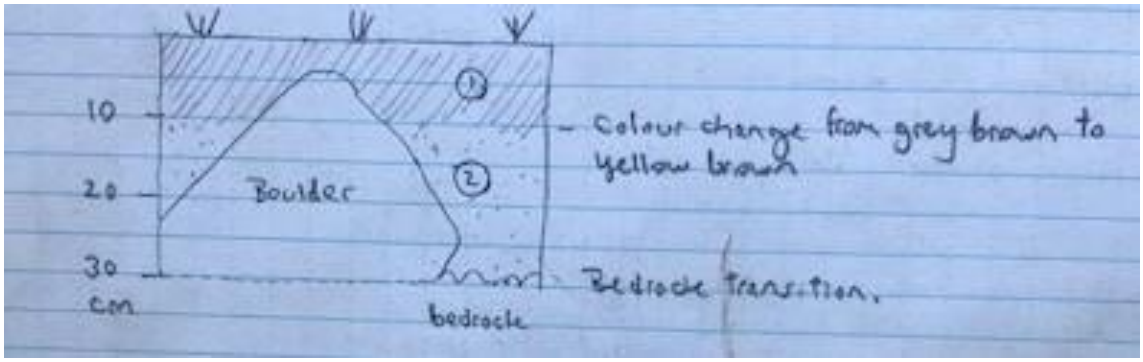


Looking 310° along Transect 20



West section of Square 4

Schematic representation of soil profile Survey Unit 14 Transect 20 Square 1 South section:



pH levels:
1 = 6.5
2 = 5.5
(see above diagram for location of pH recordings)

Artefact Retrieval:

Square 1	Square 2	Square 3	Square 4	Square 5	Square 6
Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0	Spit 1: 0
Spit 2: 1	Spit 2: 0	Spit 2: 0	Spit 2: 0	Spit 2: 8	Spit 2: 0
Spit 3: 0	Spit 3: 6	Spit 3: 0	Spit 3: 0	Spit 3: 0	Spit 3: 0
	Spit 4: 0	Spit 4: 0			

Visual representation of artefact retrieval:

Sq 1	Sq 2	Sq 3	Sq 4	Sq 5	Sq 6
1	6	-	-	8	-

Discussion – Some 15 artefacts were retrieved from three of six squares indicating a relatively patchy and low density artefact distribution: 10/sq m.

ANNEXURE 5 LITHICS DATA

Area	SU	Tran	Sq	Sp	#	Type	Material	weight	Size	Comments	cortex
Ravine	SU3	4	2	1	1	c	q		90	amorphous core, broken pebble, 3 scars from 1 face, 89 x 65 x 44mm	
Ravine	SU3	4	2	1	2	ff	t		4	arts #2 - #7 possibly related	
Ravine	SU3	4	2	1	3	ff	t		2	bending init, rotation vis on dorsal	
Ravine	SU3	4	2	1	4	fp	t		3		
Ravine	SU3	4	2	1	5	f	t		2		
Ravine	SU3	4	2	1	6	ff	t		3		
Ravine	SU3	4	2	1	7	ff	t		2		
Ravine	SU3	4	2	2	8	f	unc		6	focal plat, bending init. Pebble cortex	
Ravine	SU3	4	2	2	9	ff	t		5		
Ravine	SU3	4	2	2	10	f	t		3	Art #8-10 possibly related to those above	
Ravine	SU3	4	2b	1	11	ff	q		2	grey trans quartz with bipolar features	
Ravine	SU3	4	2b	1	12	f	t		2	hertzian feather	
Ravine	SU3	4	2b	1	13	ff	t		2		
Ravine	SU3	4	3	4	14	f	s		2		
Ravine	SU3	4	3	4	15	f	t		2	hertzian	
Ravine	SU3	4	3	4	16	pos	unc		2		
Ravine	SU3	4	4	1	17	fp	q		3	milky	
Ravine	SU3	4	4	2	18	f	t		4	hertzian feather	
Ravine	SU3	4	4	2	19	ff	q		1	milky	
Ravine	SU3	4	4	4	20	f	t		2	very weathered	
Ravine	SU12	1	1	1	1	p	t		3	parralel arises, blade flake	
Ravine	SU12	1	1	1	2	fp	t		3	arts #1 - #27 related	
Ravine	SU12	1	1	1	3	f	t		3	hertzian, rough cortex	
Ravine	SU12	1	1	1	4	ff	t		3		
Ravine	SU12	1	1	1	5	f	t		3	parralel arises, blade flake	
Ravine	SU12	1	1	1	6	ff	t		3		
Ravine	SU12	1	1	1	7	f	t		2	hertzian, feather, focal	
Ravine	SU12	1	1	1	8	ff	t		2		
Ravine	SU12	1	1	1	9	ff	t		3		
Ravine	SU12	1	1	1	10	ff	t		2		
Ravine	SU12	1	1	1	11	m	t		2	medial blade flake	
Ravine	SU12	1	1	1	12	f	t		2	narrow blade flake hertzian, rotation: perp scars on dorsal	
Ravine	SU12	1	1	1	13	ff	t		2		
Ravine	SU12	1	1	1	14	ff	t		2		
Ravine	SU12	1	1	1	15	ff	t		3		
Ravine	SU12	1	1	1	16	d	t		2	feather	
Ravine	SU12	1	1	1	17	ra	t		2	prox portion of a retouched artefact	
Ravine	SU12	1	1	1	18	ff	t		2		

Ravine	SU12	1	1	1	19	ff	t		2		
Ravine	SU12	1	1	1	20	ff	t		1		
Ravine	SU12	1	1	1	21	p	t		2	focal plat, bending init.	
Ravine	SU12	1	1	1	22	d	t		2	feather	
Ravine	SU12	1	1	1	23	p	t		2	herzt	
Ravine	SU12	1	1	1	24	f	t		2	hertz, foc, feath, very thin flake	
Ravine	SU12	1	1	1	25	ff	t		1	very thin	
Ravine	SU12	1	1	1	26	ff	t		1		
Ravine	SU12	1	1	2	27	p	t		2	foc, hertzian	
Ravine	SU12	1	1	2	28	p	t		2	for, hertzian	
Ravine	SU12	1	1	2	29	ff	t		2		
Ravine	SU12	1	1	2	30	ff	t		2	Arts#27-30 almost certainly related to event above.	
Ravine	SU12	1	1	2	31	pos	unc		210	river cobble with one very smooth face, possible whetstone, but no depression. One flake removal from margin	
Ravine	SU12	1	1b	1	32	c	t		90	amorphous core pebble cortex; split pebble, one margin. Flake scars on one face (cortex) from one end, 85x54x34	
Ravine	SU12	1	1b	1	33	f	t		5	focal, hertzian, outrépassé, peb cortex on distal and right half of dorsal	
Ravine	SU12	1	1b	1	34	ff	t		3		
Ravine	SU12	1	1b	1	35	ff	t		4		
Ravine	SU12	1	1b	1	36	d	t		1		
Ravine	SU12	1	1c	3	37	ff	t		2	evidence of core rotation	
Ravine	SU12	1	1c	3	38	ff	t		2		
Ravine	SU12	1	1d	1	39	f	t		4	broad plat, bending init, step term, peb cort.	
Ravine	SU12	1	1d	1	40	ff	t		3		
Ravine	SU12	1	1d	1	41	ff	t		2		
Ravine	SU12	1	1d	1	42	ff	t		3		
Ravine	SU12	1	1d	1	43	f	t		2	broad plat, hertzian, feather	
Ravine	SU12	1	2	1	44	f	t		3	focal plat, bending, feather, pebble cortex	
Ravine	SU12	1	2	1	45	ff	t		2		
Ravine	SU12	1	3	2	46	f	t		3	focal plat, hertzoan, hinge	
Ravine	SU12	1	3	2	47	f	t		3	broad plat, hertzian, step	
Ravine	SU12	1	3	2	48	f	t		3	broad plat, hertzian, hinge	
Ravine	SU12	1	3	2	49	f	t		2	focal plat, bending, hinge	
Ravine	SU12	1	3	2	50	ff	t		2		
Ravine	SU12	1	3	2	51	ff	t		2		
Ravine	SU12	1	3	2	52	ff	t		2	focal, hertzian, step	
Ravine	SU12	1	3	2	53	ff	t		2		
Ravine	SU12	1	4	1	54	f	t		3	broad, bending, feather	

Ravine	SU12	1	6	2	55	f	q		7	bipolar compression flake, pebble cortex	
Ravine	SU12	1	6	2	56	ff	q		4		
Ravine	SU12	1	6	2	57	f	q		2		
Ravine	SU12	1	1	4	58	ff	q		2	recorded out of sequence	
Ravine	SU12	1	1d	4	59	c	t		16	155x119x79mm. Pebble unifacially flaked. 4 scars modern damage	
Ravine	SU3	1	2	4	1	h	unc		14	114x68x54mm. Pebble with crushing on opposing ends consistent with hammer use. Each end has a large flake scar. Sparse bruising on margins and faces consistent with anvil or hammer use	
Ravine	SU3	1	3	3	2	p	t		3	focal, hertzian, overhang removal, 1 ridge	
Ravine	SU3	1	3	3	3	f	t		3	bending init, feather, 3 ridges, overhang removal	
Ravine	SU3	1	3	3	4	f	t		3	longitudinally broken	
Ravine	SU3	1	3	4	5	cf	t		4	amorphous core	
Ravine	SU3	1	3	4	6	f	q		6	compression flake, bipolar features	
Ravine	SU3	1	3b	3	7	ff	t		2		
Ravine	SU3	1	3b	4	8	ff	q		3		
Ravine	SU3	1	3b	4	9	ff	t		2		
Ravine	SU3	1	3b	4	10	f	t		3	longitudinally broken	
Ravine	SU3	1	3b	4	11	ff	t		2		
Ravine	SU3	1	4	3	12	ff	q		2		
Ravine	SU3	1	4	3	13	f	t		3	hertzian, bending, 1 ridge	
Ravine	SU3	1	4	3	14	ff	t		4		
Ravine	SU3	1	4	3	15	p	t		3	hertzian, broad, 2 ridges, parrallel arises	
Ravine	SU3	1	4	3	16	d	t		3	bending termination	
Ravine	SU3	1	4	3	17	ff	t		2		
Ravine	SU3	1	4	3	18	p	t		2	focal, bending	
Ravine	SU3	1	4	3	19	m	q		2		
Ravine	SU3	1	4	4	20	ra	t		4	Broken. Unweathered grey interior is visible. Orientation uncertain. Steeply retouched from ventral	
Ravine	SU3	1	4	4	21	p	t		3	focal, hertzian	
Ravine	SU3	1	4	4	22	ff	t		2		
Ravine	SU3	1	5	4	23	pos	vol		3	broad, hertzian, overhang removal, 1 ridge	
Ravine	SU3	1	5	4	24	pos	vol		5	piece conjoins with #23, pebble cortex	
Ravine	SU3	1	6	3	25	f	t		5	broad, hertzian, bending, 3 ridges	
Ravine	SU3	1	6	3	26	pos	vol		2	pebble cortex	
Ravine	SU3	2	1	2	1	ff	q		2		
Ravine	SU3	2	1	3	2	ff	t		3	very fine lines in the material	
Ravine	SU3	2	1	4	3	f	q		1	biplar flake longitudinally broken	
Ravine	SU3	2	1	4	4	d	t		2		

Ravine	SU3	2	2	2	5	f	q		2	bipolar	
Ravine	SU3	2	2	2	6	ff	t		2	focal, hertzian	
Ravine	SU3	2	2	3	7	f	t		5	broad, hertzian, hinge, 2 ridges	
Ravine	SU3	2	2	3	8	ff	t		6	rough cortex	
Ravine	SU3	2	2	3	9	f	t		5	broad, hertzian, feather, numerous ridges and overhang removal	
Ravine	SU3	2	2	3	10	ff	t		5	rough pebble cortex	
Ravine	SU3	2	2	3	11	f	t		4	broad, hertzian, feather, longitudinally broken	
Ravine	SU3	2	2	3	12	ff	t		2		
Ravine	SU3	2	2	3	13	ff	t		3		
Ravine	SU3	2	2	3	14	f	t		3	hertzian, feather	
Ravine	SU3	2	2	3	15	ff	t		4	very rough texture	
Ravine	SU3	2	2	3	16	ff	t		4		
Ravine	SU3	2	2	3	17	f	t		3	focal, hertzian, feather	
Ravine	SU3	2	2	3	18	f	t		3	broad, bending, feather, pebble cortex	
Ravine	SU3	2	2	3	19	f	t		3	focal, hertzian, bending, previous scar behind PFA	
Ravine	SU3	2	2	3	20	f	t		2	focal, hertzian, feather, numerous ridges	
Ravine	SU3	2	2	3	21	ff	t		3		
Ravine	SU3	2	2	3	22	ff	t		2		
Ravine	SU3	2	2	3	23	ff	t		2		
Ravine	SU3	2	2	3	24	ff	t		2		
Ravine	SU3	2	2	3	25	ff	t		2		
Ravine	SU3	2	2	3	26	ff	t		2		
Ravine	SU3	2	2	3	27	ff	t		2		
Ravine	SU3	2	2	3	28	ff	t		1		
Ravine	SU3	2	2	3	29	ff	t		2		
Ravine	SU3	2	2	3	30	f	t		2	focal, hertzian, feather, numerous ridges	
Ravine	SU3	2	2	3	31	ff	t		2		
Ravine	SU3	2	2	3	32	f	t		2	focal, hertzian, feather	
Ravine	SU3	2	2	3	33	pos	t		1		
Ravine	SU3	2	2	4	34	ff	t		2		
Ravine	SU3	2	2	4	35	ff	t		2	artefacts #7 - #35 almost certainly related, adjoining squares likewise	
Ravine	SU3	2	2b	2	36	ff	t		4	rough pebble cortex	
Ravine	SU3	2	2b	2	37	ff	t		3		
Ravine	SU3	2	2b	2	38	ff	t		2		
Ravine	SU3	2	2b	2	39	f	t		2	broad, hertzian	
Ravine	SU3	2	2b	2	40	ff	t		2		
Ravine	SU3	2	2b	3	41	ff	t		5		
Ravine	SU3	2	2b	3	42	f	t		3	focal, hertzian, feather, overhang removal, 1 ridge	

Ravine	SU3	2	2b	3	43	f	t		3	broad, bending, feather, overhang removal, core rotation	
Ravine	SU3	2	2b	3	44	ff	t		2		
Ravine	SU3	2	2b	3	45	ff	t		3		
Ravine	SU3	2	2b	3	46	m	t		1		
Ravine	SU3	2	2b	3	47	ff	q		3		
Ravine	SU3	2	2b	3	48	f	q		3	broad, hertzian, feather	
Ravine	SU3	2	2b	3	49	d	q		2	feather	
Ravine	SU3	2	2c	2	50	ff	q		2		
Ravine	SU3	2	2c	3	51	f	t		5	broad, hertzian, feather, overhang removal, pebble cortex, numerous ridges	
Ravine	SU3	2	2c	3	52	pos	t		3	pebble cortex	
Ravine	SU3	2	2c	3	53	f	t		2	focal, hertzian, feather, 2 ridges	
Ravine	SU3	2	2c	3	54	f	t		2	focal, hertzian, feather	
Ravine	SU3	2	2c	3	55	ff	t		1		
Ravine	SU3	2	2d	2	56	f	t		4	broad, hertzian, feather, overhang removal, 3 scars, poss. Usewear on margins (but could just be damage)	
Ravine	SU3	2	2d	2	57	ff	t		4		
Ravine	SU3	2	2d	2	58	ff	t		2		
Ravine	SU3	2	2d	2	59	ff	t		2		
Ravine	SU3	2	2d	2	60	f	t		2	broad, bending, hinge	
Ravine	SU3	2	2d	2	61	ff	q		2		
Ravine	SU3	2	2d	3	62	ff	t		2		
Ravine	SU3	2	2d	3	63	f	t		2	hertzian, feather	
Ravine	SU3	2	2d	3	64	ff	t		2		
Ravine	SU3	2	2d	3	65	ff	t		2		
Ravine	SU3	2	2d	3	66	f	t		2	focal, hertzian, feather	
Ravine	SU3	2	2d	3	67	ff	t		2		
Ravine	SU3	2	3	2	68	ff	q		2		
Ravine	SU3	2	3	2	69	fp	q		1		
Ravine	SU3	2	3	2	70	ff	ch		1		
Ravine	SU3	2	3	3	71	f	t		5	focal, hertzian, feather, pebble cortex	
Ravine	SU3	2	3	3	72	ff	t		3		
Ravine	SU3	2	3	3	73	ff	q		2		
Ravine	SU3	2	3	4	74	f	t		4	focal, hertzian, feather, pebble cortex	
Ravine	SU3	2	3	4	75	ff	t		4		
Ravine	SU3	2	3	4	76	p	t		2	broad, hertzian, 1 ridge	
Ravine	SU3	2	3	4	77	ff	t		3		
Ravine	SU3	2	3	4	78	ff	t		3		
Ravine	SU3	2	3	4	79	f	t		2	bending, step	

Ravine	SU3	2	3	4	80	ff	t		2		
Ravine	SU3	2	3	4	81	ff	t		3		
Ravine	SU3	2	3	4	82	ff	t		2		
Ravine	SU3	2	4	3	83	f	t		4	broad, hertzian, hinge, 1 ridge	
Ravine	SU3	2	4	3	84	ff	q		2		
Ravine	SU3	2	4	4	85	f	t		3	broad, hertzian, feather, overhang removal, numerous ridges	
Ravine	SU3	2	4	4	86	f	t		3	broad, hertzian, feather, 1 ridge	
Ravine	SU3	2	4	4	87	ff	t		2		
Ravine	SU3	2	4	4	88	ff	t		3		
Ravine	SU3	2	4	4	89	ff	t		2		
Ravine	SU3	2	4	4	90	ff	t		2		
Ravine	SU3	2	4	4	91	f	t		2	broad, hertzian, feather, 2 ridges	
Ravine	SU3	2	4	4	92	f	t		2	focal, hertzian, step, overhange removal, 1 ridge	
Ravine	SU3	2	4	4	93	f	t		2	broad, bending feather. Artefacts #85 - 93 almost certainly related	
Ravine	SU3	2	5	4	94	fp	t		5	rough pebble cortex	
Ravine	SU3	2	5	4	95	f	t		4	broad, hertzian, feather, 3 ridges	
Ravine	SU3	2	5	4	96	ff	t		2	pebble cortex	
Ravine	SU3	2	5	4	97	ff	t		2		
Ravine	SU3	2	5	4	98	ff	t		2		
Ravine	SU3	2	5	4	99	ff	t		2		
Ravine	SU3	2	5	4	100	ff	t		2		
Ravine	SU3	2	5	4	101	ff	t		1		
Ravine	SU3	3	1	1	1	pos	t		2		
Ravine	SU3	3	2a	4	2	ff	t		3		
Ravine	SU3	3	2b	4	3	f	t		4	focal, hertzian, feather, 1 ridge	
Ravine	SU3	3	2b	4	4	ff	t		6	probable modern break	
Ravine	SU12	2	1	2	1	f	t		6	broad, bending, outrapase, 51x52x29mm. Rough cortex, 4 flake removals from ventral on 1 margin. Weathered.	
Ravine	SU12	2	3	2	2	f	q		4	biploar compression flake	
Ravine	SU12	2	4	2	3	f	t		4	broad, hertzian, step	
Ravine	SU12	2	4	2	4	ff	t		3		
Ravine	SU12	2	4	3	5	ff	q		2		
Ravine	SU12	2	4	4	6	pos	unc		6	56x50x42 river pebble with minor crushing on 1 end. Uncertain if it is an artefact	
Ravine	SU12	2	5	1	7	ff	q		1		
Ravine	SU12	2	5	2	8	c	q		6	single platform core	
Ravine	SU12	2	5	2	9	ff	q		2		
Ravine	SU12	2	5	2	10	ff	q		2		

Ravine	SU12	2	5	3	11	ff	q		2		
Ravine	SU12	2	5	3	12	ff	q		2		
Ravine	SU12	2	5	3	13	ff	q		2		
Ravine	SU12	2	5	3	14	ff	q		2		
Ravine	SU12	2	6	1	15	p	qu		5	broad, hertzian	
Ravine	SU12	2	6	1	16	f	q		3	crushed, hertzian, feather	
Ravine	SU12	2	6	1	17	ff	t		3		
Ravine	SU12	2	6	1	18	ff	t		3		
Ravine	SU12	2	6	2	19	f	q		4	compression flake, longitudinally broken with minimally worn pebble cortex	
Ravine	SU12	2	6	2	20	ff	q		3		
Ravine	SU12	2	6	2	21	ff	q		2		
Ravine	SU12	2	6	2	22	ff	q		2		
Ravine	SU12	2	6	2	23	ff	q		1		
Ravine	SU12	3	1	1	1	f	t		4	crushed, hertzian, bending, pebble cortex, overhang removal, 2 scars	
Ravine	SU12	3	1	1	2	ff	t		3		
Ravine	SU12	3	1	1	3	uu	t		3	focal, hertzian, feather, usewear scarring from ventral on distal including a notch 7.5mm wide	
Ravine	SU12	3	1	1	4	f	t		2	uncertain initiation, feather, overhang removal	
Ravine	SU12	3	1	1	5	f	t		2	broad, bending feather, previous flake removal immediately behing PFA	
Ravine	SU12	3	1	1	6	ff	t		2		
Ravine	SU12	3	1	2	7	ff	t		2		
Ravine	SU12	3	1	2	8	ff	t		1	Artefacts #9-44 in this spit almost certainly related, as well as artefacts in Spit 1	
Ravine	SU12	3	2	2	9	f	t		5	focal, hertzian, feather, 100% pebble cortex	
Ravine	SU12	3	2	2	10	ff	t		4		
Ravine	SU12	3	2	2	11	ff	t		4		
Ravine	SU12	3	2	2	12	d	t		4	feather	
Ravine	SU12	3	2	2	13	f	t		4	overhang removal, broad, bending, feather	
Ravine	SU12	3	2	2	14	ff	t		4		
Ravine	SU12	3	2	2	15	ff	t		3		
Ravine	SU12	3	2	2	16	ff	t		3		
Ravine	SU12	3	2	2	17	f	t		3	broad, hertzian, feather, previous flake removal behing PFA, 3 ridges	
Ravine	SU12	3	2	2	18	ff	t		3		
Ravine	SU12	3	2	2	19	ff	t		2		
Ravine	SU12	3	2	2	20	ff	t		2		
Ravine	SU12	3	2	2	21	ff	t		3		
Ravine	SU12	3	2	2	22	p	t		3	broad, crushed, previous flake removal behind PFA	

Ravine	SU12	3	2	2	23	ff	t		2		
Ravine	SU12	3	2	2	24	ff	t		3	pebble cortex	
Ravine	SU12	3	2	2	25	ff	t		2		
Ravine	SU12	3	2	2	26	f	t		2	focal, hertzian, feather	
Ravine	SU12	3	2	2	27	ff	t		3		
Ravine	SU12	3	2	2	28	fp	t		2	pebble cortex	
Ravine	SU12	3	2	2	29	ff	t		2		
Ravine	SU12	3	2	2	30	ff	t		2		
Ravine	SU12	3	2	2	31	f	t		2	focal, hertzian, outre passe	
Ravine	SU12	3	2	2	32	ff	t		2		
Ravine	SU12	3	2	2	33	f	t		2	focal, hertzian, step, previous flake scar behind PFA	
Ravine	SU12	3	2	2	34	fp	t		2		
Ravine	SU12	3	2	2	35	ff	t		2		
Ravine	SU12	3	2	2	36	ff	t		2		
Ravine	SU12	3	2	2	37	fp	t		1		
Ravine	SU12	3	2	2	38	ff	t		2		
Ravine	SU12	3	2	2	39	f	t		2	focal, hertzian, feather	
Ravine	SU12	3	2	2	40	ff	t		2		
Ravine	SU12	3	2	2	41	f	t		1	hertzian, bending, focal	
Ravine	SU12	3	2	2	42	ff	t		1		
Ravine	SU12	3	2	2	43	ff	t		1		
Ravine	SU12	3	2	2	44	ff	q		2		
Ravine	SU12	3	2	1	45	g	unc		9	82x58x40mm, broken piece of probably grindstone. Originally a smooth river cobble	
Ravine	SU12	3	2	1	46	f	t		4	longitudinally broken. Note that tuff artefacts in this spit and below are almost certainly related	
Ravine	SU12	3	2	1	47	f	t		4	broad, hertzian, feather, previous flake removal behind PFA	
Ravine	SU12	3	2	1	48	ff	t		3	pebble cortex	
Ravine	SU12	3	2	1	49	f	t		2	broad, bending, hinge	
Ravine	SU12	3	2	1	50	f	t		2	focal, hertzian, step, previous flake scar behind PFA	
Ravine	SU12	3	2	1	51	ff	t		2		
Ravine	SU12	3	2	1	52	ff	t		2	pebble cortex	
Ravine	SU12	3	2	1	53	f	t		2	longitudinally broken	
Ravine	SU12	3	2	1	54	ff	t		2		
Ravine	SU12	3	2	1	55	f	t		2	focal, hertzian, feather	
Ravine	SU12	3	2	1	56	f	t		2	broad, bending, feather	
Ravine	SU12	3	2	1	57	ff	t		2		
Ravine	SU12	3	2	1	58	ff	t		2		

Ravine	SU12	3	2	1	59	ff	t		2		
Ravine	SU12	3	2	1	60	ff	t		2		
Ravine	SU12	3	2	1	61	ff	unc		1		
Ravine	SU12	3	2	1	62	ff	q		1		
Ravine	SU12	3	3	1	63	f	t		8	100% pebble cortex, uncertain initiation, feather termination	
Ravine	SU12	3	3	1	64	f	t		5	broad, hertzian, feather, pebble cortex on platform and 1/2 dorsal	
Ravine	SU12	3	3	1	65	ff	t		8	pebble cortex	
Ravine	SU12	3	3	1	66	f	t		5	broad, hertzian, feather, platform and 1 margin pebble cortex	
Ravine	SU12	3	3	1	67	ff	t		5		
Ravine	SU12	3	3	1	68	ff	t		2		
Ravine	SU12	3	3	1	69	ff	t		3		
Ravine	SU12	3	3	1	70	fp	t		2		
Ravine	SU12	3	3	1	71	pos	t		2	looks like a flake but edges are all rounded	
Ravine	SU12	3	3	1	72	f	t		2	focal, Hertzian, feather	
Ravine	SU12	3	3	1	73	ff	t		2		
Ravine	SU12	3	3	1	74	ff	t		2		
Ravine	SU12	3	3	1	75	f	t		2	focal, hertzien, feather with pebble cortex	
Ravine	SU12	3	3	1	76	f	t		2	focal, hertzien, bending	
Ravine	SU12	3	3	1	77	ff	t		1		
Ravine	SU12	3	3	1	78	fp	t		1		
Ravine	SU12	3	3	1	79	ff	t		2		
Ravine	SU12	3	3	1	80	ff	t		2		
Ravine	SU12	3	3	2	81	f	t		3	broad, hertzian, outre passe	
Ravine	SU12	3	3	2	82	uu	t		3	focal, hertzian, feather, core rotation, damage on distal from use	
Ravine	SU12	3	3	2	83	ff	t		2		
Ravine	SU12	3	3	2	84	ff	t		2		
Ravine	SU12	3	3	2	85	ff	t		2		
Ravine	SU12	3	3	2	86	ff	t		2		
Ravine	SU12	3	3	2	87	ff	t		2		
Ravine	SU12	3	3	2	88	fp	t		2		
Ravine	SU12	3	3	2	89	ff	t		2		
Ravine	SU12	3	3	2	90	f	t		2	broad, hertzian, feather	
Ravine	SU12	3	3	2	91	f	t		1	broad, bending, feather	
Ravine	SU12	3	3	2	92	ff	t		2		
Ravine	SU12	3	3	2	93	ff	t		1		
Ravine	SU12	3	3	2	94	ff	t		1		
Ravine	SU12	3	3	2	95	ff	t		2		

Ravine	SU12	3	4	1	96	ff	t		5		
Ravine	SU12	3	4	1	97	p	t		4	broad, hertzian, 1 ridge	
Ravine	SU12	3	4	1	98	ff	t		3		
Ravine	SU12	3	4	1	99	f	t		3	broad, hertzian, hinge, previous scar immediately behind PFA	
Ravine	SU12	3	4	1	100	fp	t		2		
Ravine	SU12	3	4	1	101	ff	t		3		
Ravine	SU12	3	4	1	102	d	t		2		
Ravine	SU12	3	4	1	103	ff	t		2		
Ravine	SU12	3	4	1	104	f	t		2	crushed, hertzian, step, previous scar immediately behind PFA	
Ravine	SU12	3	4	1	105	f	t		1	focal, hertzian, feather	
Ravine	SU12	3	4	2	106	f	t		5	broad, feather	
Ravine	SU12	3	4	2	107	f	t		2	focal, hertzian, hinge, longitudinally broken	
Ravine	SU12	3	4	2	108	ff	t		3		
Ravine	SU12	3	4	2	109	ff	t		2		
Ravine	SU12	3	4	2	110	ff	t		1		
Ravine	SU12	3	4	2	111	pos	vol		3		
Ravine	SU12	3	4	4	112	ff	t		4		
Ravine	SU12	3	5	1	113	ff	t		2		
Ravine	SU12	3	5	1	114	ff	t		2		
Ravine	SU12	3	5	1	115	d	t		2	feather	
Ravine	SU12	3	5	2	116	ff	t		4	100% pebble cortex	
Ravine	SU12	3	6	1	117	pos	unc		6		
Ravine	SU12	3	6	2	118	uu	t		6	focal, hertzian, feather, pebble cortex, numerous ridges, microscopic usewear scarring from ventral	
Ravine	SU12	3	6	2	119	uu	t		6	crushed, hertzian, feather, usewear edge rounding and scarring on both margins	
Ravine	SU12	3	6	2	120	ff	t		2		
Ravine	SU12	3	6	2	121	ff	t		2	pebble cortex	
Ravine	SU12	3	6	2	122	ff	t		2		
Ravine	SU12	3	6	2	123	ff	t		1		
Ravine	SU12	4	1	1	1	m	t		4		
Ravine	SU12	4	1	1	2	f	t		3	focal, hertzian, feather	
Ravine	SU12	4	1	1	3	ff	t		2		
Ravine	SU12	4	1	1	4	ff	t		2		p
Ravine	SU12	4	1	1	5	p	t		2	focal, hertzian	
Ravine	SU12	4	1	1	6	ff	t		2		
Ravine	SU12	4	1	1	7	p	t		2	broad, hertzian	
Ravine	SU12	4	1	1	8	ff	q		2		
Ravine	SU12	4	1	1	9	f	ch		3	focal, hertzian, feather	

Ravine	SU12	4	1	1	10	ff	ch		2		
Ravine	SU12	4	1	1	11	d	fgv		2	feather	
Ravine	SU12	4	1	1	12	f	fgv		2		
Ravine	SU12	4	1	1	13	ff	fgv		2		
Ravine	SU12	4	1	2	14	ff	ch		2		t
Ravine	SU12	4	1	2	15	f	ch		4	broad, hertzian, feather	p
Ravine	SU12	4	1	3	16	f	fgv		5	focal, hertzian, feather	p
Ravine	SU12	4	2	1	17	f	t		5	broad, hertzian, feather, 2 ridges	p
Ravine	SU12	4	2	1	18	f	t		4	focal, outre passe	p
Ravine	SU12	4	2	1	19	ff	t		3		P
Ravine	SU12	4	2	1	20	ff	t		3		
Ravine	SU12	4	2	1	21	ff	t		2		
Ravine	SU12	4	2	1	22	ff	t		3		p
Ravine	SU12	4	2	1	23	ff	t		2		
Ravine	SU12	4	2	1	24	ff	t		2		
Ravine	SU12	4	2	1	25	ff	t		2		p
Ravine	SU12	4	2	1	26	ff	t		2		
Ravine	SU12	4	2	1	27	ff	t		2		
Ravine	SU12	4	2	1	28	f	t		2	longitudinally split	
Ravine	SU12	4	2	1	29	ff	t		2		
Ravine	SU12	4	2	1	30	f	t		2	longitudinally split	
Ravine	SU12	4	2	1	31	ff	t		2		
Ravine	SU12	4	2	1	32	d	t		2		p
Ravine	SU12	4	2	1	33	ff	t		2		
Ravine	SU12	4	2	1	34	ff	t		2		
Ravine	SU12	4	2	1	35	ff	t		2		
Ravine	SU12	4	2	1	36	ff	t		2		
Ravine	SU12	4	2	1	37	d	t		2		
Ravine	SU12	4	2	1	38	ff	t		2		
Ravine	SU12	4	2	1	39	ff	t		1		
Ravine	SU12	4	2	1	40	f	t		1	longitudinally split	
Ravine	SU12	4	2	1	41	ff	t		2		
Ravine	SU12	4	2	1	42	ra	t		2	very small bondi point 15 x 6 x 4, tuff artefacts #17 - #42 almost certainly related	
Ravine	SU12	4	2	1	43	ff	fgv		2		p
Ravine	SU12	4	2	1	44	f	fgv		3	focal, hertzian, feather	
Ravine	SU12	4	2	1	45	ff	fgv		2		p
Ravine	SU12	4	2	1	46	ff	q		2		
Ravine	SU12	4	2	1	47	ff	q		2		
Ravine	SU12	4	2	1	48	ff	q		3		
Ravine	SU12	4	2	2	49	d	t		2	feather	

Ravine	SU12	4	2	2	50	f	t		2	broad, hertzian, hinge	
Ravine	SU12	4	2	2	51	ff	t		2		p
Ravine	SU12	4	2	2	52	ff	t		3		
Ravine	SU12	4	2	2	53	f	t		2	focal, feather	
Ravine	SU12	4	2	2	54	ff	t		1		
Ravine	SU12	4	2	2	55	f	t		1	focal, feather	
Ravine	SU12	4	2	2	56	d	t		2	feather	
Ravine	SU12	4	2	2	57	ff	t		2	artefacts #49 - #57 almost certainly related	
Ravine	SU12	4	3	1	58	p	t		5	crushed platform	p
Ravine	SU12	4	3	1	59	ff	t		4		p
Ravine	SU12	4	3	1	60	ff	t		3		p
Ravine	SU12	4	3	1	61	f	t		3	focal, feather	
Ravine	SU12	4	3	1	62	ff	t		2		p
Ravine	SU12	4	3	1	63	ff	t		2		p
Ravine	SU12	4	3	1	64	f	t		2	focal, feather, 1 previous ridge	
Ravine	SU12	4	3	1	65	ff	qu		2		p
Ravine	SU12	4	3	1	66	ff	q		2		
Ravine	SU12	4	3	1	67	ff	q		2		
Ravine	SU12	4	3	2	68	f	t		4	broad, hertzian, feather	p
Ravine	SU12	4	3	2	69	ff	t		2		p
Ravine	SU12	4	3	2	70	ff	t		2		p
Ravine	SU12	4	3	2	71	ff	t		2		p
Ravine	SU12	4	3	2	72	ff	t		2		
Ravine	SU12	4	3	2	73	ff	t		2		
Ravine	SU12	4	3	2	74	p	t		2	focal	
Ravine	SU12	4	3	2	75	f	q		3	bipolar	
Ravine	SU12	4	3	2	76	f	q		2	broad, hertzian, feather	
Ravine	SU12	4	3	2	77	f	q		2	bipolar	
Ravine	SU12	4	3	2	78	fp	q		2		
Ravine	SU12	4	3	2	79	fp	q		2		
Ravine	SU12	4	3	2	80	ff	q		2		
Ravine	SU12	4	3	2	81	ff	q		2		
Ravine	SU12	4	3	2	82	ff	q		2		
Ravine	SU12	4	3	2	83	ff	q		2		
Ravine	SU12	4	3	2	84	d	q		1	feather	
Ravine	SU12	4	3	2	85	ff	q		1		
Ravine	SU12	4	3	2	86	d	q		1	feather; quartz artefacts in this spit are likely to be related	
Ravine	SU12	4	3	3	87	ff	t		4		
Ravine	SU12	4	3	3	88	ff	q		2		
Ravine	SU12	4	3	2	89	pos	t		5		p

Ravine	SU12	4	3	2	90	fp	t		2		
Ravine	SU12	4	4	2	91	p	t		2	broad, hertzian	
Ravine	SU12	4	4	2	92	ff	t		2		
Ravine	SU12	4	4	3	93	uu	t		3	flake fragment with edge rounding and scarring on margins, consistent with use	p
Ravine	SU12	4	5	1	94	uu	t		3	flake fragment with edge rounding and scarring on margins, consistent with use	p
Ravine	SU12	4	5	2	95	ff	t		5		p
Ravine	SU12	4	5	3	96	ff	t		5		
Ravine	SU12	5	1	1	1	f	t		5	bending, feather	p
Ravine	SU12	5	1	1	2	ff	t		3		
Ravine	SU12	5	1	1	3	ff	q		2		
Ravine	SU12	5	2	1	4	ff	t		2		
Ravine	SU12	5	2	1	5	f	ch		2	bending, feather, focal	
Ravine	SU12	5	2	1	6	pos	t		1		
Ravine	SU12	5	2	2	7	c	t		14	broken cobble with 2 definite negative scars	p
Ravine	SU12	5	2	2	8	f	t		6	broad, hertzian, outre passe, 3 ridges	p
Ravine	SU12	5	2	2	9	f	t		7	focal, hertzian, outre passe	
Ravine	SU12	5	2	2	10	ff	t		5		p
Ravine	SU12	5	2	2	11	d	t		4	feather	p
Ravine	SU12	5	2	2	12	ff	t		3		p
Ravine	SU12	5	2	2	13	ff	t		3		
Ravine	SU12	5	2	2	14	f	t		3	longitudinally split	
Ravine	SU12	5	2	2	15	f	t		3	focal, bending, feather	p
Ravine	SU12	5	2	2	16	f	t		3	broad, bending, feather	p
Ravine	SU12	5	2	2	17	d	t		3	feather	
Ravine	SU12	5	2	2	18	ff	t		3		
Ravine	SU12	5	2	2	19	f	t		3	focal, hertzian, feather	
Ravine	SU12	5	2	2	20	ff	t		3		p
Ravine	SU12	5	2	2	21	f	t		2	focal, hertzian, feather, 1 ridge	
Ravine	SU12	5	2	2	22	ff	t		2		p
Ravine	SU12	5	2	2	23	f	t		2	focal, herzian, hinge, 1 ridge	
Ravine	SU12	5	2	2	24	ff	t		2		
Ravine	SU12	5	2	2	25	f	t		1	broad, hertzian, feather, 1 ridge	
Ravine	SU12	5	3	1	26	f	t		3	hertzian, crushed, feather, 1 ridge	
Ravine	SU12	5	3	2	27	ff	q		2		
Ravine	SU12	5	4	1	28	ff	t		2		
Ravine	SU12	5	4	2	29	ff	t		3		p
Ravine	SU12	5	4	2	30	ff	t		2		p
Ravine	SU12	5	4	2	31	ff	t		1		
Ravine	SU12	5	4	2	32	d	fgv		2	feather	

Ravine	SU12	5	4	2	33	ff	fgv		3		
Ravine	SU12	5	4	2	34	ra	ch		2	proximal, thin, retouch on 1 margin, 17 x 8 x 2	
Ravine	SU12	5	4	2	35	d	ch		2	hinge	
Ravine	SU12	5	4	2	36	f	ch		2	overhang removal	
Ravine	SU12	5	5	1	37	ff	qu		7		
Ravine	SU12	5	6	2	38	f	t		7	focal, feather	p
Ravine	SU12	5	4	2	39	f	t		3	hertzian, feather	
Ravine	SU12	5	4	2	40	f	t		3	broad, hertzian, hinge	
Ravine	SU12	6	2	1	1	f	t		4	hertzian, broad, outre passe	
Ravine	SU12	6	2	1	2	f	t		2	focal, feather	p
Ravine	SU12	6	2	2	3	f	t		5	broad, hertzian, feather	p
Ravine	SU12	6	2	2	4	f	t		7	broad, hertzian, feather, 2 ridges	p
Ravine	SU12	6	2	2	5	cf	t		4		
Ravine	SU12	6	2	2	6	f	t		4	1 ridge, core rotation, broad, hertzian, outre passe	
Ravine	SU12	6	2	2	7	f	t		3	longitudinally split	
Ravine	SU12	6	2	2	8	f	t		3	focal, hertzian, hinge	
Ravine	SU12	6	2	2	9	d	t		2	feather	
Ravine	SU12	6	2	2	10	d	t		3	feather	
Ravine	SU12	6	2	2	11	ff	t		2		
Ravine	SU12	6	2	2	12	ff	t		2		
Ravine	SU12	6	2	2	13	p	t		2	crushed platform, 2 ridges	
Ravine	SU12	6	2	2	14	ff	t		2		p
Ravine	SU12	6	2	2	15	f	t		2	hertzian, broad, step	
Ravine	SU12	6	2	2	16	ff	t		2		
Ravine	SU12	6	2	2	17	f	t		2	focal, hertzian, outre passe	
Ravine	SU12	6	2	2	18	p	t		2	focal, bending	
Ravine	SU12	6	2	2	19	d	t		2	feather	
Ravine	SU12	6	2	2	20	f	t		2	longitudinally split	
Ravine	SU12	6	2	2	21	ff	t		2		
Ravine	SU12	6	2	2	22	ff	t		2		
Ravine	SU12	6	2	2	23	f	t		2	focal, feather	
Ravine	SU12	6	2	2	24	f	t		2	longitudinally split	
Ravine	SU12	6	2	2	25	f	t		2	focal, feather	
Ravine	SU12	6	2	2	26	m	t		1		
Ravine	SU12	6	2	2	27	p	t		1	hertzian, focal. Tuff artefacts in this spit are almost certainly related	
Ravine	SU12	6	2	2	28	ff	qu		2		
Ravine	SU12	6	2	2	29	ff	qu		3		
Ravine	SU12	6	2	2	30	pos	unc		3		
Ravine	SU12	6	2	3	31	ff	t		2		
Ravine	SU12	6	2	4	32	pos	unc		4		

Ravine	SU12	6	2	4	33	pos	unc		2		
Ravine	SU12	6	3	1	34	ff	t		2		
Ravine	SU12	6	3	1	35	p	t		1	focal, bending	
Ravine	SU12	6	3	1	36	pos	t		1		
Ravine	SU12	6	3	2	37	uu	t		3	flake with edge rounding and scarring from ventral, consistent with use	
Ravine	SU12	6	4	1	38	pos	unc		4		
Ravine	SU12	6	4	1	39	ff	ch		2		
Ravine	SU12	6	4	1	40	ff	t		1		
Ravine	SU12	6	4	2	41	f	ch		2	focal, hertzian, outre passe. Almost certainly related to chert above	
Ravine	SU12	6	4	2	42	f	t		3	broad, hertzian, hinge	
Ravine	SU12	6	4	2	43	f	t		3	focal, hertzian, feather, 4 ridges	
Ravine	SU12	6	4	2	44	f	t		2	broad, hertzian, feather	
Ravine	SU12	6	4	2	45	f	t		2	broad, hertzian, feather	
Ravine	SU12	6	4	2	46	f	t		2	focal, hertzian, feather	
Ravine	SU12	6	4	2	47	ff	t		2		
Ravine	SU12	6	4	2	48	d	t		2	hinge, parrallel arises	
Ravine	SU12	6	4	3	49	ff	t		3		p
Ravine	SU12	6	4	3	50	fp	chal		2		
Ravine	SU12	6	5	2	51	ff	t		2		
Ravine	SU12	6	5	2	52	m	t		2		
Ravine	SU12	6	6	3	53	fp	t		6		p
Ravine	SU12	7	1	1	1	ff	t		3	1 ridge	
Ravine	SU12	7	1	1	2	ff	t		2		
Ravine	SU12	7	1	1	3	ff	t		2		
Ravine	SU12	7	1	1	4	ff	q		2		
Ravine	SU12	7	1	2	5	ff	t		3		
Ravine	SU12	7	1	2	6	ff	t		3		
Ravine	SU12	7	1	2	7	ff	t		3		
Ravine	SU12	7	1	2	8	pos	unc		2		
Ravine	SU12	7	1	2	9	ff	q		2		
Ravine	SU12	7	1	2	10	ff	q		1		
Ravine	SU12	7	2	1	11	f	t		5	hertzian, focal, hinge	p
Ravine	SU12	7	2	1	12	ff	t		5		p
Ravine	SU12	7	2	1	13	f	t		2	focal, bending, hinge, 1 ridge	
Ravine	SU12	7	2	1	14	ff	t		2		
Ravine	SU12	7	2	1	15	ff	t		2		
Ravine	SU12	7	2	1	16	f	q		3	broad, hertzian, feather	p
Ravine	SU12	7	2	1	17	ff	q		2		
Ravine	SU12	7	2	1	18	ff	q		1		

Ravine	SU12	7	2	1	19	f	q		1	focal, feather, parrallel arises	
Ravine	SU12	7	4	1	20	f	t		4	broad, bending, feather	p
Ravine	SU12	7	4	1	21	ff	t		3		
Ravine	SU12	7	4	1	22	f	t		1	focal, hertzian, feather, parrallel arises	
Ravine	SU12	7	4	1	23	f	t		1	focal, hertzian, feather, 2 ridges	
Ravine	SU12	7	4	1	24	ff	q		3		
Ravine	SU12	7	4	1	25	f	q		2	broad, hertzian, feather	
Ravine	SU12	7	4	1	26	d	q		2	feather	
Ravine	SU12	7	4	1	27	ff	q		1		
Ravine	SU12	7	4	1	28	ff	q		2	black quartz	
Ravine	SU12	7	4	2	29	f	t		2	crushed, hertzian, feather	p
Ravine	SU12	7	4	2	30	ff	ch		3	black chert	
Ravine	SU12	7	4	2	31	ff	q		2		
Ravine	SU12	7	5	1	32	ff	t		2		
Ravine	SU12	7	5	1	33	c	t		5	amorphous core, 1 platform, 3 negative scars	p
Ravine	SU12	7	5	1	34	c	t		4	amorphous core, 2 rotations	p
Ravine	SU12	7	5	1	35	f	t		6	focal, hertzian, feather	
Ravine	SU12	7	5	1	36	f	t		5	longitudinally split, hertzian, focal, hinge	
Ravine	SU12	7	5	1	37	f	t		7	focal, hertzian, feather	p
Ravine	SU12	7	5	1	38	fp	t		5		p
Ravine	SU12	7	5	1	39	ff	t		5		p
Ravine	SU12	7	5	1	40	f	t		5	broad, hertzian, feather	p
Ravine	SU12	7	5	1	41	f	t		4	crushed, hertzian, step	p
Ravine	SU12	7	5	1	42	f	t		4	broad, hertzian, hinge, 1 ridge	
Ravine	SU12	7	5	1	43	f	t		4	focal, hertzian, step, 1 ridge	
Ravine	SU12	7	5	1	44	ff	t		3		p
Ravine	SU12	7	5	1	45	ff	t		3		p
Ravine	SU12	7	5	1	46	fp	t		3		p
Ravine	SU12	7	5	1	47	ra	t		3	flake, distally retouched	
Ravine	SU12	7	5	1	48	fp	t		3		p
Ravine	SU12	7	5	1	49	ff	t		3		
Ravine	SU12	7	5	1	50	ff	t		3		
Ravine	SU12	7	5	1	51	ff	t		2		
Ravine	SU12	7	5	1	52	p	t		2	broad, hertzian, 1 ridge	
Ravine	SU12	7	5	1	53	ff	t		2		
Ravine	SU12	7	5	1	54	f	t		2	focal, feather	p
Ravine	SU12	7	5	1	55	ff	t		2		
Ravine	SU12	7	5	1	56	ff	t		2		p
Ravine	SU12	7	5	1	57	f	t		2	focal, feather	
Ravine	SU12	7	5	1	58	f	t		2	focal, hertzian, step	
Ravine	SU12	7	5	1	59	ff	t		2		

Ravine	SU12	7	5	1	60	ff	t		2		p
Ravine	SU12	7	5	1	61	ff	t		2		
Ravine	SU12	7	5	1	62	p	t		2	focal, hertzian	
Ravine	SU12	7	5	1	63	ff	t		2		
Ravine	SU12	7	5	1	64	ff	t		2		
Ravine	SU12	7	5	1	65	ff	t		2		
Ravine	SU12	7	5	1	66	ff	t		1		
Ravine	SU12	7	5	1	67	d	t		1	feather, parrallel arises	
Ravine	SU12	7	5	1	68	ff	t		2		
Ravine	SU12	7	5	1	69	f	t		1	focal, step	
Ravine	SU12	7	5	1	70	f	t		1	focal, step. Most tuff artefacts in this spit are almost certainly related	
Ravine	SU12	7	5	1	71	ff	ch		2	brown	
Ravine	SU12	7	5	1	72	ff	fgv		1		
Ravine	SU12	7	5	1	73	p	ch		1	focal, grey, very fine grained	
Ravine	SU12	7	5	1	74	pos	qu		5		p
Ravine	SU12	7	5	1	75	pos	qu		5		p
Ravine	SU12	7	5	1	76	pos	fgv		4		p
Ravine	SU12	7	5	1	77	ff	q		3		
Ravine	SU12	7	5	1	78	ff	q		3		
Ravine	SU12	7	5	1	79	pos	q		4	? compression flake	
Ravine	SU12	7	5	1	80	ff	q		2		
Ravine	SU12	7	5	1	81	ff	q		2		
Ravine	SU12	7	5	1	82	ff	q		1		p
Ravine	SU12	7	5	2	83	ff	t		3		
Ravine	SU12	7	5	2	84	d	t		3		
Ravine	SU12	7	5	2	85	f	t		3	focal, hertzian, feather, 1 ridge	
Ravine	SU12	7	5	2	86	f	t		3	focal, hertzian, outre passe, 3 ridges	p
Ravine	SU12	7	5	2	87	p	t		2	bending	
Ravine	SU12	7	5	2	88	f	t		3	focal, hertzian, hinge, 3 ridges	
Ravine	SU12	7	5	2	89	ff	t		2		
Ravine	SU12	7	5	2	90	ff	t		2		p
Ravine	SU12	7	5	2	91	f	t		2	broad, hertzian, hinge, 2 ridges	p
Ravine	SU12	7	5	2	92	ff	t		2		p
Ravine	SU12	7	5	2	93	ff	t		2		
Ravine	SU12	7	5	2	94	ff	t		2		
Ravine	SU12	7	5	2	95	p	t		2	focal, bending	
Ravine	SU12	7	5	2	96	f	t		2	broad, bending, overhang removal, axial termination	
Ravine	SU12	7	5	2	97	f	t		2	focal, bending, feather	
Ravine	SU12	7	5	2	98	ff	t		2		

Ravine	SU12	7	5	2	99	ff	t		2		
Ravine	SU12	7	5	2	100	ff	t		1		
Ravine	SU12	7	5	2	101	ff	t		1		
Ravine	SU12	7	5	2	102	ff	t		1		
Ravine	SU12	7	5	2	103	ff	t		1		
Ravine	SU12	7	5	2	104	f	t		1	broad, bending, feather	
Ravine	SU12	7	5	2	105	f	t		2	longitudinally split	
Ravine	SU12	7	5	2	106	f	t		2	broad, hertzian, hinge	
Ravine	SU12	7	5	2	107	f	t		2	focal, hertzian, feather, 1 ridge	
Ravine	SU12	7	5	2	108	ff	t		2		
Ravine	SU12	7	5	2	109	fp	t		3		
Ravine	SU12	7	5	2	110	ff	t		3		
Ravine	SU12	7	5	2	111	pos	q		4		p
Ravine	SU12	7	5	2	112	m	q		3		
Ravine	SU12	7	5	2	113	m	q		3		
Ravine	SU12	7	5	2	114	ff	q		2		
Ravine	SU12	7	5	2	115	m	q		2		
Ravine	SU12	7	5	2	116	ff	q		2		p
Ravine	SU12	7	5	2	117	ff	q		2		
Ravine	SU12	7	5	2	118	ff	q		2		p
Ravine	SU12	7	5	2	119	ff	q		2		
Ravine	SU12	7	5	2	120	ff	q		2		
Ravine	SU12	7	5	2	121	f	q		2	bipolar	
Ravine	SU12	7	5	2	122	ff	q		2		
Ravine	SU12	7	5	2	123	f	q		2	broad, hertzian, crushed	
Ravine	SU12	7	5	2	124	ff	q		2		
Ravine	SU12	7	5	2	125	ff	q		2		
Ravine	SU12	7	5	2	126	d	q		2	feather	
Ravine	SU12	7	5	2	127	ff	q		2		
Ravine	SU12	7	5	2	128	ff	q		2		
Ravine	SU12	7	5	2	129	ff	q		2		
Ravine	SU12	7	5	2	130	ff	q		1		
Ravine	SU12	7	5	2	131	ff	q		1		
Ravine	SU12	7	5	2	132	ff	q		1		
Ravine	SU12	7	5	2	133	ff	q		1	quartz artefacts in this spit are almost certainly related. Quartz is uniformly poor quality	
Ravine	SU12	7	5	3	134	f	t		5	bending, hinge, 1 scar	
Ravine	SU12	7	5	3	135	ff	t		3		
Ravine	SU12	7	5	3	136	p	t		2	broad, hertzian	
Ravine	SU12	7	5	3	137	ff	t		2		
Ravine	SU12	7	5	3	138	ff	t		2		

Ravine	SU12	7	5	3	139	ff	t		2		
Ravine	SU12	7	5	3	140	d	q		2	quartz is almost certainly related to the quartz above	
Ravine	SU12	7	5	3	141	f	q		3	compression flake	p
Ravine	SU12	7	5	3	142	ff	q		3		
Ravine	SU12	7	5	3	143	ff	q		3		
Ravine	SU12	7	5	3	144	ff	q		3		
Ravine	SU12	7	5	3	145	f	q		3	focal, hertzian, hinge	
Ravine	SU12	7	5	3	146	ff	q		2		
Ravine	SU12	7	5	3	147	f	q		2	compression flake	
Ravine	SU12	7	5	3	148	d	q		2	feather	
Ravine	SU12	7	5	3	149	p	q		2	focal, hertzian	
Ravine	SU12	7	5	3	150	ff	q		2		
Ravine	SU12	7	5	3	151	ff	q		2		
Ravine	SU12	7	5	3	152	ff	q		1		
Ravine	SU12	7	5	3	153	ff	q		1		
Ravine	SU12	7	5	3	154	ff	q		1		
Ravine	SU12	7	5	4	155	w	unc		10	broken pebble with part of a depression on 1 face consistent with whetstone or grinding use	p
Ravine	SU12	7	5	4	156	ff	q		2		
Ravine	SU12	7	5	4	157	ff	q		2		
Ravine	SU12	7	5	4	158	ff	q		2		
Ravine	SU12	7	5	4	159	ff	q		2		
Ravine	SU12	7	5	4	160	f	q		2	bipolar	
Ravine	SU12	7	5	4	161	ff	q		1		
Ravine	SU12	7	5	4	162	ff	q		2		
Ravine	SU12	7	6	2	163	f	t		6	broad, hertzian, feather	p
Ravine	SU12	7	6	2	164	ff	t		5		p
Ravine	SU12	7	6	2	165	f	t		4	focal, hertzian, outre passe	p
Ravine	SU12	7	6	2	166	fp	t		5		p
Ravine	SU12	7	6	2	167	f	t		5	broad, bending, outre passe	
Ravine	SU12	7	6	2	168	ff	t		5		p
Ravine	SU12	7	6	2	169	ff	t		5		p
Ravine	SU12	7	6	2	170	ff	t		4		
Ravine	SU12	7	6	2	171	ff	t		4		
Ravine	SU12	7	6	2	172	d	t		4	outre passe	p
Ravine	SU12	7	6	2	173	ff	t		4		
Ravine	SU12	7	6	2	174	f	t		3	axial termination	p
Ravine	SU12	7	6	2	175	ff	t		4		
Ravine	SU12	7	6	2	176	ff	t		4		p
Ravine	SU12	7	6	2	177	f	t		3	broad, hertzian, hinge	

Ravine	SU12	7	6	2	178	f	t		3	broad, hertzian, outre passe, 4 ridges	
Ravine	SU12	7	6	2	179	ff	t		3		p
Ravine	SU12	7	6	2	180	fp	t		3		p
Ravine	SU12	7	6	2	181	f	t		4	focal, hertzian, feather, 2 ridges	
Ravine	SU12	7	6	2	182	f	t		3	focal, hertzian, feather	p
Ravine	SU12	7	6	2	183	d	t		4	feather	p
Ravine	SU12	7	6	2	184	f	t		3	focal, step, core rotation, 2 ridges	
Ravine	SU12	7	6	2	185	ff	t		3		
Ravine	SU12	7	6	2	186	fp	t		3		
Ravine	SU12	7	6	2	187	f	t		3	focal, hertzian, feather	
Ravine	SU12	7	6	2	188	ff	t		3		
Ravine	SU12	7	6	2	189	d	t		3	feather	
Ravine	SU12	7	6	2	190	ff	t		3		p
Ravine	SU12	7	6	2	191	fp	t		2		p
Ravine	SU12	7	6	2	192	f	t		2	focal, hertzian, outre passe	
Ravine	SU12	7	6	2	193	f	t		2	focal, hertzian, feather	
Ravine	SU12	7	6	2	194	d	t		2	feather	
Ravine	SU12	7	6	2	195	ff	t		2		
Ravine	SU12	7	6	2	196	f	t		3	focal, bending, feather	
Ravine	SU12	7	6	2	197	m	t		3	parrallel arises	
Ravine	SU12	7	6	2	198	f	t		3	broad, hertzian, step, longitudinally broken	
Ravine	SU12	7	6	2	199	fp	t		3		p
Ravine	SU12	7	6	2	200	f	t		2	focal, hertzian, bending, overhang removal, 1 ridge	
Ravine	SU12	7	6	2	201	f	t		2	focal, hertzian, feather	
Ravine	SU12	7	6	2	202	f	t		2	focal, hertzian, step	
Ravine	SU12	7	6	2	203	f	t		2	broad, hertzian, feather	
Ravine	SU12	7	6	2	204	fp	t		2		
Ravine	SU12	7	6	2	205	f	t		2	broad, hertzian, feather, core rotation, 2 ridges	
Ravine	SU12	7	6	2	206	ff	t		2		p
Ravine	SU12	7	6	2	207	ff	t		2		p
Ravine	SU12	7	6	2	208	f	t		2	braod, hertzian, step, overhang removal, 1 ridge	
Ravine	SU12	7	6	2	209	d	t		2	hinge	
Ravine	SU12	7	6	2	210	fp	t		3		p
Ravine	SU12	7	6	2	211	d	t		2	feather	
Ravine	SU12	7	6	2	212	ff	t		2		p
Ravine	SU12	7	6	2	213	f	t		2	focal, hertzian, step, 2 ridges	
Ravine	SU12	7	6	2	214	ff	t		2		p
Ravine	SU12	7	6	2	215	d	t		2	feather	
Ravine	SU12	7	6	2	216	p	t		2	bending, broad, step, overhang removal, parrallel arises	
Ravine	SU12	7	6	2	217	ff	t		2		

Ravine	SU12	7	6	2	218	ff	t		2		
Ravine	SU12	7	6	2	219	ff	t		2		
Ravine	SU12	7	6	2	220	f	t		2	broad, hertzian, step, 2 ridges	
Ravine	SU12	7	6	2	221	pos	t		1		p
Ravine	SU12	7	6	2	222	ff	t		2		
Ravine	SU12	7	6	2	223	ff	t		2		
Ravine	SU12	7	6	2	224	f	t		2	focal, hertzian, step, 2 ridges	
Ravine	SU12	7	6	2	225	f	t		2	longitudinally split, hertzian, broad, outre passe	
Ravine	SU12	7	6	2	226	ff	t		2		
Ravine	SU12	7	6	2	227	ff	t		2		
Ravine	SU12	7	6	2	228	d	t		1	feather	
Ravine	SU12	7	6	2	229	ff	t		2		
Ravine	SU12	7	6	2	230	ff	t		1		
Ravine	SU12	7	6	2	231	m	t		1		
Ravine	SU12	7	6	2	232	d	t		2	feather	
Ravine	SU12	7	6	2	233	d	t		1	feather	
Ravine	SU12	7	6	2	234	ff	t		1		
Ravine	SU12	7	6	2	235	ff	t		1	tuff artefacts in this spit aare likely to be part of a related knapping event	
Ravine	SU12	7	6	2	236	fp	ch		3		
Ravine	SU12	7	6	2	237	ff	ch		3		
Ravine	SU12	7	6	2	238	fp	ch		2		
Ravine	SU12	7	6	2	239	ff	ch		2		
Ravine	SU12	7	6	2	240	ff	ch		2		
Ravine	SU12	7	6	2	241	p	ch		2	focal, hertzian, 2 ridges	
Ravine	SU12	7	6	2	242	ff	ch		2		
Ravine	SU12	7	6	2	243	ff	ch		2		
Ravine	SU12	7	6	2	244	ff	ch		2		
Ravine	SU12	7	6	2	245	ff	ch		2		
Ravine	SU12	7	6	2	246	m	ch		1		
Ravine	SU12	7	6	2	247	p	ch		1	crushed platform, hertzian	
Ravine	SU12	7	6	2	248	ff	ch		2	chert all a light grey colour, very poor quality generally, with the occasional high quality fragment - all likely to be realted	
Ravine	SU12	7	6	2	249	f	q		3	compression flake	p
Ravine	SU12	7	6	2	250	f	q		3	bipolar	p
Ravine	SU12	7	6	2	251	ff	q		2		
Ravine	SU12	7	6	2	252	m	q		2		
Ravine	SU12	7	6	2	253	ff	q		2		
Ravine	SU12	7	6	2	254	ff	q		2		
Ravine	SU12	7	6	2	255	ff	q		2		

Ravine	SU12	7	6	2	256	ff	q		2		
Ravine	SU12	7	6	2	257	ff	q		2		
Ravine	SU12	7	6	2	258	ff	q		2		
Ravine	SU12	7	6	2	259	ff	q		1		
Ravine	SU12	7	6	2	260	ff	q		1		
Ravine	SU12	7	6	2	261	ff	q		2		
Ravine	SU12	7	6	2	262	ff	q		2		
Ravine	SU12	7	6	2	263	ff	q		1		
Ravine	SU12	7	6	2	264	ff	q		1		
Ravine	SU12	7	6	2	265	fp	q		1		
Ravine	SU12	7	6	2	266	fp	q		1		
Ravine	SU12	7	6	2	267	ff	ch		2	related to the others in this spit	
Ravine	SU12	7	6	2	268	ff	t		2	related to the others in this spit	
Ravine	SU12	7	6	2	269	ff	q		2		
Ravine	SU12	7	6	2	270	g	qu		13	pebble, broken, smooth depression consistent with grinding wear. Small area of pitting (30 x 20mm) consistent with anvil use	p
Ravine	SU12	7	6	3	271	uu	t		7	broad, hertzian, feather, edge damage on margins consistent with use. 3 ridges	p
Ravine	SU12	7	6	3	272	ff	t		6		p
Ravine	SU12	7	6	3	273	f	t		5	broad, hertzian, feather	p
Ravine	SU12	7	6	3	274	f	t		4	broad, bending, feather	
Ravine	SU12	7	6	3	275	d	t		5	feather	p
Ravine	SU12	7	6	3	276	f	t		4	crushed, hertzian, feather	p
Ravine	SU12	7	6	3	277	f	t		4	crushed, feather. 2 ridges	p
Ravine	SU12	7	6	3	278	ff	t		4		p
Ravine	SU12	7	6	3	279	ff	t		4		p
Ravine	SU12	7	6	3	280	ff	t		4		
Ravine	SU12	7	6	3	281	d	t		2	feather	
Ravine	SU12	7	6	3	282	ff	t		2		
Ravine	SU12	7	6	3	283	f	t		3	focal, hertzian, axial, parrallel arises, 2 ridges	
Ravine	SU12	7	6	3	284	d	t		2	feather	
Ravine	SU12	7	6	3	285	f	t		3	focal, hertzian, feather, 3 ridges	
Ravine	SU12	7	6	3	286	d	t		2	feather	
Ravine	SU12	7	6	3	287	d	t		2	feather	
Ravine	SU12	7	6	3	288	ra	t		2	bondi point, retouched from ventral, 16 x 6 x 2 mm	
Ravine	SU12	7	6	3	289	ff	t		2		
Ravine	SU12	7	6	3	290	f	t		2	focal, hertzian, feather	
Ravine	SU12	7	6	3	291	ra	t		2	distally retouched from the ventral, 16 x 6 x 3	
Ravine	SU12	7	6	3	292	f	t		2	broad, bending, feather	
Ravine	SU12	7	6	3	293	f	t		2	broad, bending, feather	

Ravine	SU12	7	6	3	294	ff	t		2		
Ravine	SU12	7	6	3	295	ff	t		2	tuff pieces in this spit are likely related to those in this and above spit	
Ravine	SU12	7	6	3	296	d	qu		4	step	p
Ravine	SU12	7	6	3	297	ff	ch		4		
Ravine	SU12	7	6	3	298	fp	ch		2	these 2 chert pieces almost certainly related to chert in spit 2	
Ravine	SU12	7	6	3	299	ff	ch		2	distinctive very fine grained material. Rejuvination piece	
Ravine	SU12	7	6	3	300	f	q		4	bipolar	
Ravine	SU12	7	6	3	301	f	q		3	compression flake	p
Ravine	SU12	7	6	3	302	ff	q		4	bipolar features	
Ravine	SU12	7	6	3	303	ff	q		3		
Ravine	SU12	7	6	3	304	ff	q		2		
Ravine	SU12	7	6	3	305	ff	q		2		
Ravine	SU12	7	6	3	306	ff	q		2		
Ravine	SU12	7	6	3	307	ff	q		2		
Ravine	SU12	7	6	3	308	fp	q		2		
Ravine	SU12	7	6	3	309	fp	q		2		
Ravine	SU12	7	6	3	310	fp	q		2		
Ravine	SU12	7	6	3	311	ff	q		2		
Ravine	SU12	7	6	3	312	ff	q		1		
Ravine	SU12	7	6	3	313	ff	q		1	quartz almost certainly related	
Ravine	SU12	7	6	4	314	ff	t		2		p
Ravine	SU12	7	6	4	315	ff	t		2		
Ravine	SU12	7	6	4	316	ff	q		2		
Ravine	SU12	8	1	1	1	ufp	t		9	irregularly shaped pebble with unifacial at 1 end, modern damage at other	
Ravine	SU12	8	1	1	2	ff	t		5		p
Ravine	SU12	8	1	1	3	f	t		5	could be a modern fracture - fresh ventral surfave	
Ravine	SU12	8	1	1	4	f	t		3	focal, hertzian, axial	
Ravine	SU12	8	1	1	5	ff	t		3		
Ravine	SU12	8	1	1	6	f	t		3	focal, hertzian, outre passe	
Ravine	SU12	8	1	1	7	ff	t		2	rejuvination flake	
Ravine	SU12	8	1	1	8	ff	t		4		
Ravine	SU12	8	1	1	9	f	t		3	focal, hertzian, axial	
Ravine	SU12	8	1	1	10	ff	t		2		p
Ravine	SU12	8	1	1	11	ff	ch		4	red, fine grained	
Ravine	SU12	8	1	1	12	fp	ch		3	red, fine grained - related to above	
Ravine	SU12	8	1	1	13	f	q		3	bipolar	
Ravine	SU12	8	1	2	14	ff	t		5		p

Ravine	SU12	8	1	2	15	f	t		6	compression flake	p
Ravine	SU12	8	1	2	16	ff	t		3		
Ravine	SU12	8	1	2	17	f	fgv		3	focal, hertzian, axial, 1 ridge	
Ravine	SU12	8	1	2	18	ff	q		3		
Ravine	SU12	8	1	2	19	ff	q		2		p
Ravine	SU12	8	1	2	20	ff	q		2		
Ravine	SU12	8	1	2	21	ff	q		2		
Ravine	SU12	8	1	2	22	ff	q		2		
Ravine	SU12	8	1	2	23	ff	q		2		
Ravine	SU12	8	1	2	24	fp	q		2		p
Ravine	SU12	8	1	2	25	ff	q		2		
Ravine	SU12	8	1	3	26	ff	t		3		
Ravine	SU12	8	1	3	27	p	t		2	broad, bending, step	
Ravine	SU12	8	1	3	28	ff	q		2		
Ravine	SU12	8	1	3	29	ff	t		3		p
Ravine	SU12	8	2	1	30	f	t		4	focal, hertzian, feather, 3 ridges	p
Ravine	SU12	8	2	1	31	f	t		4	broad, hertzian, feather, 2 ridges	
Ravine	SU12	8	2	1	32	f	t		4	broad, hertzian, feather, 2 ridges	
Ravine	SU12	8	2	1	33	p	t		2	broad, hertzian, step, 2 ridges	
Ravine	SU12	8	2	1	34	p	t		2	focal, hertzian, step, 2 ridges	
Ravine	SU12	8	2	1	35	ff	t		3		p
Ravine	SU12	8	2	1	36	f	t		3	focal, hertzian, feather, 2 ridges	
Ravine	SU12	8	2	1	37	ff	t		2		
Ravine	SU12	8	2	1	38	f	t		2	focal, hertzian, outre passe, 1 ridge	p
Ravine	SU12	8	2	1	39	ff	t		2		
Ravine	SU12	8	2	1	40	ff	t		3		p
Ravine	SU12	8	2	1	41	ff	t		2		p
Ravine	SU12	8	2	1	42	ff	t		3		
Ravine	SU12	8	2	1	43	ra	t		2	proximal, probably bondi point, steep backing retouch from ventral, edge dammage on opposing margin from ventral, consistent with use	
Ravine	SU12	8	2	1	44	f	t		3	focal, bending, hinge, overhang removal	
Ravine	SU12	8	2	1	45	f	t		2	focal, hertzian, feather	p
Ravine	SU12	8	2	1	46	ff	t		2		
Ravine	SU12	8	2	1	47	ff	t		2		
Ravine	SU12	8	2	1	48	p	t		2	broad, hertzian	
Ravine	SU12	8	2	1	49	ff	t		2		
Ravine	SU12	8	2	1	50	ff	t		2		
Ravine	SU12	8	2	1	51	ff	t		2		
Ravine	SU12	8	2	1	52	ff	t		2		
Ravine	SU12	8	2	1	53	ff	t		2		

Ravine	SU12	8	2	1	54	ff	t		2		
Ravine	SU12	8	2	1	55	ff	t		1		
Ravine	SU12	8	2	1	56	ff	t		2		
Ravine	SU12	8	2	1	57	ff	t		2		
Ravine	SU12	8	2	1	58	ff	t		1		
Ravine	SU12	8	2	1	59	f	q		5	compression flake	p
Ravine	SU12	8	2	1	60	ff	q		4		
Ravine	SU12	8	2	1	61	c	q		3	single platform core	
Ravine	SU12	8	2	1	62	fp	q		3		
Ravine	SU12	8	2	1	63	ff	q		3		p
Ravine	SU12	8	2	1	64	ff	q		3		
Ravine	SU12	8	2	1	65	ff	q		3		
Ravine	SU12	8	2	1	66	d	q		3	feather	
Ravine	SU12	8	2	1	67	ff	q		3	translucent	
Ravine	SU12	8	2	1	68	f	q		2	bipolar	
Ravine	SU12	8	2	1	69	ff	t		2		
Ravine	SU12	8	2	1	70	ff	t		2		
Ravine	SU12	8	2	1	71	ff	t		2		
Ravine	SU12	8	2	1	72	ff	t		2		
Ravine	SU12	8	2	1	73	ff	t		2		
Ravine	SU12	8	2	1	74	ff	t		2		
Ravine	SU12	8	2	1	75	ff	t		2		
Ravine	SU12	8	2	1	76	ff	t		2		
Ravine	SU12	8	2	1	77	ff	t		2		
Ravine	SU12	8	2	1	78	ff	t		1		
Ravine	SU12	8	2	1	79	ff	t		2		
Ravine	SU12	8	2	1	80	ff	t		2		
Ravine	SU12	8	2	1	81	ff	t		2		
Ravine	SU12	8	2	1	82	ff	t		2		
Ravine	SU12	8	2	1	83	ff	t		2	quartz pieces likely to be related	
Ravine	SU12	8	2	1	84	f	fgv		3	focal, hertzian, feather, 2 ridges	
Ravine	SU12	8	2	1	85	d	ch		2	feather	
Ravine	SU12	8	2	1	86	ff	ch		1		
Ravine	SU12	8	2	1	87	f	qu		4	broad, hertzian, outre passe, 2 ridges	p
Ravine	SU12	8	2	2	88	f	t		3	broad, hertzian, feather, 2 ridges	p
Ravine	SU12	8	2	2	89	d	t		2	feather	
Ravine	SU12	8	2	2	90	d	t		2	feather	p
Ravine	SU12	8	2	2	91	fp	t		2		p
Ravine	SU12	8	2	2	92	ff	t		2		
Ravine	SU12	8	2	2	93	fp	t		2		p
Ravine	SU12	8	2	2	94	f	t		2	focal, hertzian, feather	

Ravine	SU12	8	2	2	95	f	t		2	focal, hertzian, step	
Ravine	SU12	8	2	2	96	ff	t		2		
Ravine	SU12	8	2	2	97	ff	t		2		p
Ravine	SU12	8	2	2	98	ff	t		2		
Ravine	SU12	8	2	2	99	f	t		2	focal, hertzian, axial	
Ravine	SU12	8	2	2	100	pos	q		6	probable core fragment	p
Ravine	SU12	8	2	2	101	ff	q		3		p
Ravine	SU12	8	2	2	102	f	q		3	bipolar	
Ravine	SU12	8	2	2	103	ff	q		2		
Ravine	SU12	8	2	2	104	f	q		2	bipolar	
Ravine	SU12	8	2	2	105	ff	q		2		
Ravine	SU12	8	2	2	106	fp	q		2		p
Ravine	SU12	8	2	2	107	ff	q		1		
Ravine	SU12	8	2	2	108	ff	q		2		
Ravine	SU12	8	2	2	109	ff	q		2		
Ravine	SU12	8	2	2	110	ff	q		1		
Ravine	SU12	8	2	2	111	f	q		2	crushed platform, feather, 2 ridges, translucent	
Ravine	SU12	8	2	2	112	ff	q		1		
Ravine	SU12	8	2	2	113	ff	q		1		
Ravine	SU12	8	2	2	114	ff	q		2		
Ravine	SU12	8	2b	1	115	fp	t		4		p
Ravine	SU12	8	2b	1	116	f	t		4	broad, hertzian, hinge, longitudinally split	
Ravine	SU12	8	2b	1	117	f	t		3	focal, hertzian, feather, overhang removal, 2 ridges	p
Ravine	SU12	8	2b	1	118	f	t		3	focal, hertzian, step, parrallel arises	
Ravine	SU12	8	2b	1	119	f	t		3	focal, hertzian, feather, 1 ridge	
Ravine	SU12	8	2b	1	120	f	t		2	broad, hertzian, feather	
Ravine	SU12	8	2b	1	121	f	t		3	crushed, feather	p
Ravine	SU12	8	2b	1	122	ff	t		3		p
Ravine	SU12	8	2b	1	123	f	t		2	broad, hertzian, hinge	p
Ravine	SU12	8	2b	1	124	f	t		3	broad, hertzian, outre passe	
Ravine	SU12	8	2b	1	125	ff	t		2		
Ravine	SU12	8	2b	1	126	ff	t		2		p
Ravine	SU12	8	2b	1	127	f	t		2	crushed, overhange removal, feather, 2 ridges	
Ravine	SU12	8	2b	1	128	ra	t		2	geometric, flake, parrallel arises, retouched distally from ventral. 17 x 9 x 3	
Ravine	SU12	8	2b	1	129	ff	t		2		
Ravine	SU12	8	2b	1	130	ff	t		2		
Ravine	SU12	8	2b	1	131	f	t		2	focal, hertzian, step, overhang removal	
Ravine	SU12	8	2b	1	132	fp	t		2		
Ravine	SU12	8	2b	1	133	ff	t		2		
Ravine	SU12	8	2b	1	134	ff	t		2		

Ravine	SU12	8	2b	1	135	f	t		2	focal, hertzian, feather	
Ravine	SU12	8	2b	1	136	f	t		2	focal, crushed, feather, 1 ridge	
Ravine	SU12	8	2b	1	137	d	t		1	feather	
Ravine	SU12	8	2b	1	138	f	t		2	focal, feather, 2 ridges	
Ravine	SU12	8	2b	1	139	d	t		2	feather	
Ravine	SU12	8	2b	1	140	ff	t		2		
Ravine	SU12	8	2b	1	141	f	t		1	focal, hertzian, step, parrallel arises. Tuff artefacts in this spit almost certainly related	
Ravine	SU12	8	2b	1	142	f	q		5	bipolar	p
Ravine	SU12	8	2b	1	143	ff	q		5		p
Ravine	SU12	8	2b	1	144	ff	q		4		
Ravine	SU12	8	2b	1	145	ff	q		2		
Ravine	SU12	8	2b	1	146	f	q		3	focal, hertzian, feather, 2 ridges	
Ravine	SU12	8	2b	1	147	ff	q		2		
Ravine	SU12	8	2b	1	148	d	q		2	feather	
Ravine	SU12	8	2b	1	149	f	q		1	bipolar	
Ravine	SU12	8	2b	1	150	ff	q		1		
Ravine	SU12	8	2b	1	151	ff	q		1	quartz artefacts in this spit are almost certainly related.	
Ravine	SU12	8	2b	1	152	f	qu		3	broad, feather, longitudinally broken	
Ravine	SU12	8	2b	1	153	ff	fgv		2		
Ravine	SU12	8	2b	1	154	ff	ch		3	red/purple very fine grained	
Ravine	SU12	8	2b	1	155	ff	ch		3		
Ravine	SU12	8	2b	1	156	d	ch		2	feather	
Ravine	SU12	8	2b	1	157	ff	ch		2		
Ravine	SU12	8	2b	1	158	d	ch		2	feather	
Ravine	SU12	8	2b	1	159	ff	ch		1		
Ravine	SU12	8	2b	2	160	f	t		3	broad, hertzian, feather, longitudinally broken	p
Ravine	SU12	8	2b	2	161	f	t		2	broad, hertzian ,feather	
Ravine	SU12	8	2b	2	162	ff	t		2		
Ravine	SU12	8	2b	2	163	f	t		2	focal, hertzian, feather	
Ravine	SU12	8	2b	2	164	d	t		2	feather	
Ravine	SU12	8	2b	2	165	ff	t		2		p
Ravine	SU12	8	2b	2	166	ff	t		1		
Ravine	SU12	8	2b	2	167	f	t		1	broad, hertzian ,step	
Ravine	SU12	8	2b	2	168	ff	fgv		3		
Ravine	SU12	8	2b	2	169	f	q		2	bipolar, longitudinally split	
Ravine	SU12	8	2b	2	170	ff	q		2		
Ravine	SU12	8	2b	2	171	ff	q		2		
Ravine	SU12	8	2b	2	172	ff	q		2		
Ravine	SU12	8	2b	2	173	ff	q		2		

Ravine	SU12	8	2b	2	174	f	q		2	focal, hertzian, feather, longitudinally split	
Ravine	SU12	8	2b	2	175	ff	q		2		
Ravine	SU12	8	2b	2	176	ff	q		1		
Ravine	SU12	8	2b	2	177	ff	ch		2		
Ravine	SU12	8	2b	2	178	ff	ch		1		
Ravine	SU12	8	2b	3	179	f	fgv		2	broad, bending, step	
Ravine	SU12	8	2b	3	180	fp	q		2		
Ravine	SU12	8	3	1	181	c	t		7	amorphous core, minor flaking from 1 cortical margin	p
Ravine	SU12	8	3	1	182	f	t		5	focal, hertzian, feather, 2 ridges	p
Ravine	SU12	8	3	1	183	ff	t		7		p
Ravine	SU12	8	3	1	184	ff	t		6		p
Ravine	SU12	8	3	1	185	fp	t		5		p
Ravine	SU12	8	3	1	186	f	t		7	focal, hertzian, feather, 2 ridges	
Ravine	SU12	8	3	1	187	f	t		7	crushed, outre passe, parrallel arises	p
Ravine	SU12	8	3	1	188	ff	t		5		
Ravine	SU12	8	3	1	189	f	t		4	broad, hertzian, feather	p
Ravine	SU12	8	3	1	190	f	t		3	broad, hertzian, feather, 2 ridges	
Ravine	SU12	8	3	1	191	f	t		4	focal, outre passe	p
Ravine	SU12	8	3	1	192	ff	t		4		
Ravine	SU12	8	3	1	193	f	t		4	focal, hertzian, feather, longitudinally split	
Ravine	SU12	8	3	1	194	ff	t		3		p
Ravine	SU12	8	3	1	195	f	t		4	focal, hertzian, feather, 2 ridges	p
Ravine	SU12	8	3	1	196	f	t		3	crushed, hinge, 1 ridge	
Ravine	SU12	8	3	1	197	d	t		3	feather	
Ravine	SU12	8	3	1	198	f	t		3	focal, hertzian, feather, overhang removal, 2 ridges	
Ravine	SU12	8	3	1	199	f	t		2	broad, hertzian, axial	p
Ravine	SU12	8	3	1	200	f	t		4	focal, hertzian, feather, 2 ridges	p
Ravine	SU12	8	3	1	201	ff	t		3		
Ravine	SU12	8	3	1	202	ff	t		3		
Ravine	SU12	8	3	1	203	f	t		3	focal, hertzian, hinge	
Ravine	SU12	8	3	1	204	f	t		2	focal, hertzian	
Ravine	SU12	8	3	1	205	ff	t		2		
Ravine	SU12	8	3	1	206	d	t		2	feather	
Ravine	SU12	8	3	1	207	p	t		2	focal, hertzian, 1 ridge	
Ravine	SU12	8	3	1	208	f	t		2	crushed, feather, 2 ridges	
Ravine	SU12	8	3	1	209	f	t		2	focal, hertzian, feather, 2 ridges	
Ravine	SU12	8	3	1	210	f	t		3	hertzian, feather, longitudinally broken	
Ravine	SU12	8	3	1	211	ff	t		2		
Ravine	SU12	8	3	1	212	ff	t		2		
Ravine	SU12	8	3	1	213	ff	t		2		

Ravine	SU12	8	3	1	214	ff	t		2		
Ravine	SU12	8	3	1	215	f	t		2	broad, bending, hinge, 2 ridges	
Ravine	SU12	8	3	1	216	ff	t		2		
Ravine	SU12	8	3	1	217	d	t		2	feather	
Ravine	SU12	8	3	1	218	f	t		2	crushed, feather	p
Ravine	SU12	8	3	1	219	ff	t		2		
Ravine	SU12	8	3	1	220	f	t		1	broad, bending, step	
Ravine	SU12	8	3	1	221	f	t		2	broad, bending, feather	
Ravine	SU12	8	3	1	222	f	t		1	crushed, feather, 1 ridge	
Ravine	SU12	8	3	1	223	ff	t		2		
Ravine	SU12	8	3	1	224	f	t		2	broad, hertzian, feather. Tuff artefacts in this spit are liekly to be related	
Ravine	SU12	8	3	1	225	p	s		2	high quality white. Focal, hertzian, parrallel arises	
Ravine	SU12	8	3	1	226	d	qu		3	feather	
Ravine	SU12	8	3	1	227	f	ch		2	focal, hertzian, feather, 2 ridges	p
Ravine	SU12	8	3	1	228	f	ch		4	broad, hertzian, feather, 2 ridges	?
Ravine	SU12	8	3	1	229	ff	t		2		
Ravine	SU12	8	3	1	230	ff	q		2		p
Ravine	SU12	8	3	1	231	ff	q		2		
Ravine	SU12	8	3	1	232	ff	q		2		
Ravine	SU12	8	3	1	233	ff	t		2		
Ravine	SU12	8	3	2	234	f	t		5	broad, hertzian, feather, 3 ridges	p
Ravine	SU12	8	3	2	235	ff	t		4		
Ravine	SU12	8	3	2	236	ff	t		5		
Ravine	SU12	8	3	2	237	f	t		4	focal, hertzian, feather, longitudinally split	p
Ravine	SU12	8	3	2	238	ff	t		3		p
Ravine	SU12	8	3	2	239	ff	t		3		
Ravine	SU12	8	3	2	240	ff	t		4		
Ravine	SU12	8	3	2	241	ff	t		3		p
Ravine	SU12	8	3	2	242	ff	t		3		p
Ravine	SU12	8	3	2	243	f	t		3	focal, hertzian, hinge	
Ravine	SU12	8	3	2	244	ff	t		3		
Ravine	SU12	8	3	2	245	f	t		3	crushed, hertzian, step, 1 ridge	
Ravine	SU12	8	3	2	246	f	t		3	broad, hertzian, feather, longitudinally broken	
Ravine	SU12	8	3	2	247	f	t		3	broad, hertzian, feather, longitudinally broken	
Ravine	SU12	8	3	2	248	ff	t		3		
Ravine	SU12	8	3	2	249	f	t		3	focal, hertzian, feather, longitudinally split	
Ravine	SU12	8	3	2	250	ff	t		2		
Ravine	SU12	8	3	2	251	ff	t		2		
Ravine	SU12	8	3	2	252	ff	t		2		
Ravine	SU12	8	3	2	253	ff	t		2		

Ravine	SU12	8	3	2	254	f	t		2	focal, hertzian, step	
Ravine	SU12	8	3	2	255	ff	t		2		
Ravine	SU12	8	3	2	256	f	t		2	focal, hertzian, axial, 1 ridge	
Ravine	SU12	8	3	2	257	ff	t		2		
Ravine	SU12	8	3	2	258	f	t		2	bending, feather	
Ravine	SU12	8	3	2	259	ff	t		2		
Ravine	SU12	8	3	2	260	f	t		2	focal, hertzian, feather	
Ravine	SU12	8	3	2	261	ff	t		2		
Ravine	SU12	8	3	2	262	ff	t		2		
Ravine	SU12	8	3	2	263	ff	t		2		
Ravine	SU12	8	3	2	264	p	t		1	focal, hertzian, 2 ridges	
Ravine	SU12	8	3	2	265	f	t		1	focal, hertzian, feather. Tuff artefacts in this spit and spit above are likely to be related	
Ravine	SU12	8	3	2	266	f	q		4	compression flake	
Ravine	SU12	8	3	2	267	f	q		4	bipolar	
Ravine	SU12	8	3	2	268	d	q		3	feather	
Ravine	SU12	8	3	2	269	ff	q		3		
Ravine	SU12	8	3	2	270	f	q		2	bipolar	
Ravine	SU12	8	3	2	271	ff	q		2		
Ravine	SU12	8	3	2	272	d	q		2	feather	
Ravine	SU12	8	3	2	273	d	q		2	feather	
Ravine	SU12	8	3	2	274	ff	q		2		
Ravine	SU12	8	3	2	275	ff	q		2		
Ravine	SU12	8	3	2	276	ff	q		2		
Ravine	SU12	8	3	2	277	ff	q		2		
Ravine	SU12	8	3	2	278	ff	q		1		
Ravine	SU12	8	3	2	279	f	q		1	crushed, hertzian, feather, 1 ridge. Quartz pieces in this and the above spit are likely to be related	
Ravine	SU12	8	3	2	280	f	ch		2	1 of 6 related pieces - black high quality chert. Broad, hertzian, feather, on 1 margin retouching from a larger piece - rejuvination flake	
Ravine	SU12	8	3	2	281	ff	ch		2		
Ravine	SU12	8	3	2	282	f	ch		2	gull wing, 2 initiation points, 2 erailleur scars, feather termination	
Ravine	SU12	8	3	2	283	f	ch		2	focal, hertzian, feather, 2 ridges	
Ravine	SU12	8	3	2	284	m	ch		2		
Ravine	SU12	8	3	2	285	f	ch		2	focal hertzian, feather, core rotation, 2 ridges	
Ravine	SU12	8	3	2	286	f	ch		3	broad, hertzian, feather, 3 ridges. Different material to the above	p
Ravine	SU12	8	3	2	287	f	ch		1	focal, hertzian, feather, 1 ridge	
Ravine	SU12	8	3	3	288	f	t		2	focal, hertzian, feather, 2 ridges	

Ravine	SU12	8	4	1	289	ff	t		6		p
Ravine	SU12	8	4	1	290	f	t		6	crushed, feather, 2 scars, overhang removal	
Ravine	SU12	8	4	1	291	f	t		4	focal, hertzian, feather, 2 ridges	p
Ravine	SU12	8	4	1	292	pos	t		2		
Ravine	SU12	8	4	1	293	f	t		2	focal, hertzian	
Ravine	SU12	8	4	1	294	ff	t		2		
Ravine	SU12	8	4	1	295	ff	t		2		
Ravine	SU12	8	4	1	296	ff	t		2		
Ravine	SU12	8	4	1	297	ff	t		2		
Ravine	SU12	8	4	1	298	f	t		2	focal, hertzian, step, 2 ridges	
Ravine	SU12	8	4	1	299	f	t		2	focal, hertzian, feather, overhang removal	
Ravine	SU12	8	4	1	300	ff	q		4		
Ravine	SU12	8	4	1	301	ff	q		2		
Ravine	SU12	8	4	1	302	ff	q		2		
Ravine	SU12	8	4	1	303	ff	q		2		
Ravine	SU12	8	4	1	304	f	ch		2	focal, hertzian, feather, 2 ridges	
Ravine	SU12	8	4	1	305	ff	ch		2		
Ravine	SU12	8	4	2	306	f	ch		3	broad, hertzian, step	
Ravine	SU12	8	4	2	307	ff	ch		2		
Ravine	SU12	8	4	2	308	ff	t		1		
Ravine	SU12	8	4	3	309	ff	t		2		
Ravine	SU12	8	4	3	310	ff	q		1		
Ravine	SU6	1	1	1	1	f	t		6	crushed platform; hertzian; axial termination and 1 ridge	p
Ravine	SU6	1	1	1	2	f	t		3	broad platform; hertzian; feather; 3 ridges	
Ravine	SU6	1	1	1	3	f	t		6	focal; hertzian; plunging; 2 ridges	p
Ravine	SU6	1	1	1	4	f	t		3	crushed platform; axial; 2 ridges	
Ravine	SU6	1	1	1	5	f	t		3	broad; hertzian; feather	p
Ravine	SU6	1	1	1	6	f	t		3	focal; hertzian; step	
Ravine	SU6	1	1	1	7	f	t		3	focal; hertzian; feather; 3 ridges	
Ravine	SU6	1	1	1	8	ff	t		3		p
Ravine	SU6	1	1	1	9	f	t		3	focal; hertzian; feather; 2 ridges	
Ravine	SU6	1	1	1	10	ff	t		2		
Ravine	SU6	1	1	1	11	ff	t		2		
Ravine	SU6	1	1	1	12	p	t		2	focal; hertzian	
Ravine	SU6	1	1	1	13	f	t		2	focal; bending; feather; core rotation	
Ravine	SU6	1	1	1	14	d	t		2	feather	
Ravine	SU6	1	1	1	15	fp	ch		3		
Ravine	SU6	1	1	1	16	fp	ch		2		
Ravine	SU6	1	1	1	17	ff	ch		3		
Ravine	SU6	1	1	1	18	ff	ch		2		

Ravine	SU6	1	1	1	19	ff	ch		2		
Ravine	SU6	1	1	1	20	f	ch		2	broad; hertzian; feather; parallel arises	
Ravine	SU6	1	1	1	21	ff	ch		2		
Ravine	SU6	1	1	1	22	ff	q		2		
Ravine	SU6	1	1	1	23	f	fgv		3	focal; hertzian; axial; 1 ridge	
Ravine	SU6	1	1	2	24	p	t		3	broad; hertzian	
Ravine	SU6	1	1	2	25	f	t		3	broad; hertzian; axial; longitudinally split	
Ravine	SU6	1	1	2	26	ff	t		3		
Ravine	SU6	1	1	2	27	f	t		2	focal; hertzian; feather; 2 ridges	p
Ravine	SU6	1	1	2	28	f	t		3	focal; hertzian; feather; 2 ridges	
Ravine	SU6	1	1	2	29	f	t		3	focal; hertzian; feather; 1 ridge	
Ravine	SU6	1	1	2	30	ff	t		2		
Ravine	SU6	1	1	2	31	ff	t		2		
Ravine	SU6	1	1	2	32	ff	t		2		
Ravine	SU6	1	1	2	33	ff	t		2		
Ravine	SU6	1	1	2	34	m	t		2		
Ravine	SU6	1	1	2	35	ff	t		2		
Ravine	SU6	1	1	2	36	p	t		1	bending	
Ravine	SU6	1	1	2	37	f	t		1	broad; hertzian; feather; overhang removal	
Ravine	SU6	1	1	2	38	pos	ch		3		
Ravine	SU6	1	1	2	39	pos	ch		3		
Ravine	SU6	1	1	2	40	p	t		2	focal hertzian; parallel arises	
Ravine	SU6	1	1	2	41	d	t		2	feather	
Ravine	SU6	1	1	3	42	ff	ch		3		
Ravine	SU6	1	1	3	43	p	t		2	focal; hertzian	
Ravine	SU6	1	1	3	44	p	t		2	broad; hertzian	p
Ravine	SU6	1	1	3	45	ff	q		3		
Ravine	SU6	1	2	1	46	f	t		4	focal; hertzian; axial; 4 ridges	
Ravine	SU6	1	2	1	47	f	t		6	broad; hertzian; axial; 4 ridges	
Ravine	SU6	1	2	1	48	ff	t		3		p
Ravine	SU6	1	2	1	49	ff	t		4		p
Ravine	SU6	1	2	4	50	ff	t		4		p
Ravine	SU6	1	2	1	51	p	t		2	broad; hertzian	
Ravine	SU6	1	2	1	52	ff	t		2		
Ravine	SU6	1	2	1	53	p	t		1	broad; hertzian	
Ravine	SU6	1	2	1	54	ff	t		2		
Ravine	SU6	1	2	1	55	p	t		1	broad; hertzian	
Ravine	SU6	1	2	1	56	pos	q		2		
Ravine	SU6	1	2	1	57	f	ch		2	crushed; hertzian; hinge	
Ravine	SU6	1	2	2	58	ff	t		5		
Ravine	SU6	1	2	2	59	f	t		4	focal; hertzian; feather; 1 ridge	

Ravine	SU6	1	2	2	60	f	t		3	focal; hertzian; feather; 1 ridge	
Ravine	SU6	1	2	2	61	f	t		2	broad; hertzian; feather	p
Ravine	SU6	1	2	2	62	f	t		2	focal; hertzian; step; parallel arises	
Ravine	SU6	1	2	2	63	p	t		2	focal; hertzian; parallel arises	
Ravine	SU6	1	2	2	64	ff	t		2		
Ravine	SU6	1	2	2	65	pos	q		3		
Ravine	SU6	1	2	2	66	ff	q		1		
Ravine	SU6	1	2	2	67	d	ch		4	axial	
Ravine	SU6	1	2	2	68	f	ch		2	focal; hertzian; step	
Ravine	SU6	1	2	2	69	p	ch		2	focal; hertzian	
Ravine	SU6	1	2	2	70	ff	ch		2		
Ravine	SU6	1	2	3	71	ff	q		3		
Ravine	SU6	1	2	4	72	ff	q		2		
Ravine	SU6	1	3	1	73	f	t		4	focal; hertzian; feather; 3 ridges	p
Ravine	SU6	1	3	1	74	f	t		3	focal; hertzian; step; 1 ridge	
Ravine	SU6	1	3	1	75	ff	t		3		
Ravine	SU6	1	3	1	76	ff	t		2		
Ravine	SU6	1	3	1	77	f	q		4	broad; compression flake; 1 ridge	p
Ravine	SU6	1	3	1	78	f	q		3	focal; hertzian; feather; 3 ridges	
Ravine	SU6	1	3	1	79	fp	q		3		p
Ravine	SU6	1	3	1	80	f	q		3	focal; hertzian; hinge; 2 ridges	
Ravine	SU6	1	3	1	81	fp	ch		2		
Ravine	SU6	1	3	1	82	fp	ch		2		
Ravine	SU6	1	3	2	83	f	t		4	focal; hertzian; feather; overhang removal; numerous ridges	
Ravine	SU6	1	3	2	84	f	t		4	broad; hertzian; overhang removal	p
Ravine	SU6	1	3	2	85	f	t		3	broad; hertzian; feather	
Ravine	SU6	1	3	2	86	ff	t		3		
Ravine	SU6	1	3	2	87	p	t		3	focal; hertzian	
Ravine	SU6	1	3	2	88	ff	t		2		
Ravine	SU6	1	3	2	89	d	t		2	feather	
Ravine	SU6	1	3	2	90	ff	t		2		
Ravine	SU6	1	3	2	91	ff	t		2		
Ravine	SU6	1	3	2	92	ff	t		2		
Ravine	SU6	1	3	2	93	p	t		2	focal; hertzian	
Ravine	SU6	1	3	2	94	ff	t		2		
Ravine	SU6	1	3	2	95	ff	t		2		
Ravine	SU6	1	3	2	96	pos	q		3		
Ravine	SU6	1	3	2	97	ff	q		2		
Ravine	SU6	1	3	2	98	ff	q		2		
Ravine	SU6	1	3	2	99	ff	q		2		

Ravine	SU6	1	3	2	100	ff	q		1		
Ravine	SU6	1	3	2	101	d	t		1	feather	
Ravine	SU6	1	3	3	102	p	ch		2	focal; hertzian	
Ravine	SU6	1	3	3	103	fp	q		3		p
Ravine	SU6	1	3B	1	104	f	t		5	broad; hertzian; feather; 1 ridge	p
Ravine	SU6	1	3B	1	105	f	t		3	broad; hertzian; step; 2 ridges	
Ravine	SU6	1	3B	1	106	f	t		5	focal; hertzian; outrepasse; overhang removal	p
Ravine	SU6	1	3B	1	107	f	t		3	broad; hertzian; step; 1 ridge	
Ravine	SU6	1	3B	1	108	ff	t		3		
Ravine	SU6	1	3B	1	109	ff	t		2		
Ravine	SU6	1	3B	1	110	f	t		2	focal; hertzian; feather; parallel arises	
Ravine	SU6	1	3B	1	111	ff	t		2		
Ravine	SU6	1	3B	1	112	f	t		2	focal; hertzian; feather	
Ravine	SU6	1	3B	1	113	ff	t		2		
Ravine	SU6	1	3B	1	114	ff	t		2		
Ravine	SU6	1	3B	1	115	ff	t		2		
Ravine	SU6	1	3B	1	116	ff	t		2		
Ravine	SU6	1	3B	1	117	f	t		2	broad; hertzian; feather	
Ravine	SU6	1	3B	1	118	ff	t		2		
Ravine	SU6	1	3B	1	119	f	t		2	focal; hertzian; feather	
Ravine	SU6	1	3B	1	120	f	t		2	focal; hertzian; feather	
Ravine	SU6	1	3B	1	121	f	ch		3	focal; hertzian; step; 1 ridge; grey; high quality	
Ravine	SU6	1	3B	1	122	f	q		1	focal; hertzian; feather	
Ravine	SU6	1	3B	1	123	ff	q		2		
Ravine	SU6	1	3B	1	124	ff	q		2		
Ravine	SU6	1	3B	2	125	f	t		6	focal; hertzian; feather; 2 ridges; longitudinally split	
Ravine	SU6	1	3B	2	126	f	t		3	focal; hertzian; feather	
Ravine	SU6	1	3B	2	127	d	t		3	feather; parallel arises	
Ravine	SU6	1	3B	2	128	d	t		3	feather; 1 ridge	
Ravine	SU6	1	3B	2	129	d	t		3	feather	
Ravine	SU6	1	3B	2	130	ra	t		3	broken; probably distal; bifacial retouch backing	
Ravine	SU6	1	3B	2	131	ff	t		3		
Ravine	SU6	1	3B	2	132	ra	t		2	proximal portion; retouch along part of one margin	
Ravine	SU6	1	3B	2	133	f	t		2	focal; hertzian; feather	
Ravine	SU6	1	3B	2	134	f	ch		2	broad; hertzian; feather; 2 ridges	p
Ravine	SU6	1	3B	2	135	ff	ch		2		
Ravine	SU6	1	3B	2	136	f	ch		2	broad; hertzian; feather	
Ravine	SU6	1	3B	2	137	m	ch		2		
Ravine	SU6	1	3B	2	138	ff	ch		2		
Ravine	SU6	1	3B	2	139	ff	t		1		

Ravine	SU6	1	3B	2	140	ff	ch		2		
Ravine	SU6	1	3B	2	141	fp	q		2		
Ravine	SU6	1	3B	2	142	f	q		1	focal; hertzian; feather; 1 ridge	
Ravine	SU6	1	4	1	143	ff	t		2		
Ravine	SU6	1	4	1	144	pos	ch		2		
Ravine	SU6	1	4	1	145	pos	ch		2		
Ravine	SU6	1	4	1	146	pos	s		1		
Ravine	SU6	1	4	1	147	f	ch		2	focal	
Ravine	SU6	1	4	1	148	f	qu		4	broad; hertzian; feather	p
Ravine	SU6	1	4	2	149	f	t		4	broad; hertzian; feather	p
Ravine	SU6	1	4	2	150	ff	t		3		
Ravine	SU6	1	4	2	151	ff	t		3		p
Ravine	SU6	1	4	2	152	f	t		3	parallel arises	
Ravine	SU6	1	4	2	153	ff	q		5		p
Ravine	SU6	1	4	2	154	f	q		2	broad; hertzian; feather; longitudinally split	
Ravine	SU6	1	4	2	155	ff	q		2		
Ravine	SU6	1	4	2	156	ff	ch		1		
Ravine	SU6	1	4	3	157	d	q		2	feather	
Ravine	SU6	1	5	1	158	f	t		1	focal; hertzian; feather	
Ravine	SU6	1	5	1	159	pos	ch		1		
Ravine	SU6	1	5	1	160	p	q		2	broad; hertzian	
Ravine	SU6	1	5	2	161	p	ch		2	broad; hertzian; black high quality	
Ravine	SU6	1	5	2	162	ff	q		1		
Ravine	SU6	1	5	3	163	ff	t		2		
Ravine	SU6	1	5	3	164	ff	q		1		
Ravine	SU6	1	5	3	165	ff	q		4		
Ravine	SU6	1	6	1	166	f	t		5	focal; hertzian; feather	p
Ravine	SU6	1	6	1	167	f	t		4	focal; hertzian; axial	
Ravine	SU6	1	6	1	168	f	t		3	focal; hertzian; feather; 1 ridge	
Ravine	SU6	1	6	1	169	ff	q		3		
Ravine	SU6	1	6	1	170	ff	q		2		
Ravine	SU6	1	6	1	171	ff	q		2		
Ravine	SU6	1	6	1	172	ff	q		2		
Ravine	SU6	1	6	1	173	f	q		2	bipolar	
Ravine	SU6	1	6	1	174	ra	q		2	broken bondi point	
Ravine	SU6	1	6	1	175	ff	q		2		
Ravine	SU6	1	6	1	176	ff	q		2		
Ravine	SU6	1	6	1	177	f	q		1	bipolar	
Ravine	SU6	1	6	2	178	ff	q		3		
Ravine	SU6	2	1	1	1	f	t		2	broad; bending; feather	p
Ravine	SU6	2	1	1	2	ff	t		4		p

Ravine	SU6	2	1	1	3	f	t		4	focal; hertzian; feather; 1 ridge	
Ravine	SU6	2	1	1	4	d	t		4	feather	p
Ravine	SU6	2	1	1	5	f	t		3	focal; hertzian; outrepasse; 3 ridges	
Ravine	SU6	2	1	1	6	f	t		4	broad; hertzian; feather; longitudinally split	
Ravine	SU6	2	1	1	7	ff	t		2		
Ravine	SU6	2	1	1	8	ff	t		2		
Ravine	SU6	2	1	1	9	f	t		2	focal; hertzian; feather	
Ravine	SU6	2	1	1	10	ff	t		1		
Ravine	SU6	2	1	1	11	ff	t		2		
Ravine	SU6	2	1	1	12	d	t		2	feather	
Ravine	SU6	2	1	1	13	pos	q		3		
Ravine	SU6	2	1	1	14	ff	q		1		
Ravine	SU6	2	1	2	15	f	t		5	focal; hertzian; hinge	p
Ravine	SU6	2	1	2	16	ff	t		4		p
Ravine	SU6	2	1	2	17	ff	t		3	1 ridge	
Ravine	SU6	2	1	2	18	f	t		4	focal; hertzian; feather; 1 ridge	p
Ravine	SU6	2	1	2	19	d	t		3	feather	
Ravine	SU6	2	1	2	20	d	t		3	feather	
Ravine	SU6	2	1	2	21	ff	t		2		
Ravine	SU6	2	1	2	22	f	t		2	broad; hertzian; feather	
Ravine	SU6	2	1	2	23	ff	t		2		
Ravine	SU6	2	1	2	24	ff	t		3		
Ravine	SU6	2	1	2	25	p	t		1		
Ravine	SU6	2	1	2	26	f	t		2	broad; hertzian; step	
Ravine	SU6	2	1	2	27	ff	t		2	all tuff arts in spit 2 are probably related	
Ravine	SU6	2	1	2	28	ff	q		3		p
Ravine	SU6	2	1	2	29	ff	q		3		
Ravine	SU6	2	1	2	30	f	q		2	focal; hertzian; feather	
Ravine	SU6	2	1	2	31	f	q		2	bipolar	
Ravine	SU6	2	1	2	32	ff	ch		2	black high quality	
Ravine	SU6	2	1B	1	33	cf	t		5		
Ravine	SU6	2	1B	1	34	p	t		3	broad; hertzian; 2 ridges	
Ravine	SU6	2	1B	1	35	f	t		2	broad; bending; step	
Ravine	SU6	2	1B	1	36	ff	t		2		
Ravine	SU6	2	1B	1	37	ff	t		2		
Ravine	SU6	2	1B	1	38	ff	t		3		p
Ravine	SU6	2	1B	1	39	f	t		6	broad; hertzian; feather	p
Ravine	SU6	2	1B	1	40	cf	q		6		p
Ravine	SU6	2	1B	1	41	fp	q		3		
Ravine	SU6	2	1B	1	42	ff	q		1		
Ravine	SU6	2	1B	1	43	ff	q		1		

Ravine	SU6	2	1B	1	44	ff	ch		1		
Ravine	SU6	2	1B	2	45	ff	t		2		
Ravine	SU6	2	1B	2	46	ff	t		4		
Ravine	SU6	2	1B	2	47	ff	t		2		p
Ravine	SU6	2	1B	2	48	fp	t		2		
Ravine	SU6	2	1B	2	49	f	t		2	broad; hertzian; step; 2 ridges	
Ravine	SU6	2	1B	2	50	ff	q		4		
Ravine	SU6	2	1B	2	51	ff	q		3		
Ravine	SU6	2	1B	2	52	ff	q		2		
Ravine	SU6	2	1B	2	53	f	ch		3	focal; hertzian; feather; parallel arises; dark grey	
Ravine	SU6	2	1B	2	54	f	ch		2	broad; hertzian; feather; 2 ridges	
Ravine	SU6	2	1B	3	55	f	t		2	focal; bending; feather; 2 ridges; overhang removal	
Ravine	SU6	2	1B	3	56	ff	q		1		
Ravine	SU6	2	3	1	57	p	t		2	crushed platform; step; 2 ridges	
Ravine	SU6	2	3	1	58	ff	t		3		
Ravine	SU6	2	3	1	59	p	t		1	focal; hertzian; 2 ridges	
Ravine	SU6	2	3	1	60	ff	t		3		p
Ravine	SU6	2	3	1	61	d	fgv		2	feather	
Ravine	SU6	2	3	2	62	d	t		3		p
Ravine	SU6	2	3	2	63	f	q		3	focal; hertzian; 1 ridge	
Ravine	SU6	2	3	3	64	ff	q		2		
Ravine	SU6	2	3	4	65	f	t		2	broad; hertzian; feather; overhang removal	
Ravine	SU6	2	3B	1	66	f	t		3	broad; hertzian; step	
Ravine	SU6	2	3B	1	67	ff	t		3		p
Ravine	SU6	2	3B	1	68	ra	t		3	broken in two; tip missing; bondi point	
Ravine	SU6	2	3B	1	69	ff	t		2		
Ravine	SU6	2	3B	2	70	f	t		2	focal; hertzian; feather	
Ravine	SU6	2	3B	2	71	f	q		2	broad; hertzian; feather	
Ravine	SU6	2	3B	2	72	ff	q		2		
Ravine	SU6	2	3B	2	73	f	q		5	compression flake	p
Ravine	SU6	2	4	1	74	d	t		2	feather	
Ravine	SU6	2	4	1	75	ff	t		2		
Ravine	SU6	2	4	1	76	ff	q		2		
Ravine	SU6	2	4	1	77	p	t		1	focal; hertzian; overhang removal	
Ravine	SU6	2	4	1	78	f	q		1	focal; hertzian; step	
Ravine	SU6	2	4	1	79	ff	q		2		
Ravine	SU6	2	4	1	80	ff	q		2		
Ravine	SU6	2	4	3	81	p	q		2	broad; hertzian	
Ravine	SU6	2	4	3	82	ff	q		1		
Ravine	SU6	2	4	3	83	d	q		2	feather	
Ravine	SU6	2	4	3	84	ff	q		1		

Ravine	SU6	2	5	1	85	f	t		4	broad; hertzian; step	p
Ravine	SU6	2	5	1	86	f	t		2	focal; hertzian; feather	
Ravine	SU6	2	5	1	87	f	t		1	possible eraillure	
Ravine	SU6	2	5	2	88	p	t		3	focal; hertzian; 3 ridges	
Ravine	SU6	2	5	2	89	ff	q		2		
Ravine	SU8	1	4C	1	1	pos	qu		3		
Ravine	SU8	1	4C	1	2	pos	qu		8		
Ravine	SU8	1	4D	10	3		ch?		6	flake like features; focal platform with an outrepasse termination; the entire piece is heavily waterworn and smooth; inclusive of the ventral surface and all edges	p
Ravine	SU8	3	1	2	1	d	t		1	hinge	
Ravine	SU8	3	1	3	2		t		3	flake like features; broad crush platform; hertzian; hinge; all surfaces very weathered and smooth including all margins	
Ravine	SU8	3	1	3	3		t		4	small pebble with 1 negative scar and crushing at top and bottom of scar; all surfaces very smooth including margins	
Ravine	SU8	3	1	3	4		q		2	flake fragment like; highly smooth surfaces and edges	
Ravine	SU8	3	1	4	5		t		2	fresh fracture; possible flake fragment; all faces and edges highly weathered and smooth	
Ravine	SU8	3	1	4	6		t		2	fresh fracture; possible flake fragment; all faces and edges highly weathered and smooth	
Ravine	SU8	3	2B	5	7		t		3	fresh fracture; possible flake fragment; all faces and edges highly weathered and smooth	
Ravine	SU8	3	2	2	8	ff	t		5		p
Ravine	SU8	3	2	5	9		t		2	flake like features; highly weathered; smooth surfaces and edges	
Ravine	SU8	3	3	1	10	ff	q		2		
Ravine	SU8	3	3	2	11	f	t		2	focal; hertzian; feather	p
Ravine	SU8	3	3	2	12		ch		3		
Ravine	SU8	3	3	2	13	p	ch		4	focal; crushed; 1 ridge	
Ravine	SU8	3	3	3	14		t		1	flake like features; highly weathered; smooth surfaces and edges	
Ravine	SU8	3	3	3	15		t		5	flake like features; highly weathered; smooth surfaces and edges	p
Ravine	SU8	3	3	5	16	f	t		4	bending; feather; overhang removal; 4 ridges	p
Ravine	SU8	3	3	5	17	f	t		3	broad; hertzian; feather; overhang removal; 2 ridges	
Ravine	SU8	3	3	5	18	f	t		3	focal; hertzian; axial; overhang removal; 3 ridges	p

Ravine	SU8	3	3	5	19	f	t		3	broad; hertzian; feather; overhang removal; 1 ridge	
Ravine	SU8	3	3	5	20	f	t		3	crushed; step; 2 ridges	
Ravine	SU8	3	3	5	21	f	t		3	broad; hertzian; overhang removal; 3 ridges	p
Ravine	SU8	3	3	5	22	f	t		3	broad; hertzian; feather; modern break	
Ravine	SU8	3	3	5	23	f	t		2	broad; hertzian; hinge; overhang removal	p
Ravine	SU8	3	3	5	24	p	t		2	crushed; hertzian; overhang removal; 2 ridges	
Ravine	SU8	3	3	5	25		t		2	all surfaces smooth and all edges rounded; all tuff in spit 5 most likely related event	p
Ravine	SU8	3	3	5	26	c	ch		4	part of one knapping event; #26 - 45; single platform core; platform pebble cortex; whitish fine grained; numerous scars all over	
Ravine	SU8	3	3	5	27	f	ch		3	crushed; step; overhang removal	
Ravine	SU8	3	3	5	28	ra	ch		3	flake fragment; 1 ridge; retouched both ends and one margin; chord has some possible damage consistent with use	
Ravine	SU8	3	3	5	29	f	ch		2	crushed; feather	
Ravine	SU8	3	3	5	30	f	ch		3	crushed; feather; 2 ridges; overhang removal	
Ravine	SU8	3	3	5	31	ra	ch		3	flake with crushed platform; 1 ridge; retouched on one margin from ventral and only on the distal portion	
Ravine	SU8	3	3	5	32	ff	ch		2		
Ravine	SU8	3	3	5	33	ff	ch		2		
Ravine	SU8	3	3	5	34	ra	ch		3	flake; 2 ridges; distally retouched on one margin from the ventral; edge damage with use on the chord	
Ravine	SU8	3	3	5	35	ra	ch		2	flake fragment; triangular in plan view; retouched from ventral on one margin	
Ravine	SU8	3	3	5	36	ff	ch		3		
Ravine	SU8	3	3	5	37	ff	ch		2		
Ravine	SU8	3	3	5	38	f	ch		2	broad; bending; step; 1 ridge	
Ravine	SU8	3	3	5	39	f	ch		2	pebble cortex on platform; focal; hertzian; feather; overhang removal; 2 ridges	p
Ravine	SU8	3	3	5	40	ff	ch		3		
Ravine	SU8	3	3	5	41	f	ch		2	focal; hertzian; step; overhang removal; 2 ridges	
Ravine	SU8	3	3	5	42	ff	ch		2		
Ravine	SU8	3	3	5	43	ff	ch		2		
Ravine	SU8	3	3	5	44	ff	ch		2		
Ravine	SU8	3	3	5	45	ff	ch		2		
Ravine	SU8	3	3	5	46	f	s		1	focal; hertzian; feather; overhang removal; 2 ridges; fine grained brown	
Ravine	SU8	3	3B	2	47	ff	t		2		

Ravine	SU8	3	3B	4	48	ff	q		2		
Ravine	SU8	3	3B	5	49	f	t		5	the following tuff artefacts will be related to the tuff from square 3 spit 5; focal; hertzian; hinge; overhang removal; 2 ridges	
Ravine	SU8	3	3B	5	50	p	t		4	broad; hertzian; overhang removal; 2 ridges	
Ravine	SU8	3	3B	5	51	f	t		3	focal; hertzian; feather; 1 ridge	
Ravine	SU8	3	3B	5	52	f	t		4	crushed; hertzian; feather	p
Ravine	SU8	3	3B	5	53	m	t		4	2 scars	
Ravine	SU8	3	3B	5	54	p	t		2	broad; hertzian; overhang removal	
Ravine	SU8	3	3B	5	55	d	t		4	feather	p
Ravine	SU8	3	3B	5	56	f	t		3	focal; hertzian; feather; overhang removal	p
Ravine	SU8	3	3B	5	57	f	t		2	crushed; feather; overhang removal	
Ravine	SU8	3	3B	5	58	f	t		3	crushed; feather; 1 ridge	
Ravine	SU8	3	3B	5	59	ra	t		2	flake fragment; retouch from ventral along one concave shaped margin	
Ravine	SU8	3	3B	5	60	ff	t		2		
Ravine	SU8	3	3B	5	61	ff	t		2		
Ravine	SU8	3	3B	5	62	ff	t		2		
Ravine	SU8	3	3B	5	63	ff	t		2		
Ravine	SU8	3	3B	5	64	ra	ch		3	flake; 1 ride; distally backed from the ventral; possible usewear on the chord	
Ravine	SU8	3	3B	5	65	ff	ch		3		
Ravine	SU8	3	3B	5	66	ra	ch		2	triangular in plan view	
Ravine	SU8	3	3B	5	67	d	ch		1	feather	
Ravine	SU8	3	3B	5	68	ff	ch		2	all chert in square 3B spit 5 #64 - 68 related to the chert in square 3 spit 5	
Ravine	SU8	3	3B	5	69	m	s		2	brown; almost certainly related to the piece in square 3 spit 5	
Ravine	SU8	3	4	2	70	f	t		5	focal; hertzian; outrepasse; core has been rotated	
Ravine	SU8	3	4	3	71	f	t		4	broad; hertzian; feather; 1 ridge; overhang removal	p
Ravine	SU8	4	1	3	1	f	t		3	broad; hertzian; feather; 2 ridges	
Ravine	SU8	4	1	4	2	c	t		7	split pebble; small amount of flaking from the ventral on two margins	p
Ravine	SU8	4	3	2	3		ch		2		
Ravine	SU10	1	1	1	1	f	t		2	focal; hertzian; hinge; 1 ridge	
Ravine	SU10	1	2	1	2	d	t		3	feather	
Ravine	SU10	1	2	1	3	ff	t		2		p
Ravine	SU10	1	2	1	4	f	t		2	focal; hertzian; feather	p
Ravine	SU10	1	2	1	5	p	q		2	focal; hertzian	
Ravine	SU10	1	2	1	6	ff	q		1		
Ravine	SU10	1	3	1	7	f	t		3	focal; hertzian; step; 2 ridges	

Ravine	SU10	1	3	1	8	ff	t		3		
Ravine	SU10	1	3	1	9	f	t		2	broad; bending ; feather	
Ravine	SU10	1	3	1	10	cf	ch		4		p
Ravine	SU10	1	3	1	11	ff	t		2		p
Ravine	SU10	1	3	1	12	ff	q		4		p
Ravine	SU10	1	3	2	13	f	t		4	focal; hertzian; feather; 2 ridges	
Ravine	SU10	1	3	2	14	ff	t		2		p
Ravine	SU10	1	3	2	15	ff	t		2		
Ravine	SU10	1	3	2	16	f	t		1	focal; hertzian; feather	
Ravine	SU10	1	3	2	17	ff	q		2		
Ravine	SU10	1	3	3	18	ff	t		2		
Ravine	SU10	1	3	3	19	ff	t		2		
Ravine	SU10	1	3	3	20	f	qu		3	broad; hertzian; feather; 1 ridge	
Ravine	SU10	1	3	3	21	f	ch		2	focal; feather	
Ravine	SU10	1	4	1	22	f	t		5	compression flake	p
Ravine	SU10	1	4	1	23	ff	t		3		p
Ravine	SU10	1	4	1	24	ff	t		3		
Ravine	SU10	1	4	1	25	fp	t		2		p
Ravine	SU10	1	4	1	26	uu	t		2	edge damage consistent with use on one margin; item has modern breakage	p
Ravine	SU10	1	4	1	27	ff	t		2	modern damage	
Ravine	SU10	1	4	1	28	fp	t		2	modern damage	
Ravine	SU10	1	4	1	29	ff	t		2		
Ravine	SU10	1	4	1	30	ff	t		1		p
Ravine	SU10	1	4	1	31	f	t		2	focal; hertzian; feather	p
Ravine	SU10	1	4	1	32	fp	t		2		p
Ravine	SU10	1	4	1	33	ff	t		3		
Ravine	SU10	1	4	1	34	ff	t		2		p
Ravine	SU10	1	4	1	35	f	t		1	broad; hertzian; feather	
Ravine	SU10	1	4	1	36		q		5		p
Ravine	SU10	1	4	1	37	f	q		2	focal; hertzian; feather; 3 ridges	
Ravine	SU10	1	4	1	38	ff	q		2		
Ravine	SU10	1	4	1	39	fp	q		2		
Ravine	SU10	1	4	1	40	ff	q		2		
Ravine	SU10	1	4	1	41	fp	q		2		
Ravine	SU10	1	4	1	42	ff	q		2		
Ravine	SU10	1	4	1	43	f	q		2	crushed; hertzian; feather	
Ravine	SU10	1	4	1	44	p	ch		1	edge damage consistent with use on one margin; very fine grained; high quality	
Ravine	SU10	1	4	1	45	ra	ch		2	fine grained; distally retouched from ventral	

Ravine	SU10	1	4	1	46	uu	ch		2	hertzian flake; edge damage consistent with use from the dorsal on one margin	
Ravine	SU10	1	4	1	47	f	ch		2	focal; hertzian; feather	
Ravine	SU10	1	4	2	48	f	q		3	bipolar	p
Ravine	SU10	1	4	2	49	f	q		2	focal; hertzian; feather	
Ravine	SU10	1	4	2	50	fp	q		2		
Ravine	SU10	1	4	2	51		q		2		
Ravine	SU10	1	4	2	52	f	q		2	focal; hertzian; feather; grey quartz with parallel arises	
Ravine	SU10	1	4	2	53	fp	q		2		P
Ravine	SU10	1	4	4	54	ff	q		1		
Ravine	SU10	1	5	1	55	c	fgv		7	bifacial core	p
Ravine	SU10	1	5	1	56	f	t		3	crushed; hertzian; feather; 2 ridges	
Ravine	SU10	1	5	1	57	ff	q		2		
Ravine	SU10	1	5	1	58	ff	ch		3		
Ravine	SU10	1	5	1	59	ff	ch		2		
Ravine	SU10	1	5	1	60	ff	ch		2		
Ravine	SU10	1	5	1	61	f	ch		1	focal; hertzian; feather	
Ravine	SU10	1	5	1	62	ff	ch		1		
Ravine	SU10	1	5	1	63		ch		2		
Ravine	SU10	1	5	1	64	ff	t		1		p
Ravine	SU10	1	5	2	65	c	t		6	split pebble; minor flaking; from the ventral	p
Ravine	SU10	1	5	2	66	cf	t		5		p
Ravine	SU10	1	5	2	67	f	t		4	broad; hertzian; hinge	
Ravine	SU10	1	5	2	68	f	t		3	focal; hertzian; step; 3 ridges	
Ravine	SU10	1	5	2	69	f	t		4	focal; hertzian; feather; 2 ridges	
Ravine	SU10	1	5	2	70	fp	t		3		
Ravine	SU10	1	5	2	71	ff	t		4		
Ravine	SU10	1	5	2	72	f	t		3	focal; hertzian; feather; 2 ridges	
Ravine	SU10	1	5	2	73	p	t		3	focal; hertzian; 1 ridge	
Ravine	SU10	1	5	2	74	f	t		4	broad; hertzian; feather	
Ravine	SU10	1	5	2	75	ff	t		3		p
Ravine	SU10	1	5	2	76	f	t		3	focal; hertzian; feather	
Ravine	SU10	1	5	2	77	p	t		3	focal; hertzian	
Ravine	SU10	1	5	2	78	ff	t		2		p
Ravine	SU10	1	5	2	79	f	t		3	broad; hertzian; feather; 2 ridges	
Ravine	SU10	1	5	2	80	ff	t		2		
Ravine	SU10	1	5	2	81	ff	t		2		
Ravine	SU10	1	5	2	82	ff	t		2		
Ravine	SU10	1	5	2	83	ff	t		2		
Ravine	SU10	1	5	2	84	d	t		2	feather	

Ravine	SU10	1	5	2	85	p	t		2	broad; hertzian	
Ravine	SU10	1	5	2	86	ff	q		4		
Ravine	SU10	1	5	2	87	ff	q		4		
Ravine	SU10	1	5	2	88	f	q		3	bipolar	
Ravine	SU10	1	5	2	89	ff	q		3		
Ravine	SU10	1	5	2	90	f	q		3	bipolar	
Ravine	SU10	1	5	2	91	m	q		3		
Ravine	SU10	1	5	2	92	ff	q		3		
Ravine	SU10	1	5	2	93	ff	q		2		
Ravine	SU10	1	5	2	94	d	q		2	feather	
Ravine	SU10	1	5	2	95	ff	q		2		
Ravine	SU10	1	5	2	96	ff	q		2		p
Ravine	SU10	1	5	2	97	ff	q		2		
Ravine	SU10	1	5	2	98	p	q		2	crushed; hertzian	
Ravine	SU10	1	5	2	99	f	q		2	broad; hertzian; feather	
Ravine	SU10	1	5	2	100	ff	q		2		
Ravine	SU10	1	5	2	101	ff	q		2		
Ravine	SU10	1	5	2	102	ff	q		2		
Ravine	SU10	1	5	2	103	ff	q		1		p
Ravine	SU10	1	5	2	104	ff	q		2		
Ravine	SU10	1	5	2	105	ff	q		1		
Ravine	SU10	1	5	2	106	ff	q		1		
Ravine	SU10	1	5	2	107		qu		2		
Ravine	SU10	1	5	2	108	fp	q		1		
Ravine	SU10	1	5	2	109	ff	t		1		
Ravine	SU10	1	5	2	110	f	t		3	broad; hertzian; feather; modern damage	
Ravine	SU10	1	5	2	111	f	ch		3	focal; hertzian; feather	
Ravine	SU10	1	5	2	112	ff	ch		2		
Ravine	SU10	1	5	2	113	ff	ch		2		
Ravine	SU10	1	5	2	114	ff	q		2		
Ravine	SU10	1	5	2	115	ff	q		1		
Ravine	SU10	1	5	3	116	fp	q		2		
Ravine	SU10	1	5	3	117	ff	q		2		
Ravine	SU10	1	6	1	118	f	t		4	focal; hertzian; feather	p
Ravine	SU10	1	6	1	119	fp	t		4		p
Ravine	SU10	1	6	1	120	ff	t		3		
Ravine	SU10	1	6	1	121	f	t		3	longitudinally split; modern damage;	
Ravine	SU10	1	6	1	122	f	t		3	broad; hertzian; hinge	
Ravine	SU10	1	6	1	123	fp	t		3	modern damage	
Ravine	SU10	1	6	1	124	f	t		3	focal; hertzian; feather	p
Ravine	SU10	1	6	1	125	ff	t		3		

Ravine	SU10	1	6	1	126	f	t		3	focal; hertzian; outrepasse	
Ravine	SU10	1	6	1	127	f	t		3	focal; bending; outrepasse; 2 ridges	
Ravine	SU10	1	6	1	128	ff	t		2	modern damage	
Ravine	SU10	1	6	1	129	ff	t		3		
Ravine	SU10	1	6	1	130	ff	t		2		
Ravine	SU10	1	6	1	131	p	t		2	broad; bending	
Ravine	SU10	1	6	1	132	ff	t		2		
Ravine	SU10	1	6	1	133	ff	t		2		
Ravine	SU10	1	6	1	134	ff	t		2		
Ravine	SU10	1	6	1	135	f	t		2	broad; hertzian; feather; overhang removal	
Ravine	SU10	1	6	1	136	ff	t		2		
Ravine	SU10	1	6	1	137	ff	t		2		
Ravine	SU10	1	6	1	138	ff	t		2		
Ravine	SU10	1	6	1	139	ff	t		3		
Ravine	SU10	1	6	1	140	ff	t		2		
Ravine	SU10	1	6	1	141	ra	t		3	distally retouched only from the ventral	
Ravine	SU10	1	6	1	142	ra	t		2	bondi point shape; missing tip; retouched from ventral at both ends; all of the tuff artefacts in square 6 spit 1 probably all related	
Ravine	SU10	1	6	1	143	f	q		5	compression flake; modern damage	p
Ravine	SU10	1	6	1	144	ff	q		2		
Ravine	SU10	1	6	1	145	ff	q		2		
Ravine	SU10	1	6	1	146	fp	q		2		
Ravine	SU10	1	6	1	147	ff	q		1		
Ravine	SU10	1	6	1	148	ff	ch		2		
Ravine	SU10	1	6	1	149	f	ch		2	focal; hertzian; feather	
Ravine	SU10	1	6	1	150	ff	ch		3		
Ravine	SU10	1	6	2	151		q		7		p
Ravine	SU10	1	6	2	152	ff	q		2		
Ravine	SU10	1	6	2	153	ff	q		2		
Ravine	SU10	1	6	2	154	ff	q		2		
Ravine	SU10	1	6	2	155	f	q		3		p
Ravine	SU10	1	6	2	156	ff	q		1		
Ravine	SU10	1	6	2	157	ff	q		1		
Ravine	SU10	1	6	2	158	ff	t		2		
Ravine	SU10	1	6	2	159	ff	ch		1		
Ravine	SU10	2	1	1	1	c	ch		6	pebble amorphous core	p
Ravine	SU10	2	1	1	2	ff	t		4		p
Ravine	SU10	2	1	1	3	ff	t		3		
Ravine	SU10	2	1	1	4	ff	t		3		p
Ravine	SU10	2	1	1	5	ff	t		2		

Ravine	SU10	2	1	1	6	ff	t		2		
Ravine	SU10	2	1	1	7	ff	t		2		
Ravine	SU10	2	1	1	8	ff	ch		2		
Ravine	SU10	2	1	1	9	ff	q		4		
Ravine	SU10	2	1	1	10	ff	q		2		
Ravine	SU10	2	1	1	11	f	q		2	bipolar	
Ravine	SU10	2	1	1	12	f	ch		2	focal; hertzian; step	
Ravine	SU10	2	1	1	13	ff	t		2		
Ravine	SU10	2	1	1	14	f	t		2	focal; hertzian; feather	
Ravine	SU10	2	1	1	15	ff	q		1		
Ravine	SU10	2	1	1	16	ff	t		1		
Ravine	SU10	2	1	1	17	ff	t		1		
Ravine	SU10	2	1	1	18	ff	t		1		
Ravine	SU10	2	2	1	19	ff	qu		3		p
Ravine	SU10	2	2	1	20	ff	t		3		p
Ravine	SU10	2	2	1	21	ff	t		2		
Ravine	SU10	2	2	1	22	ff	ch		2		
Ravine	SU10	2	3	2	23	ff	t		4		p
Ravine	SU10	2	3	2	24	ff	t		3		
Ravine	SU10	2	3	2	25	f	ch		1	focal; hertzian; feather	
Ravine	SU10	2	3	1	26	ff	t		4		
Ravine	SU10	2	3	1	27	ff	t		5		p
Ravine	SU10	2	3	1	28	ff	t		2		
Ravine	SU10	2	3	1	29	ff	q		1		
Ravine	SU10	2	4	1	30	cf	t		4		
Ravine	SU10	2	4	1	31	f	t		4	focal; bending; feather	
Ravine	SU10	2	4	1	32	f	t		3	focal; hertzian; feather; 1 ridge; overhang removal	
Ravine	SU10	2	4	1	33	f	t		2	focal; hertzian; feather; longitudinally split	
Ravine	SU10	2	4	1	34	ff	t		2		
Ravine	SU10	2	4	1	35	f	ch		1	focal; hertzian; feather	
Ravine	SU10	2	4	1	36	ff	q		3		
Ravine	SU10	2	4	1	37	ff	q		2		
Ravine	SU10	2	4	1	38	ff	q		2		
Ravine	SU10	2	4	1	39	ff	q		2		
Ravine	SU10	2	4	1	40	ff	q		2		
Ravine	SU10	2	4	1	41	ff	q		2		
Ravine	SU10	2	5	1	42	ff	t		4		p
Ravine	SU10	2	5	1	43	f	t		2	broad; hertzian; axial; 2 ridges	
Ravine	SU10	2	5	1	44	f	t		1	focal; hertzian; feather; overhang removal	
Ravine	SU10	2	5	1	45	ff	ch		2		
Ravine	SU10	2	5	1	46	f	ch		2	focal; hertzian; feather	

Ravine	SU10	2	5	1	47	ff	q		3		
Ravine	SU10	2	5	2	48	f	t		3	broad; hertzian; axial; 3 ridges	
Ravine	SU10	2	5	2	49	f	t		3	focal; hertzian; feather	
Ravine	SU10	2	5	2	50	f	t		2	crushed; feather	p
Ravine	SU10	2	5	2	51	f	t		2	broad; hertzian; step; overhang removal	
Ravine	SU10	2	5	2	52	ff	t		2		p
Ravine	SU10	2	5	2	53	ff	t		2		
Ravine	SU10	2	5	2	54	d	ch		2	feather	
Ravine	SU10	2	5	2	55	ff	ch		2	purple chert	
Ravine	SU10	2	5	2	56	ff	qu		3		p
Ravine	SU10	2	5	2	57	f	qu		2	focal; hertzian; feather; longitudinally split	
Ravine	SU10	2	5	2	58	ff	q		3		
Ravine	SU10	2	5	2	59	ff	q		3		
Ravine	SU10	2	5	2	60	d	q		2	feather	
Ravine	SU10	2	6	1	61	f	t		5	broad; hertzian; feather	
Ravine	SU10	2	6	1	62	uu	t		4	edge damage consistent with usewear on one margin from ventral	
Ravine	SU10	2	6	1	63	f	t		2	focal; hertzian; feather; 1 ridge	
Ravine	SU10	2	6	1	64	ff	t		3		p
Ravine	SU10	2	6	1	65	f	q		4	compression flake	p
Ravine	SU10	2	6	1	66	ff	q		2		
Ravine	SU10	2	6	1	67	ff	q		2		
Ravine	SU10	2	6	1	68	ff	q		1		
Ravine	SU10	2	6	1	69	ff	q		1		
Ravine	SU10	2	6	1	70	f	q		1	crushed ; hertzian; feather	
Ravine	SU10	2	6	1	71	ff	q		1		
Ravine	SU10	2	6	1	72	ff	t		2		
Ravine	SU10	2	6	2	73	ff	t		2		
Ravine	SU10	2	6	2	74	ff	t		2		
Ravine	SU10	2	6	2	75	ff	q		3		
Ravine	SU10	2	6	2	76	ff	q		1		
Ravine	SU11	1	1	1	1	ff	t		3		
Ravine	SU11	1	1	2	2	f	t		5	broad; hertzian; feather	p
Ravine	SU11	1	1	2	3	f	t		5	broad; hertzian; feather	p
Ravine	SU11	1	1	2	4	ff	t		5		p
Ravine	SU11	1	1	2	5	f	t		2	broad; hertzian; feather	
Ravine	SU11	1	1	2	6	ff	t		2		
Ravine	SU11	1	1	2	7	d	t		2	hinge	p
Ravine	SU11	1	1	2	8	f	t		4	crushed; hertzian; feather; 2 ridges	
Ravine	SU11	1	1	2	9	ff	t		2		p
Ravine	SU11	1	1	2	10	d	t		2	feather	p

Ravine	SU11	1	1	2	11	ff	t		2		p
Ravine	SU11	1	1	2	12	ff	t		2		p
Ravine	SU11	1	1	2	13	ff	t		1		
Ravine	SU11	1	1	2	14	d	t		1	feather	
Ravine	SU11	1	1	2	15	ff	q		2		
Ravine	SU11	1	1	2	16	ff	q		1		
Ravine	SU11	1	2	1	17	c	t		4	one rotation; numerous blade scars	
Ravine	SU11	1	2	1	18	ff	t		4		
Ravine	SU11	1	2	1	19	ff	t		4		
Ravine	SU11	1	2	1	20	f	t		2	broad; hertzian; feather; 1 ridge	
Ravine	SU11	1	2	2	21	f	t		2	focal, hertzian, feather, 1 ridge	
Ravine	SU11	1	2	2	22	ff	t		2		
Ravine	SU11	1	2	2	23	f	t		2	focal, hertzian, feather, 2 ridges	p
Ravine	SU11	1	2	2	24	ff	ch		2	rejuvination flake	
Ravine	SU11	1	3	2	25	f	t		4	crushed, hertzian, axial	
Ravine	SU11	1	3	2	26	d	t		4	feather	
Ravine	SU11	1	3	2	27	f	fgv		3	focal, hertzian, feather, 2 ridges, purple	
Ravine	SU11	1	3	2	28	p	fgv		2	broad, hertzian	
Ravine	SU11	1	3	2	29	c	q		3	bipolar	
Ravine	SU11	1	3	2	30	f	q		2	broad, hertzian, feather	
Ravine	SU11	1	3	3	31	f	t		4	broad, hertzian, feather	p
Ravine	SU11	1	3	3	32	ff	t		3		
Ravine	SU11	1	3	3	33	f	t		2	crushed, feather	
Ravine	SU11	1	3	3	34	f	t		3	focal, hertzian, 1 ridge	p
Ravine	SU11	1	3	3	35	f	t		2	focal, hertzian, feather	
Ravine	SU11	1	3	3	36	ff	t		1		
Ravine	SU11	1	3	3	37	f	fgv		2	focal, hertzian, hinge, overhang removal. Related to the 2 pieces above - purple	
Ravine	SU11	1	4	1	38	f	q		2	bipolar	
Ravine	SU11	1	4	3	39	ff	t		6		p
Ravine	SU11	1	4	3	40	f	t		5	focal, hertzian, feather, 2 ridges	p
Ravine	SU11	1	4	3	41	ff	t		2		
Ravine	SU11	1	4	3	42	ff	t		2		
Ravine	SU11	1	4	3	43	ff	t		2		
Ravine	SU11	1	4	3	44	d	t		2	hinge	
Ravine	SU11	1	4	3	45	f	t		2	focal, hertzian, feather	
Ravine	SU11	1	4	3	46	d	t		2		
Ravine	SU11	1	4	3	47	fp	t		2		
Ravine	SU11	1	4	3	48	f	t		4	focal, hertzian, feather	
Ravine	SU11	1	4	3	49	ff	t		2		
Ravine	SU11	1	4	3	50	f	t		2	broad, hertzian, feather	

Ravine	SU11	1	4	3	51	ff	t		2		
Ravine	SU11	1	3	3	52	ff	t		2		
Ravine	SU11	1	3	3	53	f	ch		2	crushed, hertzian, feather, 2 ridges	
Ravine	SU11	2	1	3	1		t		3	highly weathered	p
Ravine	SU11	2	1	3	2	ff	chal		2	high quality white	
Ravine	SU11	2	1	3	3	c	t		5	1 platform, several scars	p
Ravine	SU11	2	3	2	4	f	t		3	focal, hertzian, feather, 2 ridges	
Ravine	SU11	2	3	2	5	p	q		2	broad, hertzian	
Ravine	SU11	2	3	2	6	f	q		2	crushed, hertzian, feather	
Ravine	SU11	2	4	2	7	d	t		3	feather, 1 ridge	
Ravine	SU11	2	4	3	8	f	q		2	focal, hertzian, step, 1 ridge	
Ravine	SU11	2	4	3	9	ff	q		2		
Ravine	SU11	2	4	4	10	ff	q		2		
Ravine	SU11	2	4	4	11	p	q		1	broad, hertzian	
Ravine	SU11	2	5	1	12	f	t		2	focal, hertzian, feather	
Ravine	SU11	2	6	1	13	ff	t		1		
Ravine	SU11	3	2	2	1	ff	q		1		
Ravine	SU11	3	3	2	2	f	q		2	focal, hertzian, feather, 1 ridge	
Ravine	SU11	3	4	1	3	ff	t		3		p
Ravine	SU11	3	4	2	4	ff	q		2		
Ravine	SU11	3	4	2	5	p	q		1	focal, hertzian	
Ravine	SU11	3	5	1	6	f	q		1	focal, hertzian, feather	
Ravine	SU5	1	1	1	1	ff	t		2		
Ravine	SU5	1	1	1	2	ff	t		2		
Ravine	SU5	1	1	1	3	f	t		2	longitudinally split	
Ravine	SU5	1	1	1	4	ff	t		1		
Ravine	SU5	1	1	1	5	ff	t		2		
Ravine	SU5	1	1	1	6	d	q		3	feather	
Ravine	SU5	1	1	1	7	f	q		2	broad, hertzian, feather, overhang removal	
Ravine	SU5	1	1	1	8	ff	q		2		
Ravine	SU5	1	1	2	9	f	t		3	focal, hertzian, step, 1 ridge	
Ravine	SU5	1	1	2	10	fp	t		3		
Ravine	SU5	1	1	2	11	f	t		2	broad, hertzian, axial	
Ravine	SU5	1	1	2	12	f	t		2	longitudinally split	
Ravine	SU5	1	1	2	13	f	t		2	broad, hertzian, feather	
Ravine	SU5	1	1	2	14	f	t		3	broad, hertzian, feather	p
Ravine	SU5	1	1	2	15	f	t		2	focal, hrtzian, feather	
Ravine	SU5	1	1	2	16	ff	t		1		
Ravine	SU5	1	1	2	17	ff	t		2		
Ravine	SU5	1	1	2	18	f	q		3	bipolar	
Ravine	SU5	1	1	2	19	f	q		2	bipolar	

Ravine	SU5	1	1	2	20	f	q		1	focal, hertzian, feather	
Ravine	SU5	1	1	2	21	ff	t		1		p
Ravine	SU5	1	1	2	22	ff	t		1		
Ravine	SU5	1	1	2	23	ff	qu		3		p
Ravine	SU5	1	1	4	29	ff	q		2		
Ravine	SU5	1	1	4	30	ff	q		2		
Ravine	SU5	1	1	4	31	f			1	bipolar	
Ravine	SU5	1	1b	1	24	f	t		3	broad, hertzian, feather	
Ravine	SU5	1	1b	1	25	f	t		2	broad, bending, feather	p
Ravine	SU5	1	1b	1	26	f	q		2	bipolar	
Ravine	SU5	1	1b	1	27	ff	q		2		
Ravine	SU5	1	1b	1	28	ff	q		2		
Ravine	SU5	1	1b	2	32	ff	t		5		p
Ravine	SU5	1	1b	2	33	ff	t		2		
Ravine	SU5	1	1b	2	34	ff	t		2		
Ravine	SU5	1	1b	2	35	ff	q		1		
Ravine	SU5	1	1c	1	36	f	t		3	broad, hertzian, feather	p
Ravine	SU5	1	1c	1	37	ff	t		2		
Ravine	SU5	1	1b	1	38	f	t		2	focal, hertzian, feather, 2 ridges	
Ravine	SU5	1	1b	1	39	ff	t		1		
Ravine	SU5	1	1c	1	40	f	t		5	focal, hertzian, feather, parrallel arises, overhang removal	
Ravine	SU5	1	1c	1	41	f	ch		4	focal, hertzian, hinge	
Ravine	SU5	1	1c	2	42	f	t		4	broad, hertzian, feather, 1 ridge	p
Ravine	SU5	1	1c	2	43	f	t		5	focal, hertzian, feather	p
Ravine	SU5	1	1c	2	44	f	t		2	focal, hertzian, feather	p
Ravine	SU5	1	1c	2	45	d	t		2	feather	
Ravine	SU5	1	1c	2	46	fp	t		2		
Ravine	SU5	1	1c	2	47	f	t		2	broad, hertzian, feather	p
Ravine	SU5	1	1c	2	48	f	t		2	focal, hertzian, feather	
Ravine	SU5	1	1c	2	49	d	q		2	feather	
Ravine	SU5	1	1c	2	50	ff	q		2		
Ravine	SU5	1	1c	2	51	ff	chal		2	white, mix of very fine material and a coarse silcrete like material	
Ravine	SU5	1	1d	1	52	f	t		3	focal, ertzian, feather	
Ravine	SU5	1	1d	1	53	f	t		2	crushed, feather	
Ravine	SU5	1	1d	1	54	ff	t		2		
Ravine	SU5	1	1d	1	55	ff	t		1		p
Ravine	SU5	1	1d	1	56	ff	t		2		
Ravine	SU5	1	1d	1	57	d	t		2		
Ravine	SU5	1	1d	1	58	p	t		1	broad, hertzian	

Ravine	SU5	1	1d	1	59	ff	q		2		
Ravine	SU5	1	1d	1	60	ff	q		2		
Ravine	SU5	1	1d	2	61	ff	t		5		p
Ravine	SU5	1	1d	2	62	ff	t		3		
Ravine	SU5	1	1d	2	63	f	t		2	focal, feather	
Ravine	SU5	1	1d	2	64	ff	t		2		
Ravine	SU5	1	1d	2	65	ff	t		2		
Ravine	SU5	1	1d	2	66	f	t		2	focal, hertzian, feather	
Ravine	SU5	1	1d	2	67	p	q		2	broad, hertzian	
Ravine	SU5	1	1d	2	68	ff	qu		3		
Ravine	SU5	1	1d	2	69	f	qu		3	longitudinally split	p
Ravine	SU5	1	1d	2	70	fp	qu		2		
Ravine	SU5	1	1d	3	71	f	t		2	focal, hertzian, outre passe	
Ravine	SU5	1	2	1	72	f	t		3	broad, hertzian, feather	
Ravine	SU5	1	2	1	73	f	t		3	focal, hertzian, feather	p
Ravine	SU5	1	2	1	74	f	t		3	focal, hertzian, feather, 2 ridges	
Ravine	SU5	1	2	1	75	f	t		3	broad, hertzian, feather	
Ravine	SU5	1	2	1	76	f	t		2	broad, hertzian, step, 1 ridge	
Ravine	SU5	1	2	1	77	ff	t		3		
Ravine	SU5	1	2	1	78	ff	t		2		
Ravine	SU5	1	2	1	79	f	t		2	longitudinally split	
Ravine	SU5	1	2	1	80	ff	t		2		
Ravine	SU5	1	2	1	81	f	t		1	focal, hertzian, step. Tuff artefacts in this spit probably related	
Ravine	SU5	1	2	1	82	f	q		3	bipolar	
Ravine	SU5	1	2	1	83	ff	q		2		
Ravine	SU5	1	2	1	84	ff	q		2		
Ravine	SU5	1	2	2	85	f	t		7	focal, hertzian, feather	p
Ravine	SU5	1	2	2	86	f	t		2	focal, hertzian, feather	
Ravine	SU5	1	2	2	87	f	t		2	focal, hertzian, feather	
Ravine	SU5	1	2	2	88	ff	t		2		
Ravine	SU5	1	2	2	89	f	t		2	broad, hertzian, feather	
Ravine	SU5	1	2	2	90	ff	t		2		
Ravine	SU5	1	2	2	91	ff	t		2		
Ravine	SU5	1	2	2	92	f	chal		2	focal, hertzian, feather, white	
Ravine	SU5	1	2	2	93	ff	q		2		
Ravine	SU5	1	3	1	94	cf	t		4		
Ravine	SU5	1	3	1	95	p	t		2	focal, hertzian	
Ravine	SU5	1	3	1	96	f	t		2	focal, hertzian, hinge	
Ravine	SU5	1	3	1	97	ff	t		2		
Ravine	SU5	1	3	1	98	ff	t		2		

Ravine	SU5	1	3	1	99	ff	t		1		
Ravine	SU5	1	3	1	100	f	q		2	broad, hertzian, feather	
Ravine	SU5	1	3	2	101	f	t		5	focal, hertzian, feather, 1 ridge	p
Ravine	SU5	1	3	2	102	f	t		4	focal, hertzian, feather	
Ravine	SU5	1	3	2	103	f	t		4	broad, hertzian, axial	p
Ravine	SU5	1	3	2	104	f	q		5	focal, hertzian, outre passe	p
Ravine	SU5	1	3	2	105	f	q		6	compression flake	p
Ravine	SU5	1	3	2	106	ff	t		2		
Ravine	SU5	1	3	2	107	p	t		2	focal, hertzian	p
Ravine	SU5	1	3	2	108	f	ch		2	broad, hertzian, feather	
Ravine	SU5	1	3	2	109	f	ch		2	focal, hertzian, feather	
Ravine	SU5	1	4	1	110	d	ch		3	feather	
Ravine	SU5	1	4	1	111	ff	q		2		
Ravine	SU5	1	4	2	112	f	q		4	broad, hertzian, feather	
Ravine	SU5	1	4	2	113	f	q		2	longitudinally split	
Ravine	SU5	1	5	1	114	f	t		3	longitudinally split	p
Ravine	SU5	1	5	1	115	d	t		3	feather	
Ravine	SU5	1	5	2	116	ff	ch		2		
Ravine	SU5	1	5	2	117	d	ch		2	feather	
Ravine	SU5	1	5	2	118	ff	q		2		
Ravine	SU5	1	6	1	119	f	q		2	crushed, feather	
Ravine	SU5	2	2	1	1	ff	t		2		
Ravine	SU5	2	2	1	2	ff	fgv		2		
Ravine	SU5	2	2	1	3	ff	qu		2		
Ravine	SU5	2	2	2	4		t		7		p
Ravine	SU5	2	2	2	5	ff	t		2		p
Ravine	SU5	2	2	2	6		q		3		
Ravine	SU5	2	2	2	7	ff	q		1		
Ravine	SU5	2	2	2	8	p	q		1	focal, hertzian	
Ravine	SU5	2	3	1	9	d	t		4		p
Ravine	SU5	2	3	1	10	ff	t		3		
Ravine	SU5	2	3	1	11	p	t		2	broad, hertzian	
Ravine	SU5	2	3	1	12	f	t		2	focal, bending, feather	
Ravine	SU5	2	3	1	13	f	t		2	focal, hertzian, outre passe	
Ravine	SU5	2	3	1	14	f	q		4	bipolar	
Ravine	SU5	2	3	1	15	ff	q		2		
Ravine	SU5	2	3	1	16	ff	q		2		
Ravine	SU5	2	3	1	17	d	q				
Ravine	SU5	2	3	1	18	ff	fgv		2		
Ravine	SU5	2	3	1	19	ff	ch		3		
Ravine	SU5	2	3	2	20	uu	t		4	edge damage consistent with use on 1 margin	

Ravine	SU5	2	3	2	21	uu	t		3	edge damage consistent with use from ventral on distal	
Ravine	SU5	2	3	2	22	ff	t		2		p
Ravine	SU5	2	3	2	23	f	t		2	focal, hertzian, feather	p
Ravine	SU5	2	3	2	24	ff	t		2		
Ravine	SU5	2	3	2	25	f	t		4	compression flake	p
Ravine	SU5	2	3	2	26	f	q		3	crushed, hertzian, feather	p
Ravine	SU5	2	3	2	27	f	q		2	bipolar	p
Ravine	SU5	2	3	2	28	ff	q		2		
Ravine	SU5	2	3	2	29	ff	q		2		
Ravine	SU5	2	3	2	30	ff	q		1		
Ravine	SU5	2	3	2	31	ff	ch		3		
Ravine	SU5	2	3	2	32	d	ch		3	feather	p
Ravine	SU5	2	3	2	33	d	ch		2	feather	
Ravine	SU5	2	4	1	34	f	t		2	crushed, hertzian, hinge	
Ravine	SU5	2	4	1	35	ff	q		1		
Ravine	SU5	2	4	1	36	d	q		1	feather	
Ravine	SU5	2	4	2	37	ff	t		2		
Ravine	SU5	2	4	2	38	f	fgv		2	broad, hertzian, feather, 2 ridges	
Ravine	SU5	2	6	1	39	ff	t		2		
Ravine	SU5	2	6	2	40	f	t		6	broad, hertzian, feather, 2 ridges	
Ravine	SU5	2	6	2	41	ff	q		3		
Ravine	SU5	3	1	1	1	f	t		4	focal, hertzian, feather	p
Ravine	SU5	3	1	1	2	p	t		3	broad, hertzian	
Ravine	SU5	3	1	1	3	f	t		3	broad, hertzian, step	
Ravine	SU5	3	1	1	4	ff	t		3		
Ravine	SU5	3	1	1	5	f	t		2	focal, hertzian, axial, overhang removal	
Ravine	SU5	3	1	1	6	ff	q		4		
Ravine	SU5	3	1	1	7	d	q		2	feather	
Ravine	SU5	3	1	1	8	fp	q		2		
Ravine	SU5	3	1	1	9	f	q		2	broad, hertzian, feather	
Ravine	SU5	3	1	1	10	ff	q				
Ravine	SU5	3	1	1	11	f	s		3	focal, hertzian, feather, white with mixture of fine grain	
Ravine	SU5	3	1	2	12	ff	t		3		
Ravine	SU5	3	1	2	13	ff	t		3		
Ravine	SU5	3	1	2	14	ff	t		2		
Ravine	SU5	3	1	2	15	ff	t		2		
Ravine	SU5	3	1	2	16	f	t		2	focal, hertzian, feather	
Ravine	SU5	3	1	2	17	f	q		3	bipolar	
Ravine	SU5	3	1	2	18	ff	q		1		

Ravine	SU5	3	2	1	19	f	t		7	broad, hertzian, feather	p
Ravine	SU5	3	2	1	20	f	t		3	broad, hertzian, feather, 1 ridge	
Ravine	SU5	3	2	1	21	f	t		1	broad, hertzian, feather, overhang removal	
Ravine	SU5	3	2	1	22	f	q		2	bipolar	
Ravine	SU5	3	2	1	23	fp	q		1		p
Ravine	SU5	3	2	1	24	ff	q		2		
Ravine	SU5	3	2	1	25	ff	q		2		
Ravine	SU5	3	2	1	26	p	q		2	focal, hertzian	
Ravine	SU5	3	2	1	27	ff	ch		2		
Ravine	SU5	3	2	2	28	d	t		3	feather	
Ravine	SU5	3	2	2	29	f	t		3	focal, hertzian, feather	
Ravine	SU5	3	2	2	30	f	t		3	crushed, hertzian, feather	p
Ravine	SU5	3	2	2	31	ff	t		2		
Ravine	SU5	3	2	2	32	ff	t		2		
Ravine	SU5	3	2	2	33	ff	t		2		
Ravine	SU5	3	2	2	34	f	q		3	compression flake	p
Ravine	SU5	3	2	2	35	ff	q		2		
Ravine	SU5	3	2	2	36	d	q		2	feather	
Ravine	SU5	3	2	2	37	m	q		1		p
Ravine	SU5	3	2	2	38	ff	q		2		
Ravine	SU5	3	2	2	39	ff	t		2		p
Ravine	SU5	3	3	2	40	f	q		3	compression flake	
Ravine	SU5	3	3	2	41	p	q		1	focal, hertzian	
Ravine	SU5	3	5	2	42	ff	t		2		p
Ravine	SU5	3	6	2	43	f	t		2	focal, hertzian, step, overhang removal	
Ravine	SU5	3	6	2	44	f	q		1	focal, hertzian, feather, translucent, high quality	
Ravine	SU5	4	1	1	1	uu	t		5	hertzian flake with edge crushing and rounding consistent with use on 1 margin	p
Ravine	SU5	4	1	1	2	f	t		4	broad, hertzian, feather	
Ravine	SU5	4	1	1	3	f	t		4	focal, hertzian, feather, 2 ridges	
Ravine	SU5	4	1	1	4	f	t		3	focal, hertzian, feather, 1 ridge	p
Ravine	SU5	4	1	1	5	f	t		2	focal, hertzian, step	
Ravine	SU5	4	1	1	6	f	t		2	longitudinally split	
Ravine	SU5	4	1	1	7		t		2		p
Ravine	SU5	4	1	1	8		t		2		
Ravine	SU5	4	1	1	9	ff	t		2		
Ravine	SU5	4	1	1	10	m	t		2		
Ravine	SU5	4	1	1	11	fp	t		2		
Ravine	SU5	4	1	1	12	f	t		2	focal, hertzian, step	
Ravine	SU5	4	1	1	13	ff	t		2		
Ravine	SU5	4	1	1	14	ff	q		1		

Ravine	SU5	4	1	1	15	ff	t		1		
Ravine	SU5	4	1	2	16	f	t		2	longitudinally split	p
Ravine	SU5	4	1	2	17	f	t		3	broad, hertzian, feather, overhang removal	
Ravine	SU5	4	3	2	18	f	q		6	compression flake	
Ravine	SU5	4	3	2	19	f	q		2	bipolar	
Ravine	SU5	4	3	2	20	ff	q		2		
Ravine	SU5	4	3	2	21	f	q		3	bipolar	p
Ravine	SU5	4	3	2	22	f	q		2	bipolar	
Ravine	SU5	4	3	2	23	ff	q		2		p
Ravine	SU5	4	1	1	24	f	q		2	bipolar	
Ravine	SU5	4	1	1	25	f	q		2	bipolar	
Ravine	SU5	4	1	1	26	fp	q		2		p
Ravine	SU5	4	1	1	27	f	q		2	crushed, feather	p
Ravine	SU5	4	1	1	28	f	q		2	bipolar	
Ravine	SU5	4	1	1	29	ff	q		1		
Ravine	SU5	4	1	1	30	ff	q		1		
Ravine	SU5	4	1	1	31	ff	q		1		
Ravine	SU5	4	1	1	32	fp	q		1	quartz pieces are poor quality and almost certainly related	
Ravine	SU5	4	3	3	33	ff	t		4		
Ravine	SU5	4	1	1	34	ff	t		1		
Ravine	SU5	4	3b	1	35		t		6		p
Ravine	SU5	4	3b	1	36	f	q		3	bipolar	p
Ravine	SU5	4	3b	1	37	ff	q		2		
Ravine	SU5	4	3b	1	38	ff	q		1		
Ravine	SU5	4	3b	2	39		qu		4		p
Ravine	SU5	4	3b	2	40	f	q		4	longitudinally split	
Ravine	SU5	4	3b	2	41	fp	q		2		
Ravine	SU5	4	3b	3	42	f	t		3	focal, hertzian, feather	p
Ravine	SU5	4	3c	1	43	f	t		4	broad, hertzian, hinge, overhang removal, 2 ridges	
Ravine	SU5	4	3c	1	44	p	t		6	broad, hertzian	
Ravine	SU5	4	3c	1	45	ff	t		4		
Ravine	SU5	4	3c	1	46	f	t		5	longitudinally split	p
Ravine	SU5	4	3c	1	47	d	t		4		p
Ravine	SU5	4	3c	1	48	f	t		3	longitudinally split	
Ravine	SU5	4	3c	1	49	f	t		4	longitudinally split	p
Ravine	SU5	4	3c	1	50	f	t		3	longitudinally split	p
Ravine	SU5	4	3c	1	51	ff	t		3		
Ravine	SU5	4	3c	1	52	ff	t		3		p
Ravine	SU5	4	3c	1	53	f	t		2	broad, hertzian, feather, 1 ridge, overhang removal	
Ravine	SU5	4	3c	1	54	ff	t		2		p

Ravine	SU5	4	3c	1	55	f	t		3	focal, hertzian, feather	
Ravine	SU5	4	3c	1	56	ff	t		2		
Ravine	SU5	4	3c	1	57	d	t		2	feather	p
Ravine	SU5	4	3c	1	58	f	t		2	focal, hertzian, feather	
Ravine	SU5	4	3c	1	59	f	t		2	focal, hertzian, feather	
Ravine	SU5	4	3c	1	60	ff	t		2		p
Ravine	SU5	4	3c	1	61	f	t		2	broad, hertzian, step. Tuff artefacts likely to be related	
Ravine	SU5	4	3c	1	62	f	q		2	broad, hertzian, featgher	
Ravine	SU5	4	3c	1	63	ff	q		2		
Ravine	SU5	4	3c	1	64	f	q		2	longitudinally split	
Ravine	SU5	4	3c	1	65	ff	q		2		
Ravine	SU5	4	3c	1	66	d	ch		2	feather	
Ravine	SU5	4	3c	1	67	f	ch		3	longitudinally split	
Ravine	SU5	4	3c	2	68	f	t		3	focal, hertzian, feather	p
Ravine	SU5	4	3c	2	69	ff	t		4		
Ravine	SU5	4	3c	2	70	f	t		2	longitudinally split	
Ravine	SU5	4	3c	2	71	ff	t		2		
Ravine	SU5	4	3c	2	72	f	q		4	bipolar	
Ravine	SU5	4	3c	2	73	f	ch		1	focal, hertzian, feather	
Ravine	SU5	4	3c	3	74	f	ch		2	longitudinally split	
Ravine	SU5	4	3d	1	75	c	t		7	split pebble with 1 flake scar	p
Ravine	SU5	4	3d	1	76	f	t		5	focal, hertzian, outre passe	p
Ravine	SU5	4	3d	1	77	f	t		4	focal, hertzian, feather	
Ravine	SU5	4	3d	1	78	fp	t		3		p
Ravine	SU5	4	3d	1	79	ff	t		2		
Ravine	SU5	4	3d	1	80	ff	t		2		
Ravine	SU5	4	3d	1	81	ff	t		2		
Ravine	SU5	4	3d	1	82	f	ch		2	focal, hertzian, feather	
Ravine	SU5	4	3d	1	83	f	ch		2	longitudinally split	
Ravine	SU5	4	3d	1	84	f	ch		2	longitudinally split	
Ravine	SU5	4	3d	1	85	p	ch		2	broad, hertzian	
Ravine	SU5	4	3d	1	86	ff	ch		2		
Ravine	SU5	4	3d	1	87	f	q		2	longitudinally split	
Ravine	SU5	4	3d	2	88	f	ch		3	focal, hertzian, outre passe	
Ravine	SU5	4	3d	2	89	d	q		2	feather	
Ravine	SU5	4	3e	1	90	f	t		5	focal, hertzian, feather	
Ravine	SU5	4	3e	1	91	f	t		3	focal, hertzian, hinge, 1 ridge	
Ravine	SU5	4	3e	1	92	ff	t		3		
Ravine	SU5	4	3e	1	93	f	t		3	focal, hertzian, feather	
Ravine	SU5	4	3e	1	94	ff	ch		3		

Ravine	SU5	4	3e	1	95	d	ch		2	feather	
Ravine	SU5	4	3e	1	96	f	ch		2	focal, hertzian, step	
Ravine	SU5	4	3e	1	97	f	ch		2	longitudinally split	
Ravine	SU5	4	3e	1	98	p	ch		2	focal, hertzian	
Ravine	SU5	4	3e	1	99	ff	ch		2		
Ravine	SU5	4	3e	1	100	ff	t		2		
Ravine	SU5	4	3e	1	101	ff	t		2		
Ravine	SU5	4	3e	1	102	ff	t		2		
Ravine	SU5	4	3e	1	103	ff	t		3		
Ravine	SU5	4	3e	1	104	f	q		2	focal, hertzian, feather	
Ravine	SU5	4	3e	2	105	ff	t		2		
Ravine	SU5	4	3e	2	106	ff	t		2		
Ravine	SU5	4	3e	2	107	f	ch		2	focal, hertzian, outre passe, 1 ridge	
Ravine	SU5	4	3e	2	108	f	q		3	bipolar	
Ravine	SU5	4	3e	2	109	ff	q		2		
Ravine	SU5	4	3e	2	110	f	q		2	hertzian, feather	
Ravine	SU5	4	3f	1	111	f	t		6	focal, hertzian, feather	p
Ravine	SU5	4	3f	1	112	f	t		3	broad, hertzian ,step, 3 ridges	
Ravine	SU5	4	3f	1	113	d	t		2	feather, parrallel arises	
Ravine	SU5	4	3f	1	114	f	t		3	focal, hertzian	p
Ravine	SU5	4	3f	1	115	p	t		2	focal, hertzian	
Ravine	SU5	4	3f	1	116	ff	fgv		4		
Ravine	SU5	4	3f	1	117	fp	t		2		
Ravine	SU5	4	3f	1	118	f	ch		2	focal, hertzian, feather	
Ravine	SU5	4	3f	1	119	ff	q		4		
Ravine	SU5	4	3f	2	120	f	ch		3	focal, hertzian, hinge	
Ravine	SU5	4	3f	2	121	d	ch		2	feather	
Ravine	SU5	4	4	1	122	cf	t		5		
Ravine	SU5	4	4	1	123	f	t		4	bending, feather, overhang removal, 3 scars	
Ravine	SU5	4	4	1	124	ff	t		3		
Ravine	SU5	4	4	1	125	ff	t		3		
Ravine	SU5	4	4	1	126	f	t		2	focal, hertzian, step	
Ravine	SU5	4	4	1	127	f	t		2	focal, hertzian, feather	
Ravine	SU5	4	4	2	128	f	t		5	focal, hertzian, feather	p
Ravine	SU5	4	4	2	129	f	t		3	broad, hertzian, feather	
Ravine	SU5	4	4	2	130	f	q		4	longitudinally split	p
Ravine	SU5	4	4	2	131	ff	q		2		
Ravine	SU5	4	5	1	132	f	t		3	broad, hertzian, hinge	p
Ravine	SU5	4	5	1	133	ff	t		3		p
Ravine	SU5	4	5	1	134	f	t		3	broad, hertzian, feather	
Ravine	SU5	4	5	1	135	f	q		3	crushed, hertzian, feather	

Ravine	SU5	4	5	2	136	d	t		2	feather	
Ravine	SU5	4	5	2	137	ff	q		2		
Ravine	SU5	4	6	1	138	f	t		5	focal, hertzian ,feather	p
Ravine	SU5	4	6	1	139	f	t		4	focal, hertzian, feather	p
Ravine	SU5	4	6	1	140	ff	t		1		
Ravine	SU5	4	6	1	141	ra	t		2	bondi point 12 x 5 x 3	
Ravine	SU5	4	6	1	142	f	q		4	bipolar	p
Ravine	SU5	4	6	1	143	f	q		2	longitudinally split	
Ravine	SU5	4	6	1	144	f	q		2	bipolar	
Ravine	SU5	4	6	1	145	ff	q		2		
Ravine	SU5	4	6	1	146	ff	q		1		
Ravine	SU5	4	6	2	147	ff	t		2		p
Ravine	SU5	4	6	2	148	d	t		2	feather	
Ravine	SU5	4	6	2	149	m	t		1		
Ravine	SU5	4	6	2	150	ff	q		2		
Ravine	SU5	4	6	2	151	d	q		2	feather, translucent	
Ravine	SU5	4	6	2	152	p	q		2	hertzian	
Ravine	SU5	4	6	2	153	ff	t		2		
Ravine	SU5	4	6	3	154	f	q		2	crushed, hertzian, feather	
Ravine	SU5	5	1	1	1	ff	t		2		
Ravine	SU5	5	1	1	2	ff	ch		3		p
Ravine	SU5	5	1	1	3	f	q		2	focal, hertzian, feather	
Ravine	SU5	5	1	1	4	f	q		2	bipolar	
Ravine	SU5	5	1	1	5	f	q		2	focal, hertzian, feather	
Ravine	SU5	5	1	1	6	f	q		2	bipolar	
Ravine	SU5	5	1	1	7	ff	q		2		
Ravine	SU5	5	1	1	8	f	q		2	broad, hertzian, feather	
Ravine	SU5	5	1	1	9	ff	q		2		
Ravine	SU5	5	1	1	10	p	q		1	focal, hertzian	p
Ravine	SU5	5	1	1	11	ff	q		1		
Ravine	SU5	5	1	2	12	f	t		4	longitudinally split	p
Ravine	SU5	5	1	2	13	p	t		3	focal, hertzian	
Ravine	SU5	5	1	2	14	f	t		3	focal, hertzian, hinge	
Ravine	SU5	5	1	2	15	p	t		2	focal, hertzian	
Ravine	SU5	5	1	2	16	ff	t		2		
Ravine	SU5	5	1	2	17	p	t		2	focal, bending	
Ravine	SU5	5	1	2	18	f	t		2	crushed, feather	
Ravine	SU5	5	1	2	19	ra	t		3	bondi point, 2 pieces	
Ravine	SU5	5	1	2	20	ff	t		2		
Ravine	SU5	5	1	2	21	f	t		2	focal, bending, feather	
Ravine	SU5	5	1	2	22	p	t		2	focal, hertzian	

Ravine	SU5	5	1	2	23	f	t		2	focal, hertzian, feather	
Ravine	SU5	5	1	2	24	f	q		3	longitudinally split	
Ravine	SU5	5	1	2	25	f	q		2	bipolar	p
Ravine	SU5	5	1	2	26	f	q		3	bipolar	
Ravine	SU5	5	1	2	27	f	q		2	focal, hertzian, step	
Ravine	SU5	5	1	2	28	f	q		2	longitudinally split	
Ravine	SU5	5	1	2	29	f	q		2	bipolar	
Ravine	SU5	5	1	2	30	fp	q		2		p
Ravine	SU5	5	1	2	31	d	q		2	feather	
Ravine	SU5	5	1	1	32	ff	q		2		
Ravine	SU5	5	1	1	33	ff	q		2		p
Ravine	SU5	5	1	1	34	ff	q		1		
Ravine	SU5	5	1	1	35	f	q		1	broad, hertzian, feather	
Ravine	SU5	5	1	1	36	ff	q		2		
Ravine	SU5	5	1	1	37	ff	q		1		
Ravine	SU5	5	1	1	38	ff	q		1		
Ravine	SU5	5	1	1	39	f	t		2	focal, hertzian, feather, overhang removal, 2 ridges	
Ravine	SU5	5	1b	1	40	f	t		4	broad, hertzian, feather	p
Ravine	SU5	5	1b	1	41	ff	t		5		p
Ravine	SU5	5	1b	1	42	ff	t		4		p
Ravine	SU5	5	1b	1	43	d	t		7	feather	p
Ravine	SU5	5	1b	1	44	f	t		4	crushed, hertzian, feather	p
Ravine	SU5	5	1b	1	45	f	t		3	crushed, hertzian, feather	p
Ravine	SU5	5	1b	1	46	f	t		3	crushed, feather	
Ravine	SU5	5	1b	1	47	f	t		2	focal, hertzian, feather	
Ravine	SU5	5	1b	1	48	f	t		2	crushed, hertzian, feather	
Ravine	SU5	5	1b	1	49	ff	t		2	tuff artefacts are most prbably related, and related to tuff artefacts in Sq 1	
Ravine	SU5	5	1b	1	50	f	q		3	broad, hertzian, feather	
Ravine	SU5	5	1b	1	51	f	q		3	bipolar	
Ravine	SU5	5	1b	1	52	f	q		3	focal, hertzian, feather	
Ravine	SU5	5	1b	1	53	ff	q		2		
Ravine	SU5	5	1b	1	54	m	q		2		
Ravine	SU5	5	1b	1	55	f	q		2	crushed, feather	
Ravine	SU5	5	1b	1	56	ff	q		2		
Ravine	SU5	5	1b	1	57	f	q		2	longitudinally split	
Ravine	SU5	5	1b	1	58	d	q		2	feather	
Ravine	SU5	5	1b	1	59	f	q		2	crushed, feather	
Ravine	SU5	5	1b	1	60	ff	q		2		
Ravine	SU5	5	1b	1	61	ff	q		2		
Ravine	SU5	5	1b	1	62	d	t		2	feather	

Ravine	SU5	5	1b	1	63	f	qu		3	broad, hertzian, feather	
Ravine	SU5	5	1b	1	64	ff	s		2	grey silcrete	
Ravine	SU5	5	1b	2	65	f	q		5	compression flake, probably related to those above	
Ravine	SU5	5	2	1	66	f	t		5	focal, hertzian, feather, 2 ridges	
Ravine	SU5	5	2	1	67	ff	t		2		p
Ravine	SU5	5	2	1	68	f	q		3	broad, hertzian,feather	p
Ravine	SU5	5	2	1	69	f	q		2	longitudinally split	p
Ravine	SU5	5	2	1	70	fp	q		2		
Ravine	SU5	5	2	1	71	fp	q		1		
Ravine	SU5	5	2	2	72	uu	t		7	edge damage on 1 margin consistent with use	p
Ravine	SU5	5	2	2	73	ff	t		4		p
Ravine	SU5	5	2	2	74	p	t		3	broad, hertzian	
Ravine	SU5	5	2	2	75	p	t		2	focal, hertzian	
Ravine	SU5	5	2	2	76	ff	t		3		
Ravine	SU5	5	2	2	77	f	t		2	broad, bending, feather	
Ravine	SU5	5	2	2	78	f	t		2	focal, hertzian, step	
Ravine	SU5	5	2	2	79	f	t		2	focal, hertzian, step	
Ravine	SU5	5	2	2	80	f	t		2	broad, hertzian, feather	
Ravine	SU5	5	2	2	81	ff	t		1		
Ravine	SU5	5	2	2	82	ff	t		1		
Ravine	SU5	5	2	2	83	f	t		2	focal, hertzian, step	
Ravine	SU5	5	2	2	84	ff	t		1	Tuff artefacts could possibly be related to those above	
Ravine	SU5	5	2	3	85	p	t		4	broad, hertzian	p
Ravine	SU5	5	3	1	86	f	t		4	focal, hertzian, axial	p
Ravine	SU5	5	3	1	87	ff	t		4		p
Ravine	SU5	5	3	1	88	p	t		4	broad, bending	p
Ravine	SU5	5	3	1	89	ff	t		3		
Ravine	SU5	5	3	1	90	ff	t		3		
Ravine	SU5	5	3	1	91	ff	t		2		
Ravine	SU5	5	3	1	92	f	t		2	longitudinally split	
Ravine	SU5	5	3	1	93	ff	t		2		
Ravine	SU5	5	3	1	94	ff	t		2		
Ravine	SU5	5	3	1	95	ff	t		2	p	
Ravine	SU5	5	3	1	96	f	t		2	focal, hertzian, feather	
Ravine	SU5	5	3	1	97	d	t		1	feather	
Ravine	SU5	5	3	1	98	d	t		2	feather	
Ravine	SU5	5	3	1	99	p	t		2	focal, hertzian	
Ravine	SU5	5	3	1	100	ff	t		2		
Ravine	SU5	5	3	1	101	ff	t		2		
Ravine	SU5	5	3	1	102	d	q		2	feather	

Ravine	SU5	5	3	2	103	f	q		2	bipolar	
Ravine	SU5	5	4	1	104	f	q		5	bipolar	
Ravine	SU5	5	4	1	105	f	q		5	compression flake, longitudinally split	
Ravine	SU5	5	4	1	106	f	q		3	focal, hertzian, feather	p
Ravine	SU5	5	4	1	107	f	q		4	longitudinally split	
Ravine	SU5	5	4	1	108	fp	q		2		
Ravine	SU5	5	5	1	109	cf	t		6		p
Ravine	SU5	5	5	1	110	f	t		3	focal, hertzian, step, parrallel arises	
Ravine	SU5	5	5	1	111	f	t		4	broad, hertzian, feather, 1 ridge	
Ravine	SU5	5	5	1	112	d	t		3	feather	
Ravine	SU5	5	5	1	113	ff	t		2		
Ravine	SU5	5	5	1	114	f	t		3	focal, hertzian, feather, rejuvination flake	
Ravine	SU5	5	5	1	115	f	t		2	longitudinally split	
Ravine	SU5	5	5	1	116	m	ch		2		
Ravine	SU5	5	5	2	117	f	t		6	focal, hertzian, feather	p
Ravine	SU5	5	5	2	118	f	t		3	crushed, feather	
Ravine	SU5	5	5	2	119	m	t		2		
Ravine	SU5	5	6	1	120	f	t		4	focal, hertzian, feather	p
Ravine	SU5	5	6	1	121	d	t		1	feather	
Ravine	SU5	5	6	1	122	f	qu		5	crushed, feather	p
Ravine	SU5	5	6	1	123	f	q		2	bipolar	
Ravine	SU5	5	6	2	124	c	t		7	amorphous core, 1 platform	
Ravine	SU5	5	6	2	125	f	q		2	focal, hertzian, feather	
Ravine	SU5	5	6	2	126	p	fgv		2	focal, hertzian	
Tantangara	SU1	1	6	4	1	f	qu	15	6	focal, hertzian, feather	
Tantangara	SU2	1	2	1	1	c	t	21	4	bifacial, 36 x 34 x 20mm, numerous negative scars	
Tantangara	SU2	1	6	1	2	ff	q	0.4	2		
Tantangara	SU2	2	1	3	1	f	fgv	1.7	3	Fine grained volcanic artefacts in this spit are likely to be related. broad, hertzian, feather	
Tantangara	SU2	2	1	3	2	ff	fgv	1.2	3		
Tantangara	SU2	2	1	3	3	f	fgv	1.2	2	broad, bending, feather	
Tantangara	SU2	2	1	3	4	ff	fgv	0.7	2		
Tantangara	SU2	2	1	3	5	f	fgv	0.3	2	longitudinally split, hertzian, feather	
Tantangara	SU2	2	1	3	6	f	fgv	0.2	2	focal, hertzian, feather	
Tantangara	SU2	2	2	2	7	f	fgv	13	5	focal, hertzian, feather	
Tantangara	SU2	2	2	2	8	ff	fgv	3.1	4		
Tantangara	SU2	2	2	2	9	ff	fgv	0.1	2		
Tantangara	SU2	2	2	2	10	pos	q	0.3	2		
Tantangara	SU2	2	2	3	11	p	fgv	1.2	2	broad, hertzian	
Tantangara	SU2	2	2	3	12	pos	q	1.3	2	possible flake fragment	
Tantangara	SU2	2	2	3	13	ff	q	0.4	2		

Tantangara	SU2	2	2	3	14	ff	q	0.6	2		
Tantangara	SU2	2	2	3	15	ff	q	0.4	2		
Tantangara	SU2	2	2	3	16	ff	q	0.1	1		
Tantangara	SU2	2	2	4	17	ff	q	0.4	2		
Tantangara	SU2	2	2	4	18	p	q	0.2	1	broad, hertzian	
Tantangara	SU2	2	4	3	19	f	q	0.4	2	bifacial	
Tantangara	SU2	3	1	2	1	ff	q	0.6	2		p
Tantangara	SU2	3	2	3	2	cf	q	5.3	3	possible wedging flake	
Tantangara	SU2	3	3	4	3	ff	q	2	3		p
Tantangara	SU2	3	3	4	4	ff	q	0.1	1		
Tantangara	SU2	3	4	3	5	ff	s	0.2	2		
Tantangara	SU2	3	4	3	6	pos	q	0.1	1		
Tantangara	SU2	3	4	4	7	ff	q	3	3		
Tantangara	SU2	3	6	3	8	pos	q	2.6	2		
Tantangara	SU2	4	1	3	1	uu	ch	0.1	1	very fine grained grey chert, triangular shaped piece with micro scarring on one margin consistent with use damage	
Tantangara	SU2	4	3	3	2	m	q	0.2	1		
Tantangara	SU2	4	3	3	3	ff	q	0.1	2		
Tantangara	SU2	4	3	3	4	pos	q	0.5	2		
Tantangara	SU2	4	3	4	5	ff	q	0.1	1		
Tantangara	SU2	4	2	4	6	ff	q	0.1	1		
Tantangara	SU2	4	4	2	7	pos	q	0.2	1		
Tantangara	SU2	4	5	3	8	f	fgv	8.2	5	artefacts 8-24 are almost certainly related, broad, hertzian, feather	
Tantangara	SU2	4	5	3	9	f	fgv	4.2	4	broad, hertzian, feather, platform is pebble cortex	p
Tantangara	SU2	4	5	3	10	fp	fgv	1.7	2		
Tantangara	SU2	4	5	3	11	fp	fgv	3	3		p
Tantangara	SU2	4	5	3	12	f	fgv	1.5	3	focal, hertzian, feather	p
Tantangara	SU2	4	5	3	13	ff	fgv	0.8	2		p
Tantangara	SU2	4	5	3	14	f	fgv	1	3	focal, hertzian, feather, cortex on platform	p
Tantangara	SU2	4	5	3	15	f	fgv	0.7	3	broad, hertzian, feather, cortex on platform	p
Tantangara	SU2	4	5	3	16	ff	fgv	0.4	2		
Tantangara	SU2	4	5	3	17	ff	fgv	0.2	2		
Tantangara	SU2	4	5	3	18	f	fgv	0.2	2	focal, hertzian, feather, longitudinally split	
Tantangara	SU2	4	5	3	19	ff	fgv	0.2	1		
Tantangara	SU2	4	5	3	20	ff	fgv	0.3	2		
Tantangara	SU2	4	5	3	21	f	fgv	0.2	2	broad, bending, feather	
Tantangara	SU2	4	5	3	22	ff	fgv	0.1	1		
Tantangara	SU2	4	5	3	23	f	fgv	0.1	1	focal, hertzian, hinge	p
Tantangara	SU2	4	5	3	24	ff	fgv	0.1	1		

Tantangara	SU2	4	5	3	25	ff	q	0.6	2		
Tantangara	SU2	4	5	3	26	ff	q	0.2	2		
Tantangara	SU2	4	5	3	27	ff	q	0.2	1		
Tantangara	SU2	4	5	3	28	pos	q	0.2	1		
Tantangara	SU2	4	5	4	29	f	fgv	4.8	4	artefacts 29-38 almost certainly related and to those from spit 3 above, longitudinally split, focal, hertzian, feather	
Tantangara	SU2	4	5	4	30	ff	fgv	1.3	2		p
Tantangara	SU2	4	5	4	31	ff	fgv	0.6	2		
Tantangara	SU2	4	5	4	32	ff	fgv	0.5	2		
Tantangara	SU2	4	5	4	33	ff	fgv	0.4	2		
Tantangara	SU2	4	5	4	34	d	fgv	0.4	2		
Tantangara	SU2	4	5	4	35	ff	fgv	0.2	2		
Tantangara	SU2	4	5	4	36	ff	fgv	0.1	1		
Tantangara	SU2	4	5	4	37	ff	fgv	0.1	1		
Tantangara	SU2	4	5	4	38	ff	fgv	0.1	1		
Tantangara	SU2	4	5	4	39	pos	q	0.3	2		
Tantangara	SU2	4	5	4	40	pos	q	0.1	1		
Tantangara	SU2	4	5	4	41	ff	q	0.1	1		
Tantangara	SU2	4	6	3	42	f	q	2	2	longitudinally split, probable wedging flake	
Tantangara	SU2	6	1	2	1	pos	q	0.3	2		
Tantangara	SU3	1	1	3	1	cf	ch	24.4	5	?bifacial core; black chert	
Tantangara	SU3	1	1	4	2	p	q	2.2	4	in two pieces, break appears to be modern, focal, hertzian	
Tantangara	SU3	1	1	4	3	ff	q	0.2	1		
Tantangara	SU3	1	1	4	4	ff	q	0.2	1		
Tantangara	SU3	1	2	2	5	ff	q	0.3	2		
Tantangara	SU3	1	4	2	6	cf	s	14.2	4		
Tantangara	SU3	1	6	1	7	ff	q	0.4	2		
Tantangara	SU3	1	6	1	8	p	q	0.1	1	bipolar	
Tantangara	SU3	2	1	1	1	pos	q	2.3	3		p
Tantangara	SU3	2	1	1	1	pos	fgv	28.6	6		p
Tantangara	SU3	2	1	2	3	f	fgv	0.6	2	focal, hertzian, posssibly related to fgv above	
Tantangara	SU3	2	2	1	4	ff	ch	2.6	4		
Tantangara	SU3	2	2	1	5	ff	ch	3.3	3		
Tantangara	SU3	2	2	3	6	ff	ch	0.4	2		
Tantangara	SU3	2	2	3	7	ff	ch	3.1	3		
Tantangara	SU3	2	2	3	8	ff	q	0.2	1		
Tantangara	SU3	2	2	3	9	fp	q	0.4	1		
Tantangara	SU3	2	3	2	10	p	q	0.3	2	focal, hertzian, longitudinally split	
Tantangara	SU3	2	3	2	11	ff	q	0.2	1	translucent	

Tantangara	SU3	2	3	3	12	pos	q	0.4	2		
Tantangara	SU3	2	3	3	13	ff	ch	0.2	1		
Tantangara	SU3	2	4	2	14	f	s	0.5	2	focal, hertzian, feather	
Tantangara	SU3	2	4	2	15	pos	q	3.7	3		
Tantangara	SU3	2	4	2	16	f	q	0.4	2	broad, hertzian, feather	
Tantangara	SU3	2	4	2	17	pos	q	0.4	2		
Tantangara	SU3	2	4	3	18	pos	q	0.8	2		
Tantangara	SU3	2	5	2	19	f	s	3.8	3	focal, hertzian, feather	
Tantangara	SU3	2	5	2	20	f	s	1.3	2	focal, hertzian	
Tantangara	SU3	2	5	2	21	pos	q	0.5	2		
Tantangara	SU3	2	5	2	22	ff	ch	0.9	2		
Tantangara	SU3	2	5	2	23	ff	ch	3.1	3		p
Tantangara	SU3	2	5	3	24	f	ch	5.4	4	focal, hertzian, feather	
Tantangara	SU3	2	6	2	25	f	q	13.2	4	focal, hertzian, feather	
Tantangara	SU3	2	6	2	26	cf	q	16.8	4	compression flake	p
Tantangara	SU3	2	6	2	27	p	s	0.2	2	broad, hertzian	
Tantangara	SU3	3	2	2	1	f	fgv	2.8	4	focal, hertzian, feather	p
Tantangara	SU3	5	1	2	1	ra	ch	0.3	2	retouched from ventral along butt and margin, micro scarring on chord perhaps consistent with usewear, white fleck inclusions, 10.4 x 7.8 x 2.5mm	
Tantangara	SU3	5	1	2	2	pos	q	0.5	2		
Tantangara	SU3	5	1	3	3	f	ch	20	4	artefacts 3-24 are all related ie. knapping event, compression flake	p
Tantangara	SU3	5	1	3	4	f	ch	8	5	focal, hertzian, outre passe	p
Tantangara	SU3	5	1	3	5	ff	ch	4.2	3		
Tantangara	SU3	5	1	3	6	ff	ch	2.3	3		p
Tantangara	SU3	5	1	3	7	ff	ch	1.3	3		
Tantangara	SU3	5	1	3	8	ff	ch	0.7	3		
Tantangara	SU3	5	1	3	9	f	ch	0.7	3	focal, hertzian, longitudinally split	
Tantangara	SU3	5	1	3	10	fp	ch	1.7	2		
Tantangara	SU3	5	1	3	11	f	ch	0.4	2	focal, hertzian, feather	
Tantangara	SU3	5	1	3	12	ff	ch	0.4	2		p
Tantangara	SU3	5	1	3	13	ff	ch	0.2	2		
Tantangara	SU3	5	1	3	14	ff	ch	0.4	2		
Tantangara	SU3	5	1	3	15	ff	ch	0.3	2		
Tantangara	SU3	5	1	3	16	p	ch	0.2	2	focal, hertzian	
Tantangara	SU3	5	1	3	17	ff	ch	0.3	2		
Tantangara	SU3	5	1	3	18	fp	ch	0.3	2		
Tantangara	SU3	5	1	3	19	ff	ch	0.2	2		
Tantangara	SU3	5	1	3	20	ff	ch	0.2	1		
Tantangara	SU3	5	1	3	21	ff	ch	0.2	2		

Tantangara	SU3	5	1	3	22	ff	ch	0.2	2		
Tantangara	SU3	5	1	3	23	ff	ch	0.1	1		
Tantangara	SU3	5	1	3	24	ff	ch	0.1	1		
Tantangara	SU3	5	1b	3	25	f	fgv	5	4	focal, hertzian, feather	
Tantangara	SU3	5	2	3	26	ff	ch	0.5	3		
Tantangara	SU3	5	2	3	27	ff	ch	0.3	2		
Tantangara	SU3	5	2	3	28	ff	ch	0.5	2		
Tantangara	SU3	5	2	3	29	ff	q	18.5	4	probably a compression flake	p
Tantangara	SU3	5	2	3	30	fp	q	1.6	2		
Tantangara	SU3	5	2	3	31	ff	q	0.4	2	translucent	
Tantangara	SU3	5	2	3	32	pos	q	0.4	2		
Tantangara	SU3	5	2	4	33	f	ch	13.5	4	black chert knapaping event from artefact 33-63, possible compression flake	
Tantangara	SU3	5	2	4	34	f	ch	8.1	5	uncertain initiation, feather	
Tantangara	SU3	5	2	4	35	ff	ch	5.6	5		
Tantangara	SU3	5	2	4	36	ff	ch	5.2	4		p
Tantangara	SU3	5	2	4	37	ff	ch	2.2	3		
Tantangara	SU3	5	2	4	38	ff	ch	3.4	3		
Tantangara	SU3	5	2	4	39	ff	ch	2.5	3		
Tantangara	SU3	5	2	4	40	ff	ch	0.4	2		
Tantangara	SU3	5	2	4	41	p	ch	1.4	2	focal, hertzian	
Tantangara	SU3	5	2	4	42	ff	ch	0.4	3		
Tantangara	SU3	5	2	4	43	ff	ch	0.5	3		
Tantangara	SU3	5	2	4	44	ff	ch	0.7	3		
Tantangara	SU3	5	2	4	45	ff	ch	0.9	2		
Tantangara	SU3	5	2	4	46	ff	ch	0.5	2		p
Tantangara	SU3	5	2	4	47	d	ch	0.3	2		
Tantangara	SU3	5	2	4	48	f	ch	0.2	1	focal, hertzian, feather	
Tantangara	SU3	5	2	4	49	ff	ch	0.1	2		
Tantangara	SU3	5	2	4	50	ff	ch	0.5	2		
Tantangara	SU3	5	2	4	51	f	ch	0.3	2	broad, hertzian, longitudinally split	
Tantangara	SU3	5	2	4	52	d	ch	0.5	2	feather	
Tantangara	SU3	5	2	4	53	ff	ch	0.2	2		
Tantangara	SU3	5	2	4	54	m	ch	0.3	2		
Tantangara	SU3	5	2	4	55	f	ch	0.2	2	focal, hertzian, hinge	
Tantangara	SU3	5	2	4	56	ff	ch	0.3	2		
Tantangara	SU3	5	2	4	57	f	ch	0.1	1	focal, hertzian, feather	
Tantangara	SU3	5	2	4	58	ff	ch	0.4	2		
Tantangara	SU3	5	2	4	59	f	ch	0.2	1	bending, feather	
Tantangara	SU3	5	2	4	60	ff	ch	0.1	1		
Tantangara	SU3	5	2	4	61	d	ch	0.1	2		

Tantangara	SU3	5	2	4	62	fp	ch	1.1	2		
Tantangara	SU3	5	2	4	63	ff	ch	1	3		
Tantangara	SU3	5	2	4	64	f	q	0.6	2	broad, hertzian, feather, longitudinally split	
Tantangara	SU3	5	2	4	65	ff	q	0.9	2		
Tantangara	SU3	5	2	4	66	fp	q	0.3	2		
Tantangara	SU3	5	2	4	67	fp	q	0.6	2		
Tantangara	SU3	5	2	4	68	ff	q	3.6	3		
Tantangara	SU3	5	2b	3	69	p	ch	0.7	3	broad, hertzian	
Tantangara	SU3	5	2b	3	70	ff	ch	0.3	2		
Tantangara	SU3	5	2b	3	71	ff	fgv	0.2	2		
Tantangara	SU3	5	2b	3	72	ff	q	1.3	3		
Tantangara	SU3	5	2b	3	73	f	q	1	2	focal, hertzian, longitudinally split	
Tantangara	SU3	5	2b	3	74	ff	q	0.8	2		
Tantangara	SU3	5	2b	3	75	f	q	0.5	2	bifacial, translucent	
Tantangara	SU3	5	2b	3	76	d	s	0.1	1	hinge	
Tantangara	SU3	5	2b	4	77	fp	s	0.3	1		
Tantangara	SU3	5	2b	4	78	f	q	0.2	1	broad, hertzian, feather	
Tantangara	SU3	5	3	2	79	f	ch	5.5	4	black chert, broad, hertzian, feather, longitudinally split	
Tantangara	SU3	5	3	2	80	ff	ch	0.3	2		
Tantangara	SU3	5	3	2	81	ff	ch	0.2	2		
Tantangara	SU3	5	3	2	82	ff	ch	0.5	2		
Tantangara	SU3	5	3	2	83	ff	ch	0.2	1		
Tantangara	SU3	5	3	2	84	ff	ch	0.3	2		
Tantangara	SU3	5	3	2	85	f	ch	0.4	2	broad, hertzian, feather	
Tantangara	SU3	5	3	2	86	fp	ch	0.9	2		
Tantangara	SU3	5	3	2	87	f	q	2.4	3	bipolar	
Tantangara	SU3	5	3	2	88	ff	q	0.3	2		
Tantangara	SU3	5	3	2	89	pos	q	0.2	2		
Tantangara	SU3	5	3	2	90	ff	qu	0.4	2	yellow quartzite like the yellow material from Boco Rock	
Tantangara	SU3	5	4	2	91	pos	q	0.2	2		
Tantangara	SU3	5	4	3	92	pos	q	0.4	2		
Tantangara	SU3	5	5	3	93	ra	ch	0.4	2	14.5 x 8.9 x 3.8mm, triangular shape in plan view, minimally retouched from ventral, bifacially retouched at one tip	
Tantangara	SU3	5	6	2	94	p	s	0.2	2	broad, hertzian	
Tantangara	SU3	6	1	2	1	pos	q	9.5	4	in two pieces with a modern break	
Tantangara	SU3	6	1	2	2	f	q	2.9	3	bipolar, in two pieces with a modern break	
Tantangara	SU3	6	1	2	3	pos	q	0.2	2		
Tantangara	SU3	6	1	3	4	d	ch	0.7	2		

Tantangara	SU3	6	2	3	5	f	ch	9.3	5	broad, hertzian, feather, distinctive rippled red patina	t
Tantangara	SU3	6	2	3	6	d	ch	1.3	3	feather	
Tantangara	SU3	6	2	3	7	ff	ch	0.2	2		
Tantangara	SU3	6	2	3	8	d	ch	0.2	2	feather	
Tantangara	SU3	6	2	3	9	ff	q	0.9	3		
Tantangara	SU3	6	2	3	10	ff	q	1.3	3		
Tantangara	SU3	6	2	3	11	ff	q	0.4	2		
Tantangara	SU3	6	2	3	12	ff	q	0.3	2		
Tantangara	SU3	6	2	3	13	ff	q	0.3	2	modern break	
Tantangara	SU3	6	4	2	14	pos	ch	1.3	3	black chert, distinctive rippled red patina, could be background	t
Tantangara	SU3	6	4	3	15	ff	s	0.2	2		
Tantangara	SU3	6	5	3	16	pos	q	0.5	2		
Tantangara	SU3	6	6	3	17	pos	q	0.7	2		
Tantangara	SU3	7	1	1	1	pos	ch	0.9	2		
Tantangara	SU3	7	2	3	2	pos	fgv	5.8	3		
Tantangara	SU3	7	3	2	3	pos	q	21.5	5		p
Tantangara	SU3	7	4	2	4	ff	ch	1.1	3		
Tantangara	SU3	7	5	2	5	pos	q	1.2	2		
Tantangara	SU3	7	5	3	6	pos	qu	29.8	6		p
Tantangara	SU4	1	1	2	1	pos	ch	0.9	2		
Tantangara	SU4	1	2	3	2	pos	q	6.9	3		
Tantangara	SU4	1	2	3	3	f	q	2.9	4	focal, hertzian, longitudinally split	
Tantangara	SU4	1	2	3	4	ff	q	0.2	1		
Tantangara	SU4	1	2	4	5	ff	ch	1.5	3		
Tantangara	SU4	1	2	4	6	ff	ch	0.1	2		
Tantangara	SU4	1	2	4	7	f	q	0.9	2	focal, hertzian, longitudinally split	
Tantangara	SU4	1	2	4	8	ff	q	0.6	2		
Tantangara	SU4	1	2	4	9	ff	q	0.2	1		
Tantangara	SU4	1	3	4	10	pos	q	3.7	3		
Tantangara	SU4	1	3	4	11	pos	ch	0.2	2		
Tantangara	SU4	1	4	3	12	pos	q	3	4		
Tantangara	SU4	1	4	5	13	f	ch	0.1	1	pink chert, focal, hertzian, bending	
Tantangara	SU4	1	4	4	14	pos	q	0.1	1		
Tantangara	SU4	1	4	4	15	pos	q	0.2	1		
Tantangara	SU4	1	4	4	16	pos	q	0.1	1		
Tantangara	SU4	1	4	4	17	pos	q	0.2	2		
Tantangara	SU4	1	6	3	18	uu	ch	20	6	hertzian flake with micro scarring on both margins from ventral consistent with use	
Tantangara	SU4	1	6	3	19	ff	ch	0.5	2		

Tantangara	SU4	1	6	3	20	f	ch	3.6	4	focal, hertzian, feather	
Tantangara	SU4	1	6	3	21	f	q	7	4	compression flake	p
Tantangara	SU4	2	1	2	1	ff	s	1.4	3		
Tantangara	SU4	2	1	2	2	pos	ch	0.1	1		
Tantangara	SU4	2	2	3	3	f	ch	0.2	2	broad, bending, feather	
Tantangara	SU4	2	4	3	4	m	ch	0.1	1		
Tantangara	SU4	2	5	4	5	f	ch	2.7	3	focal, hertzian	
Tantangara	SU4	2	5	4	6	ff	q	0.3	2		
Tantangara	SU4	2	5	4	7	fp	q	1.3	2		
Tantangara	SU4	2	5	4	8	pos	q	0.6	2		
Tantangara	SU4	2	5	4	9	p	q	0.2	2	focal, hertzian	
Tantangara	SU4	2	5	4	10	ff	q	0.3	2		
Tantangara	SU4	2	5	4	11	ff	q	0.5	2		
Tantangara	SU4	2	5	4	12	ff	q	0.1	1		
Tantangara	SU4	2	5	4	13	ff	q	0.2	1		
Tantangara	SU4	2	5	4	14	f	q	0.2	2	focal, hertzian, feather	
Tantangara	SU4	2	5	4	15	d	q	0.3	1	feather	
Tantangara	SU4	2	5	4	16	ff	q	0.1	2		
Tantangara	SU4	2	5	4	17	pos	q	1.3	3		
Tantangara	SU4	2	5	5	18	pos	q	0.1	1		
Tantangara	SU4	2	6	2	19	ff	ch	1.1	2		
Tantangara	SU4	2	6	2	20	ra	ch	0.1	1	retouched from the ventral on two ends, 9 x 5.8 x 1.8mm	
Tantangara	SU4	2	6	3	21	ff	q	0.4	2		
Tantangara	SU4	3	1	2	1	ff	s	0.2	2		
Tantangara	SU4	3	1	3	2	f	q	0.5	2	broad, hertzian, feather	
Tantangara	SU4	3	1	4	3	f	q	1.5	2	broad, hertzian, feather	
Tantangara	SU4	3	1	4	4	f	q	0.1	1	focal, hertzian, step	
Tantangara	SU4	3	2	3	5	pos	ch	6.6	4		
Tantangara	SU4	3	3	2	6	ff	ch	1.2	3	white chert	
Tantangara	SU4	3	3	2	7	ff	ch	3.8	3	white chert	
Tantangara	SU4	3	3	2	8	ff	ch	0.2	2	white chert	
Tantangara	SU4	3	3	2	9	ff	q	0.5	3		
Tantangara	SU4	3	3	2	10	p	ch	0.1	1	artefact 10-32 appears to be pebbles broken up to retrieve interior stone, broad, hertzian	
Tantangara	SU4	3	3	2	11	ff	ch	0.5	2		
Tantangara	SU4	3	3	2	12	ff	ch	0.4	2		
Tantangara	SU4	3	3	2	13	fp	ch	0.6	2		
Tantangara	SU4	3	3	2	14	ff	ch	0.4	2		
Tantangara	SU4	3	3	2	15	fp	ch	1.1	2		
Tantangara	SU4	3	3	2	16	fp	ch	0.4	2		

Tantangara	SU4	3	3	2	17	ff	ch	0.2	2		
Tantangara	SU4	3	3	2	18	ff	ch	0.1	1		
Tantangara	SU4	3	3	2	19	ff	ch	0.1	2		
Tantangara	SU4	3	3	2	20	ff	ch	0.1	1		
Tantangara	SU4	3	3	2	21	ff	ch	0.1	1		
Tantangara	SU4	3	3	2	22	ff	ch	0.1	1		
Tantangara	SU4	3	3	2	23	pf	ch	66.9	8		p
Tantangara	SU4	3	3	2	24	pf	ch	43.7	5		p
Tantangara	SU4	3	3	2	25	pf	ch	42	6		p
Tantangara	SU4	3	3	2	26	pf	ch	42.6	7		p
Tantangara	SU4	3	3	2	27	f	ch	15.5	4	compression flake	p
Tantangara	SU4	3	3	2	28	pf	ch	10.9	4		p
Tantangara	SU4	3	3	2	29	pf	ch	7.1	3		p
Tantangara	SU4	3	3	2	30	pf	ch	1.3	3		p
Tantangara	SU4	3	3	2	31	pf	ch	0.8	2		p
Tantangara	SU4	3	3	2	32	pf	ch	0.3	2		p
Tantangara	SU4	3	3	3	33	ff	ch	0.2	2		
Tantangara	SU4	3	3	3	34	ff	ch	0.2	1		
Tantangara	SU4	3	4	1	35	ff	ch	0.3	2	rejuvenation flake	
Tantangara	SU4	3	4	1	36	ra	ch	0.3	2	tip of retouched artefact, micro scarring along chord consistent with use, retouch is steep bifacial retouch	
Tantangara	SU4	3	4	2	37	c	ch	21.8	4	38 x 32 x 16mm, bifacial core	p
Tantangara	SU4	3	4	2	38	cf	ch	14	4		
Tantangara	SU4	3	4	2	39	fp	ch	10.8	4	rough terrestrial cortex	t
Tantangara	SU4	3	4	2	40	f	ch	3.5	3	focal, hertzian, feather	
Tantangara	SU4	3	4	2	41	ff	ch	1.8	3		
Tantangara	SU4	3	4	2	42	ff	ch	1	2		
Tantangara	SU4	3	4	2	43	f	ch	0.9	2	focal, hertzian, feather, longitudinally split	
Tantangara	SU4	3	4	2	44	ff	ch	0.5	2		
Tantangara	SU4	3	4	2	45	uu	ch	0.8	2	flake, broad, hertzian, feather, micro scarring along wide distal from ventral consistent with use	
Tantangara	SU4	3	4	2	46	ff	ch	0.4	2		
Tantangara	SU4	3	4	2	47	d	ch	0.7	2	feather	
Tantangara	SU4	3	4	2	48	ff	ch	0.2	2		
Tantangara	SU4	3	4	2	49	f	ch	0.5	2	focal, hertzian, hinge	
Tantangara	SU4	3	4	2	50	f	ch	0.5	2	focal, hertzian, feather	
Tantangara	SU4	3	4	2	51	fp	ch	0.8	2		
Tantangara	SU4	3	4	2	52	fp	ch	0.4	2		
Tantangara	SU4	3	4	2	53	f	ch	0.7	2	broad, hertzian, outre passe	
Tantangara	SU4	3	4	2	54	ff	ch	0.4	2		

Tantangara	SU4	3	4	2	55	f	ch	0.5	2	focal, hertzian, step	
Tantangara	SU4	3	4	2	56	ff	ch	0.5	2		
Tantangara	SU4	3	4	2	57	ff	ch	0.6	2		
Tantangara	SU4	3	4	2	58	ff	ch	0.2	2		
Tantangara	SU4	3	4	2	59	ff	ch	0.2	2		
Tantangara	SU4	3	4	2	60	f	ch	0.2	2	focal, hertzian, feather	
Tantangara	SU4	3	4	2	61	ff	ch	0.3	2		
Tantangara	SU4	3	4	2	62	ff	ch	0.2	2		
Tantangara	SU4	3	4	2	63	f	ch	0.2	2	focal, hertzian, feather	
Tantangara	SU4	3	4	2	64	ff	ch	0.2	2		
Tantangara	SU4	3	4	2	65	ff	q	0.1	2		
Tantangara	SU4	3	4	2	66	m	ch	0.1	2		
Tantangara	SU4	3	4	2	67	ff	ch	0.1	2		
Tantangara	SU4	3	4	2	68	p	ch	0.1	1	focal, hertzian	
Tantangara	SU4	3	4	2	69	ff	ch	0.2	1		
Tantangara	SU4	3	4	2	70	f	ch	0.1	1	focal, bending, feather	
Tantangara	SU4	3	4	2	71	ff	ch	0.1	1		
Tantangara	SU4	3	4	2	72	ff	ch	0.1	1		
Tantangara	SU4	3	4	2	73	ff	ch	0.1	1		
Tantangara	SU4	3	4	2	74	ff	ch	0.1	1		
Tantangara	SU4	3	4	2	75	ff	ch	0.1	1		
Tantangara	SU4	3	4	2	76	p	ch	0.1	1	broad, hertzian	
Tantangara	SU4	3	4	2	77	ff	q	0.3	2		
Tantangara	SU4	3	4	2	78	ff	q	0.2	1		
Tantangara	SU4	3	4	2	79	d	s	0.2	2	feather	
Tantangara	SU4	3	4	2	80	f	s	0.1	1	focal, hertzian, feather	
Tantangara	SU4	3	5	3	81	pos	q	0.5	2		
Tantangara	SU4	3	6	3	82	pos	q	0.1	2		
Tantangara	SU4	4	1	1	1	ff	qu	0.7	2	distinctive yellow quartzite	p
Tantangara	SU4	4	1	2	2	f	ch	0.1	1	focal, hertzian, feather	
Tantangara	SU4	4	1	2	3	f	q	1.4	3	focal, hertzian, feather	
Tantangara	SU4	4	2	2	4	f	q	1.8	3	focal, hertzian, feather	
Tantangara	SU4	4	3	1	5	f	q	0.8	2	bipolar, longitudinally split	
Tantangara	SU4	4	3	2	6	d	ch	0.1	2	feather	
Tantangara	SU4	4	3	2	7	f	ch	0.1	1	focal, bending, feather	
Tantangara	SU4	4	4	3	8	ff	q	0.2	2		
Tantangara	SU4	4	5	2	9	ff	ch	0.1	1		
Tantangara	SU4	4	5	2	10	f	ch	0.4	2	fine grained white, focal, hertzian, step	
Tantangara	SU4	4	5	2	11	p	ch	0.2	2	white with crystal inclusions same material as above, focal, hertzian	
Tantangara	SU4	4	5	2	12	ff	q	0.2	1		

Tantangara	SU4	4	5	3	13	pf	ch	13.7	4	black chert pieces related from artefact 13-56	p
Tantangara	SU4	4	5	3	14	pf	ch	16	4		p
Tantangara	SU4	4	5	3	15	f	ch	3.2	3	broad, hertzian, feather	
Tantangara	SU4	4	5	3	16	fp	ch	6.3	3		
Tantangara	SU4	4	5	3	17	ff	ch	6.8	4		
Tantangara	SU4	4	5	3	18	ff	ch	3.8	3		p
Tantangara	SU4	4	5	3	19	ff	ch	2.9	3		
Tantangara	SU4	4	5	3	20	ff	ch	2.2	3		p
Tantangara	SU4	4	5	3	21	ff	ch	1.8	3		
Tantangara	SU4	4	5	3	22	fp	ch	1.8	2		
Tantangara	SU4	4	5	3	23	f	ch	0.7	2	focal, hertzian, feather	
Tantangara	SU4	4	5	3	24	d	ch	0.7	2	feather	
Tantangara	SU4	4	5	3	25	f	ch	0.3	2	focal, hertzian, feather	
Tantangara	SU4	4	5	3	26	ff	ch	0.6	2		
Tantangara	SU4	4	5	3	27	ff	ch	0.3	2		
Tantangara	SU4	4	5	3	28	fp	ch	0.8	2		
Tantangara	SU4	4	5	3	29	ff	ch	0.7	2		
Tantangara	SU4	4	5	3	30	f	ch	0.3	2	focal, hertzian, step	
Tantangara	SU4	4	5	3	31	ff	ch	0.7	2		
Tantangara	SU4	4	5	3	32	f	ch	0.4	2	focal, bending, feather	
Tantangara	SU4	4	5	3	33	ff	ch	0.4	2		
Tantangara	SU4	4	5	3	34	ff	ch	0.5	2		
Tantangara	SU4	4	5	3	35	d	ch	0.3	2		
Tantangara	SU4	4	5	3	36	ff	ch	0.2	2		
Tantangara	SU4	4	5	3	37	ff	ch	0.3	1		
Tantangara	SU4	4	5	3	38	ff	ch	0.2	2		
Tantangara	SU4	4	5	3	39	d	ch	0.1	1	feather	
Tantangara	SU4	4	5	3	40	ff	ch	0.3	2		
Tantangara	SU4	4	5	3	41	d	ch	0.1	2	feather	
Tantangara	SU4	4	5	3	42	ff	ch	0.3	2		
Tantangara	SU4	4	5	3	43	ff	ch	0.3	2		
Tantangara	SU4	4	5	3	44	d	ch	0.1	2	feather	
Tantangara	SU4	4	5	3	45	ff	ch	0.2	1		
Tantangara	SU4	4	5	3	46	d	ch	0.1	2	feather	
Tantangara	SU4	4	5	3	47	ff	ch	0.1	1		
Tantangara	SU4	4	5	3	48	ff	ch	0.1	1		
Tantangara	SU4	4	5	3	49	ff	ch	0.2	1		
Tantangara	SU4	4	5	3	50	p	ch	0.2	2	focal, hertzian	
Tantangara	SU4	4	5	3	51	ff	ch	0.1	1		
Tantangara	SU4	4	5	3	52	ff	ch	0.1	1		
Tantangara	SU4	4	5	3	53	ff	ch	0.1	2		

Tantangara	SU4	4	5	3	54	ff	ch	0.1	1		
Tantangara	SU4	4	5	3	55	ff	ch	0.1	1		
Tantangara	SU4	4	5	3	56	p	ch	0.1	1	focal, hertzian	
Tantangara	SU4	4	5	3	57	ff	q	0.2	1		
Tantangara	SU4	4	5	3	58	pos	q	0.2	1		
Tantangara	SU4	4	5	3	59	pos	q	0.1	1		
Tantangara	SU4	4	5	4	60	ff	ch	0.1	1		
Tantangara	SU4	4	6	2	61	ff	ch	0.2	2		
Tantangara	SU4	4	6	3	62	f	q	3.4	3	broad, hertzian, outre passe	p
Tantangara	SU4	5	1	3	1	ff	ch	0.1	2	pink chert	
Tantangara	SU4	5	1	4	2	pos	ch	3	4		
Tantangara	SU4	5	2	1	3	pos	ch	0.2	1	light grey	
Tantangara	SU4	5	2	1	4	pos	ch	0.3	2	light grey	
Tantangara	SU4	5	2	3	5	f	fgv	3	3	broad, bending, feather	
Tantangara	SU4	5	2	3	6	f	ch	3.6	3	focal, hertzian, outre passe	
Tantangara	SU4	5	2	3	7	pos	ch	12.3	4		p
Tantangara	SU4	5	2	3	8	f	ch	0.3	2	broad, bending, step	
Tantangara	SU4	5	2	4	9	ff	q	0.4	2		
Tantangara	SU4	5	3	1	10	pos	fgv	0.3	2		
Tantangara	SU4	5	3	1	11	cf	ch	8	4		
Tantangara	SU4	5	3	2	12	ff	ch	0.5	2		
Tantangara	SU4	5	3	2	13	pos	ch	0.4	2		
Tantangara	SU4	5	3	2	14	pos	fgv	0.1	1		
Tantangara	SU4	5	3	2	15	f	ch	0.1	2	light grey, broad, hertzian, feather	
Tantangara	SU4	5	3	2	16	pos	ch	0.2	1	light grey	
Tantangara	SU4	5	3	3	17	ff	ch	2.6	3	white chert very fine grained	t
Tantangara	SU4	5	3	3	18	f	fgv	1.9	3	broad, hertzian, feather	p
Tantangara	SU4	5	3	3	19	ff	ch	0.1	2	light grey	
Tantangara	SU4	5	3	3	20	pos	ch	0.1	1		
Tantangara	SU4	5	4	1	21	f	fgv	0.3	2	broad, hertzian, feather	
Tantangara	SU4	5	4	1	22	p	q	0.2	1	focal, hertzian	
Tantangara	SU4	5	4	3	23	pf	fgv	372.3	11	106 x 73 x 39mm, probable pebble core but there are no definite negative flake scars	p
Tantangara	SU4	5	4	3	24	pf	fgv	3.5	3		p
Tantangara	SU4	5	4	3	25	ff	fgv	3.2	4		
Tantangara	SU4	5	4	3	26	ff	fgv	0.4	2		
Tantangara	SU4	5	4	3	27	pos	q	0.1	1		
Tantangara	SU4	5	5	3	28	ff	q	0.6	2		
Tantangara	SU4	5	5	3	29	ff	q	0.2	2		
Tantangara	SU4	5	5	3	30	fp	q	0.3	1		p
Tantangara	SU4	5	5	3	31	ff	q	0.1	1		

Tantangara	SU4	5	5	3	32	ff	q	0.1	1		
Tantangara	SU4	5	5	3	33	ff	q	0.1	1		
Tantangara	SU4	5	5	3	34	ff	q	0.1	1		
Tantangara	SU4	5	5	4	35	pos	q	0.7	2		
Tantangara	SU4	5	5	4	36	pos	q	0.1	1		
Tantangara	SU4	5	6	1	37	f	ch	2.1	3	light grey, focal, hertzian, feather	p
Tantangara	SU4	5	6	3	38	ff	q	0.1	2		
Tantangara	SU4	5	6	3	39	ff	q	0.3	2		
Tantangara	SU4	5	6	3	40	ff	q	0.1	1		
Tantangara	SU4	6	1	1	1	pos	ch	2	2	light grey	
Tantangara	SU4	6	1	1	2	ff	ch	0.6	2		
Tantangara	SU4	6	1	1	3	ff	ch	0.7	2		
Tantangara	SU4	6	1	1	4	ff	ch	0.5	2	white	
Tantangara	SU4	6	1	2	5	ff	ch	1.8	3	light grey	
Tantangara	SU4	6	1	2	6	cf	ch	2.6	2		t
Tantangara	SU4	6	1	2	7	ff	qu	1.2	2	white with large crystal inclusions could be a coarse silcrete	
Tantangara	SU4	6	1	3	8	f	t	0.6	2	broad, hertzian, feather	
Tantangara	SU4	6	1	3	9	pos	ch	0.1	1	light grey	
Tantangara	SU4	6	1	3	10	d	q	0.2	2	feather	
Tantangara	SU4	6	1	3	11	ff	q	0.2	1		
Tantangara	SU4	6	1	3	12	ff	q	0.1	1		
Tantangara	SU4	6	2	3	13	ff	q	2.3	2		
Tantangara	SU4	6	2	3	14	ff	q	0.3	1		
Tantangara	SU4	6	2	4	15	ff	q	0.4	2		p
Tantangara	SU4	6	3	3	16	f	t	0.1	1	broad, hertzian, feather	
Tantangara	SU4	6	3	3	17	ff	ch	0.5	2		
Tantangara	SU4	6	4	1	18	pos	ch	0.6	2		
Tantangara	SU4	6	4	2	19	pos	ch	0.2	2	light grey	
Tantangara	SU4	6	4	3	20	f	ch	0.4	2	focal, hertzian, step	
Tantangara	SU4	6	4	3	21	d	ch	0.1	2	feather	
Tantangara	SU4	6	4	3	22	ff	ch	0.1	1		
Tantangara	SU4	6	4	3	23	ff	ch	2.5	3		
Tantangara	SU4	6	4	3	24	pos	ch	10.3	4		
Tantangara	SU4	6	4	4	25	ff	ch	0.1	1	fine grained light grey	
Tantangara	SU4	6	5	1	26	ff	ch	0.1	1		
Tantangara	SU4	6	5	2	27	ff	ch	0.8	2		
Tantangara	SU4	6	5	2	28	ff	ch	0.2	2		
Tantangara	SU4	6	5	2	29	pos	ch	0.1	1		
Tantangara	SU4	6	5	2	30	d	ch	0.1	2	feather, fine grained light grey	
Tantangara	SU4	6	5	3	31	pos	q	0.2	1		

Tantangara	SU4	6	6	3	32	ff	ch	6.9	4		
Tantangara	SU4	6	6	3	33	ff	ch	2.2	3	light grey	
Tantangara	SU4	6	6	3	34	d	ch	0.3	2	feather, light grey	
Tantangara	SU4	6	6	3	35	ff	ch	0.1	1		
Tantangara	SU4	6	6	3	36	f	ch	0.1	1	broad, bending, step	
Tantangara	SU4	6	6	3	37	ff	ch	0.2	2	light grey	
Tantangara	SU4	6	6	3	38	ff	ch	0.3	2	light grey	
Tantangara	SU4	6	6	3	39	ra	ch	0.2	2	light grey, same material as two above, 12.2 x 7.4 x 2.5mm, steeply retouched on two opposing ends, same type as artefact 20 Tantangara SU4 square 6 spit 2	
Tantangara	SU5	1	3	5	1	pos	q	0.3	1		
Tantangara	SU5	2	2	5	2	pos	q	4.4	3		p
Tantangara	SU5	2	3	2	3	pos	q	0.5	2		
Tantangara	SU5	2	3	4	4	ff	ch	8.3	4		
Tantangara	SU5	2	3	4	5	ff	ch	0.7	2		t
Tantangara	SU5	2	3	4	6	f	ch	0.7	2	focal, hertzian, feather	t
Tantangara	SU5	2	3	4	7	f	ch	0.3	2	broad, bending, feather	
Tantangara	SU5	2	3	4	8	f	ch	0.2	2	focal, hertzian, feather	
Tantangara	SU5	2	3	4	9	f	ch	0.1	1	focal, hertzian, feather	
Tantangara	SU5	2	3	5	10	ff	q	1.6	2		p
Tantangara	SU5	2	3	5	11	f	ch	0.6	2	broad, hertzian, feather	
Tantangara	SU5	2	6	4	12	pos	ch	1.1	3		
Tantangara	SU5	5	1	2	1	ff	qu	0.8	2	distinctive yellow quartzite, coarse grained	
Tantangara	SU5	7	2	3	1	uu	ch	2.4	3	fine grained light grey chert, micro scarring from ventral along two margins, micro scarring from use from dorsal on the other two margins	t
Tantangara	SU5	7	2	3	2	ff	ch	1.8	3		t
Tantangara	SU5	7	3	2	3	uu	ch	0.1	2	micro scarring from ventral on distal end of one margin consistent with use; light grey	
Tantangara	SU5	7	3	2	4	f	ch	0.9	3	focal, hertzian, feather	
Tantangara	SU5	7	3	2	5	p	ch	0.3	2	focal, hertzian, fine grained light grey chert	
Tantangara	SU5	7	3	3	6	ff	ch	0.6	2		
Tantangara	SU5	7	4	3	7	h	unc	186.5	9	small pebble with bifacial flaking on one end consistent with light hammer wear; minimally used. 89 x 70 x 23mm.	
Tantangara	SU5	7	4	3	8	ff	q	2.7	3		
Tantangara	SU5	7	5	1	9	pos	t	0.3	2	very fine grained light grey tuff (it could be a chert) related to those in spit 3 below	
Tantangara	SU5	7	5	2	10	f	t	4.5	3	focal, hertzian, feather	
Tantangara	SU5	7	5	2	11	f	t	3.7	4	focal, hertzian, outre passe	

Tantangara	SU5	7	5	2	12	d	t	1.6	4	feather	
Tantangara	SU5	7	5	2	13	f	t	0.5	2	focal, bending, hinge	
Tantangara	SU5	7	5	2	14	d	t	0.5	2	hinge	
Tantangara	SU5	7	5	2	15	d	t	0.4	2	hinge	
Tantangara	SU5	7	5	2	16	f	t	0.1	2	focal, hertzian, feather	
Tantangara	SU5	7	5	2	17	uu	t	0.3	2	transversely broken, usewear notch on one margin, notch is 6.5mm wide and from the ventral, steep micro scarring	
Tantangara	SU5	7	5	2	18	ff	t	0.1	1		
Tantangara	SU5	8	3	4	1	ff	ch	0.2	2		
Tantangara	SU8	1	2	2	1	pos	q	0.3	1		
Tantangara	SU15	1	4	4	1	f	q	14.7	4	compression flake with bipolar flaking on dorsal on distal end. There is some possiblity that some of the micro flaking on distal may be from use.	p
Tantangara	SU15	2	2	2	1	pos	ch	32.1	6	amorphous blocky piece with relatively fresh fracturing on one end and a small negative scar but uncertain to its artefactual status.	t
Tantangara	SU15	3	1	3	1	f	fgv	32.1	5	broad, bending, feather	
Tantangara	SU15	3	2	3	2	f	fgv	1.5	3	hertzian, longitudinally split	
Tantangara	SU15	3	1	3	3	f	qu	13.3	5	following two artefacts probably related to this quartzite, hertzian, longitudinally split	
Tantangara	SU15	3	1	3	4	f	qu	0.8	2	focal, hertzian, step	
Tantangara	SU15	3	1	3	5	ff	qu	0.5	2		
Tantangara	SU15	3	4	3	6	p	ch	2.7	2	broad, bending, white chert	
Tantangara	SU15	3	4	3	7	f	ch	1.3	2	broad, hertzian, feather, light grey	
Tantangara	SU15	3	4	3	8	ff	ch	0.3	2		
Tantangara	SU15	3	6	5	9	pos	q	0.9	2		
Tantangara	SU15	4	1	1	1	pos	ch	1.6	3	banded chert	
Tantangara	SU15	4	1	2	2	pf	unc	77.4	8	split pebble , 75 x 45 x 20mm	
Tantangara	SU15	4	1	2	3	f	q	10.1	3	compression flake	p
Tantangara	SU15	4	1	2	4	f	q	4.5	3	compression flake	
Tantangara	SU15	4	2	2	5	ff	q	0.4	2		
Tantangara	SU15	4	2	2	6	ff	fgv	1.3	3		
Tantangara	SU15	4	2	3	7	f	q	7.7	4	compression flake, yellow	p
Tantangara	SU15	4	2	3	8	ff	q	0.4	2	yellow, similar material to above	
Tantangara	SU15	4	2	3	9	ff	q	1.9	2		
Tantangara	SU15	4	2	3	10	d	q	0.6	2	feather	
Tantangara	SU15	4	2	3	11	ff	q	0.3	2		
Tantangara	SU15	4	2	3	12	ff	q	0.3	2		
Tantangara	SU15	4	2	3	13	pos	ch	0.1	1		
Tantangara	SU15	4	2	4	14	f	q	3.5	3	compression flake, yellow	

Tantangara	SU15	4	2	4	15	ff	q	0.2	1		
Tantangara	SU15	4	2	4	16	pos	ch	2.9	3		
Tantangara	SU15	4	3	1	17	ff	ch	0.9	2	light grey with banding	
Tantangara	SU15	4	4	1	18	ff	s	0.4	2	following four artefacts almost certainly related from 18-21, light brown silcrete	
Tantangara	SU15	4	4	1	19	f	s	0.2	2	focal, hertzian, feather	
Tantangara	SU15	4	4	1	20	fp	s	0.4	2		
Tantangara	SU15	4	4	1	21	f	s	0.5	2	broad, hertzian, feather	
Tantangara	SU15	4	4	1	22	f	q	6.8	3	compression flake with minimally worn pebble cortex	p
Tantangara	SU15	4	4	2	23	f	s	2.5	4	following light brown silcrete artefacts form 23-35 related to those in spit 1 18-21. focal, hertzian, feather	
Tantangara	SU15	4	4	2	24	f	s	4.5	3	crushed platform, hertzian, outrepasse	
Tantangara	SU15	4	4	2	25	p	s	0.5	2	focal, hertzian	
Tantangara	SU15	4	4	2	26	f	s	0.4	2	crushed platform, hertzian, step, parallel arises	
Tantangara	SU15	4	4	2	27	m	s	0.2	1		
Tantangara	SU15	4	4	2	28	f	s	0.3	2	focal, hertzian, feather	
Tantangara	SU15	4	4	2	29	f	s	0.2	2	focal, hertzian, hinge	
Tantangara	SU15	4	4	2	30	f	s	0.3	2	crushed, hertzian, hinge	
Tantangara	SU15	4	4	2	31	ff	s	0.3	2		
Tantangara	SU15	4	4	2	32	m	s	0.1	1	parallel arises	
Tantangara	SU15	4	4	2	33	ff	s	0.1	1		
Tantangara	SU15	4	4	2	34	p	s	0.1	1	focal, hertzian, with overhang removal	
Tantangara	SU15	4	4	2	35	ff	s	0.1	1		
Tantangara	SU15	4	4	2	36	ff	fgv	2.1	3		
Tantangara	SU15	4	4	2	37	ff	q	1.1	2		
Tantangara	SU15	5	1	2	1	f	ch	0.2	2	focal, hertzian, feather	
Tantangara	SU15	5	1	2	2	ff	ch	0.7	2		
Tantangara	SU15	5	1	2	3	ff	ch	1.5	2		
Tantangara	SU15	5	1	2	4	ff	ch	0.2	2		
Tantangara	SU15	5	1	2	5	ff	ch	0.1	1		
Tantangara	SU15	5	1	2	6	d	ch	0.2	1	feather	
Tantangara	SU15	5	1	4	7	ff	ch	1.9	2		
Tantangara	SU15	5	1	4	8	f	ch	0.2	2	focal, hertzian, step	
Tantangara	SU15	5	2	1	9	ff	ch	0.4	1	white chert	
Tantangara	SU15	5	2	1	10	d	ch	0.3	2	feather	
Tantangara	SU15	5	2	2	11	ff	ch	0.8	2	black with white mottle and has white silcrete component with translucent and white inclusions	

Tantangara	SU15	5	2	2	12	f	ch	0.3	2	same material as above and almost certainly the source of the white chert in spit above, broad, hertzian, feather	
Tantangara	SU15	5	2	2	13	d	q	0.2	2	feather	
Tantangara	SU15	5	2	2	14	ff	q	0.2	2		
Tantangara	SU15	5	2	2	15	pos	q	0.3	2		
Tantangara	SU15	5	2	3	16	pos	ch	0.7	2		
Tantangara	SU15	5	2	3	17	ff	q	1.5	2	pink pebble cortex	p
Tantangara	SU15	5	3	3	18	pos	q	0.4	2		
Tantangara	SU15	5	3	4	19	pos	q	0.7	2		
Tantangara	SU15	5	5	3	20	f	ch	4.3	4	same material from 20-39 and 56-74 most certainly a knapping event, broad, hertzian, feather	
Tantangara	SU15	5	5	3	21	ff	ch	18.4	5		
Tantangara	SU15	5	5	3	22	f	ch	2.1	3	broad, hertzian, feather	
Tantangara	SU15	5	5	3	23	d	ch	1.8	3	feather	
Tantangara	SU15	5	5	3	24	ff	ch	3.6	3	reddish terrestrial cortex	t
Tantangara	SU15	5	5	3	25	ff	ch	3.5	3		
Tantangara	SU15	5	5	3	26	ff	ch	3.7	4		
Tantangara	SU15	5	5	3	27	fp	ch	4.3	3	red oxide cortex	t
Tantangara	SU15	5	5	3	28	ff	ch	2.2	3	spade damage on one margin	
Tantangara	SU15	5	5	3	29	ra	ch	1	3	steep retouch backing from ventral from halfway along margin to distal; 22.9 x 14.9 x 2.6mm.	
Tantangara	SU15	5	5	3	30	p	ch	1.4	2	focal, hertzian, overhang removal	
Tantangara	SU15	5	5	3	31	d	ch	1.5	3		
Tantangara	SU15	5	5	3	32	ff	ch	2.1	2		
Tantangara	SU15	5	5	3	33	ff	ch	0.5	2		
Tantangara	SU15	5	5	3	34	ff	ch	0.7	2		
Tantangara	SU15	5	5	3	35	fp	ch	0.5	2		
Tantangara	SU15	5	5	3	36	ff	ch	0.2	2		
Tantangara	SU15	5	5	3	37	ff	ch	0.1	1		
Tantangara	SU15	5	5	3	38	d	ch	0.1	1	feather	
Tantangara	SU15	5	5	3	39	fp	ch	0.1	1		
Tantangara	SU15	5	5	3	40	p	q	1.7	3	the following quartz pieces are most certainly related from 40-51 and 75-76 , focal, wedging, modern transverse break	
Tantangara	SU15	5	5	3	41	f	q	7.1	4	broad, hertzian, longitudinally split	
Tantangara	SU15	5	5	3	42	f	q	7.4	5	focal, wedging, longitudinally split, feather	
Tantangara	SU15	5	5	3	43	ff	q	2.3	3		
Tantangara	SU15	5	5	3	44	ff	q	1.6	3		
Tantangara	SU15	5	5	3	45	ff	q	1.2	2		
Tantangara	SU15	5	5	3	46	ff	q	0.5	2		

Tantangara	SU15	5	5	3	47	ff	q	0.6	2		
Tantangara	SU15	5	5	3	48	ff	q	0.1	1		
Tantangara	SU15	5	5	3	49	fp	q	0.1	1		
Tantangara	SU15	5	5	3	50	fp	q	0.1	2		
Tantangara	SU15	5	5	3	51	ff	q	0.1	1		
Tantangara	SU15	5	5	3	52	unc	ch	9.5	5	the following black chert 52-55 look as though they are part of the background, same material but no obvious artefactual modifications, red terrestrial cortex	t
Tantangara	SU15	5	5	3	53	unc	ch	34.5	5		
Tantangara	SU15	5	5	3	54	unc	ch	13.7	4		
Tantangara	SU15	5	5	3	55	unc	ch	0.5	2		
Tantangara	SU15	5	5	3	56	d	ch	0.3	2	feather	
Tantangara	SU15	5	5	3	57	ff	ch	0.3	2		
Tantangara	SU15	5	5	3	58	f	ch	0.8	2	broad, hertzian, overhang removal, feather	
Tantangara	SU15	5	5	3	59	f	ch	0.4	2	focal , hertzian, feather	
Tantangara	SU15	5	5	3	60	p	ch	0.1	2	focal, hertzian	
Tantangara	SU15	5	5	3	61	ff	ch	0.2	2		
Tantangara	SU15	5	5	3	62	f	ch	0.2	1	broad, wedging, feather	t
Tantangara	SU15	5	5	3	63	ff	ch	0.3	2		
Tantangara	SU15	5	5	3	64	ff	ch	0.7	2		t
Tantangara	SU15	5	5	3	65	fp	ch	0.4	2		t
Tantangara	SU15	5	5	3	66	ff	ch	0.1	1		
Tantangara	SU15	5	5	3	67	ff	ch	0.1	1		
Tantangara	SU15	5	5	3	68	p	ch	0.3	1	broad, hertzian	
Tantangara	SU15	5	5	3	69	ff	ch	0.2	1		
Tantangara	SU15	5	5	3	70	fp	ch	0.2	2		
Tantangara	SU15	5	5	3	71	fp	ch	0.6	2		
Tantangara	SU15	5	5	3	72	ff	ch	0.3	1		
Tantangara	SU15	5	5	3	73	ff	ch	0.3	1		t
Tantangara	SU15	5	5	3	74	pos	ch	1.4	2		
Tantangara	SU15	5	5	3	75	ff	q	0.5	2		
Tantangara	SU15	5	5	3	76	ff	q	0.5	2		
Tantangara	SU15	5	5	3	77	f	s	0.8	2	light brown silcrete, focal, hertzian, feather	
Tantangara	SU15	5	1	3	78	pf	unc	530.7	17	NB. this square and spit was entered out of sequence. Probably artefactual given its depth however there are no diagnostic features.	
Tantangara	SU15	5	1	3	79	f	ch	1.7	3	the following chert pieces form 79-107 are almost certainly related, focal, hertzian, outrepasse	
Tantangara	SU15	5	1	3	80	ff	ch	1.7	3		
Tantangara	SU15	5	1	3	81	f	ch	0.6	2	broad, hertzian, feather	

Tantangara	SU15	5	1	3	82	f	ch	1.8	3	broad, hertzian, feather	
Tantangara	SU15	5	1	3	83	ff	ch	3.4	3		
Tantangara	SU15	5	1	3	84	f	ch	0.6	2	focal, hertzian, outrepasse	
Tantangara	SU15	5	1	3	85	ff	ch	0.2	2		
Tantangara	SU15	5	1	3	86	ff	ch	1.6	3		
Tantangara	SU15	5	1	3	87	ff	ch	0.6	2		
Tantangara	SU15	5	1	3	88	f	ch	0.6	3	focal, hertzian, feather	
Tantangara	SU15	5	1	3	89	d	ch	0.5	2	hinge	
Tantangara	SU15	5	1	3	90	ff	ch	0.5	2		
Tantangara	SU15	5	1	3	91	p	ch	0.3	2	broad, hertzian	
Tantangara	SU15	5	1	3	92	p	ch	0.9	2	broad, hertzian	
Tantangara	SU15	5	1	3	93	f	ch	0.2	2	focal, hertzian, feather	
Tantangara	SU15	5	1	3	94	ff	ch	0.5	2		t
Tantangara	SU15	5	1	3	95	f	ch	2.8	3	broad, hertzian, feather	
Tantangara	SU15	5	1	3	96	f	ch	1	2	focal, hertzian, feather	
Tantangara	SU15	5	1	3	97	ff	ch	1.1	2		
Tantangara	SU15	5	1	3	98	ff	ch	0.8	2		t
Tantangara	SU15	5	1	3	99	p	ch	0.2	2	broad, hertzian	
Tantangara	SU15	5	1	3	100	f	ch	0.1	2	crushed, hertzian, feather	
Tantangara	SU15	5	1	3	101	ff	ch	0.4	2		t
Tantangara	SU15	5	1	3	102	ff	ch	0.2	2		t
Tantangara	SU15	5	1	3	103	f	ch	0.1	1	crushed, hertzian, hinge	
Tantangara	SU15	5	1	3	104	f	ch	0.1	2	broad, bending, feather	
Tantangara	SU15	5	1	3	105	pos	ch	0.2	2		t
Tantangara	SU15	5	1	3	106	f	ch	0.1	2	focal, hertzian, feather	
Tantangara	SU15	5	1	3	107	f	ch	0.1	2	focal, hertzian, hinge	
Tantangara	SU15	5	1	3	108	f	fgv	0.5	2	broad, hertzian, hinge	
Tantangara	SU15	5	5b	1	109	ff	q	0.2	1		
Tantangara	SU15	5	5b	2	110	f	ch	3.1	4	focal, bending, feather; light grey	p
Tantangara	SU15	5	5b	2	111	ff	q	0.1	1		
Tantangara	SU15	5	5b	2	112	ff	q	0.2	1		
Tantangara	SU15	5	5b	4	113	d	ch	0.6	3	feather	
Tantangara	SU15	5	5b	4	114	d	ch	0.6	2	feather	
Tantangara	SU15	5	5b	4	115	ff	ch	0.1	1		
Tantangara	SU15	5	5b	4	116	fp	ch	0.6	2		
Tantangara	SU15	5	5b	4	117	fp	ch	1.4	2		
Tantangara	SU15	5	5b	4	118	ff	ch	0.1	1		
Tantangara	SU15	5	5b	4	119	d	q	0.2	2	feather	
Tantangara	SU15	5	5b	4	120	pos	q	0.3	2		
Tantangara	SU15	5	6	2	121	f	s	0.1	1	broad, hertzian, feather	
Tantangara	SU15	5	6	2	122	ff	q	0.1	2		

Tantangara	SU15	5	6	3	123	ff	ch	11.7	4	very light grey	
Tantangara	SU15	5	6	3	124	ff	q	0.2	2		
Tantangara	SU15	5	6	3	125	ff	q	0.5	2		
Tantangara	SU15	5	6	3	126	ff	q	0.2	1		
Tantangara	SU15	5	6	3	127	ff	ch	3.3	3	light grey	
Tantangara	SU15	5	5b	3	128	f	q	11.1	4	quartz pieces from 128-169 almost certainly all related; compression flake, longitudinally split	
Tantangara	SU15	5	5b	3	129	f	q	6.6	4	compression flake	
Tantangara	SU15	5	5b	3	130	f	q	7.7	4	compression flake	
Tantangara	SU15	5	5b	3	131	f	q	25.7	5	compression flake	
Tantangara	SU15	5	5b	3	132	fp	q	6.1	3		
Tantangara	SU15	5	5b	3	133	fp	q	5.5	3		unc
Tantangara	SU15	5	5b	3	134	ff	q	3.1	3		
Tantangara	SU15	5	5b	3	135	ff	q	2.6	3		
Tantangara	SU15	5	5b	3	136	ff	q	1.9	3		
Tantangara	SU15	5	5b	3	137	ff	q	2	3		
Tantangara	SU15	5	5b	3	138	ff	q	1.7	3		
Tantangara	SU15	5	5b	3	139	ff	q	1.4	3		
Tantangara	SU15	5	5b	3	140	p	q	1.4	3	broad, hertzian	
Tantangara	SU15	5	5b	3	141	ff	q	1.3	3		
Tantangara	SU15	5	5b	3	142	fp	q	1.9	2		
Tantangara	SU15	5	5b	3	143	ff	q	1.8	2		
Tantangara	SU15	5	5b	3	144	pos	q	0.8	3		
Tantangara	SU15	5	5b	3	145	fp	q	1.4	2		
Tantangara	SU15	5	5b	3	146	ff	q	1.2	2		
Tantangara	SU15	5	5b	3	147	fp	q	1.8	2		
Tantangara	SU15	5	5b	3	148	f	q	0.8	2	bipolar	
Tantangara	SU15	5	5b	3	149	fp	q	1	2		
Tantangara	SU15	5	5b	3	150	fp	q	1.3	2		
Tantangara	SU15	5	5b	3	151	ff	q	0.7	2		
Tantangara	SU15	5	5b	3	152	f	q	0.7	3	unc, longitudinally split	
Tantangara	SU15	5	5b	3	153	f	q	0.3	2	bipolar	
Tantangara	SU15	5	5b	3	154	ff	q	0.4	2		
Tantangara	SU15	5	5b	3	155	ff	q	0.8	2		
Tantangara	SU15	5	5b	3	156	f	q	0.6	2	bipolar	
Tantangara	SU15	5	5b	3	157	ff	q	0.5	2		
Tantangara	SU15	5	5b	3	158	ff	q	0.4	2		
Tantangara	SU15	5	5b	3	159	f	q	0.5	2	bipolar, longitudinally split	
Tantangara	SU15	5	5b	3	160	f	q	0.6	2	hertzian, longitudinally split	
Tantangara	SU15	5	5b	3	161	fp	q	0.6	2		
Tantangara	SU15	5	5b	3	162	ff	q	0.2	2		

Tantangara	SU15	5	5b	3	163	f	q	0.2	2	hertzian, longitudinally split	
Tantangara	SU15	5	5b	3	164	ff	q	0.3	1		
Tantangara	SU15	5	5b	3	165	ff	q	0.2	1		
Tantangara	SU15	5	5b	3	166	ff	q	0.2	1		
Tantangara	SU15	5	5b	3	167	ff	q	0.1	1		
Tantangara	SU15	5	5b	3	168	pos	q	0.1	2		
Tantangara	SU15	5	5b	3	169	pos	q	0.2	1		
Tantangara	SU15	5	5b	3	170	f	ch	7.1	4	chert pieces from 170-247 almost certainly related, broad, bending, feather, red coloured cortex	t
Tantangara	SU15	5	5b	3	171	f	ch	11.4	5	broad, hertzian, longitudinally split	
Tantangara	SU15	5	5b	3	172	ff	ch	11.6	5		
Tantangara	SU15	5	5b	3	173	f	ch	3.8	3	focal, crushed, feather, overhang removal	
Tantangara	SU15	5	5b	3	174	f	ch	4.3	4	focal, hertzian, feather	t
Tantangara	SU15	5	5b	3	175	f	ch	3.7	4	focal, hertzian, feather	
Tantangara	SU15	5	5b	3	176	f	ch	5.1	4	broad, hertzian, longitudinally split	t
Tantangara	SU15	5	5b	3	177	ff	ch	1.3	3		
Tantangara	SU15	5	5b	3	178	f	ch	1.7	3	broad, hertzian, feather	
Tantangara	SU15	5	5b	3	179	ff	ch	2.1	3		
Tantangara	SU15	5	5b	3	180	ff	ch	3.6	3	light grey	
Tantangara	SU15	5	5b	3	181	ff	ch	1.6	3		t
Tantangara	SU15	5	5b	3	182	ff	ch	0.6	2		
Tantangara	SU15	5	5b	3	183	ff	ch	0.9	3		
Tantangara	SU15	5	5b	3	184	ff	ch	0.9	3		
Tantangara	SU15	5	5b	3	185	ff	ch	1.1	2		
Tantangara	SU15	5	5b	3	186	ff	ch	1.3	3		
Tantangara	SU15	5	5b	3	187	ff	ch	0.7	2		t
Tantangara	SU15	5	5b	3	188	f	ch	0.7	2	focal, hertzian, step	
Tantangara	SU15	5	5b	3	189	ff	ch	0.5	2		
Tantangara	SU15	5	5b	3	190	f	ch	0.4	2	focal, hertzian, feather, longitudinally split	
Tantangara	SU15	5	5b	3	191	ff	ch	0.6	3		
Tantangara	SU15	5	5b	3	192	f	ch	0.5	2	broad, hertzian, feather, longitudinally split	
Tantangara	SU15	5	5b	3	193	ff	ch	0.4	2	light grey	
Tantangara	SU15	5	5b	3	194	d	ch	0.9	2	feather	
Tantangara	SU15	5	5b	3	195	ff	ch	0.4	2		
Tantangara	SU15	5	5b	3	196	ff	ch	0.6	2		
Tantangara	SU15	5	5b	3	197	ff	ch	0.9	2		t
Tantangara	SU15	5	5b	3	198	ff	ch	0.6	2		
Tantangara	SU15	5	5b	3	199	ff	ch	0.3	2		
Tantangara	SU15	5	5b	3	200	d	ch	0.4	2		
Tantangara	SU15	5	5b	3	201	ff	ch	0.4	2		
Tantangara	SU15	5	5b	3	202	ff	ch	0.4	2		

Tantangara	SU15	5	5b	3	203	ff	ch	0.3	2		
Tantangara	SU15	5	5b	3	204	ff	ch	0.5	2	rejuvenation flake, usewear along one margin	
Tantangara	SU15	5	5b	3	205	ff	ch	0.3	2		
Tantangara	SU15	5	5b	3	206	ff	ch	0.6	2	light grey	
Tantangara	SU15	5	5b	3	207	cf	ch	7.5	4	light grey	
Tantangara	SU15	5	5b	3	208	fp	ch	3.4	3		
Tantangara	SU15	5	5b	3	209	fp	ch	1.7	3		
Tantangara	SU15	5	5b	3	210	ff	ch	1.1	3		
Tantangara	SU15	5	5b	3	211	fp	ch	1.6	2		
Tantangara	SU15	5	5b	3	212	ff	ch	0.8	2		
Tantangara	SU15	5	5b	3	213	d	ch	0.5	2		
Tantangara	SU15	5	5b	3	214	p	ch	0.2	2	crushed, hertzian	
Tantangara	SU15	5	5b	3	215	fp	ch	0.2	2		
Tantangara	SU15	5	5b	3	216	f	ch	0.2	2	focal, hertzian, feather	
Tantangara	SU15	5	5b	3	217	ff	ch	0.2	2		
Tantangara	SU15	5	5b	3	218	ff	ch	0.4	2		
Tantangara	SU15	5	5b	3	219	ff	ch	0.3	2		
Tantangara	SU15	5	5b	3	220	ff	ch	0.3	2		
Tantangara	SU15	5	5b	3	221	f	ch	0.2	2	broad, bending, feather	
Tantangara	SU15	5	5b	3	222	ff	ch	0.3	2		
Tantangara	SU15	5	5b	3	223	pos	ch	0.5	2		
Tantangara	SU15	5	5b	3	224	ff	ch	0.5	2		
Tantangara	SU15	5	5b	3	225	ff	ch	0.3	2		
Tantangara	SU15	5	5b	3	226	ff	ch	0.2	2	light grey	
Tantangara	SU15	5	5b	3	227	pos	ch	0.5	2		
Tantangara	SU15	5	5b	3	228	ff	ch	0.2	2		
Tantangara	SU15	5	5b	3	229	p	ch	0.2	2	focal, hertzian	
Tantangara	SU15	5	5b	3	230	ff	ch	0.3	2		t
Tantangara	SU15	5	5b	3	231	ff	ch	0.2	1		
Tantangara	SU15	5	5b	3	232	ff	ch	0.1	2		
Tantangara	SU15	5	5b	3	233	d	ch	0.2	1	feather	
Tantangara	SU15	5	5b	3	234	ff	ch	0.2	1		
Tantangara	SU15	5	5b	3	235	ff	ch	0.1	2		
Tantangara	SU15	5	5b	3	236	ff	ch	0.1	2		
Tantangara	SU15	5	5b	3	237	f	ch	0.3	2	focal, hertzian, outrepase	
Tantangara	SU15	5	5b	3	238	ff	ch	0.3	1		t
Tantangara	SU15	5	5b	3	239	ff	ch	0.1	1		
Tantangara	SU15	5	5b	3	240	d	ch	0.2	1	hinge	
Tantangara	SU15	5	5b	3	241	f	ch	0.1	1	broad, hertzian, feather	
Tantangara	SU15	5	5b	3	242	pos	ch	0.4	2		
Tantangara	SU15	5	5b	3	243	pos	ch	0.2	2	potlid fractures	

Tantangara	SU15	5	5b	3	244	ff	ch	0.3	1		
Tantangara	SU15	5	5b	3	245	d	ch	0.1	1	feather	
Tantangara	SU15	5	5b	3	246	pos	ch	0.2	1		
Tantangara	SU15	5	5b	3	247	pos	ch	0.1	1		
Tantangara	SU15	5	5b	3	248	ff	s	0.5	1	brown silcrete	
Tantangara	SU15	6	2	1	1	uu	ch	1.7	2	focal, hertzian, feather, micro scarring from ventral on distal end of one margin	t
Tantangara	SU15	6	2	1	2	p	ch	0.2	2	broad, hertzian	
Tantangara	SU15	6	2	1	3	f	ch	1.2	2	focal, hertzian, longitudinally split	
Tantangara	SU15	6	2	4	4	ff	q	0.4	2		
Tantangara	SU15	6	3	1	5	ff	ch	9.1	4		p
Tantangara	SU15	6	3	1	6	f	ch	0.6	2	broad, hertzian, hinge, overhang removal	
Tantangara	SU15	6	3	1	7	f	ch	0.6	2	crushed, hertzian, step	
Tantangara	SU15	6	3	1	8	fp	ch	0.5	2		
Tantangara	SU15	6	3	3	9	ff	ch	35	6		t
Tantangara	SU15	6	3	3	10	pos	ch	2.3	3		
Tantangara	SU15	6	3	3	11	f	q	8	3	bipolar, compression flake	
Tantangara	SU15	7	1	2	1	d	ch	0.2	2	feather, light grey	t
Tantangara	SU15	7	1	2	2	ff	q	0.6	2		
Tantangara	SU15	7	1	4	3	ff	ch	0.2	2		
Tantangara	SU15	7	1	4	4	pos	ch	1.5	2	light grey	
Tantangara	SU15	7	2	4	5	ff	ch	0.3	2		
Tantangara	SU15	7	3	1	6	f	ch	0.2	2	crushed, hertzian, feather	p
Tantangara	SU15	7	4	2	7	ff	fgv	1.3	3		
Tantangara	SU15	7	4	3	8	pf	fgv	56.2	7		
Tantangara	SU15	7	4	3	9	f	q	2.9	3	compression flake	
Tantangara	SU15	8	1	1	1	ff	ch	0.5	2		
Tantangara	SU15	8	1	2	2	ff	q	2.2	3		p
Tantangara	SU15	8	1	3	3	f	q	1.6	3	broad, hertzian, feather, longitudinally split	
Tantangara	SU15	8	2	1	4	fp	ch	9.3	3		
Tantangara	SU15	8	2	1	5	f	ch	0.7	3	focal , hertzian, step	
Tantangara	SU15	8	3	1	6	d	fgv	0.5	2	feather	
Tantangara	SU15	8	3	2	7	f	ch	1.6	3	broad, hertzian, feather, overhang removal	
Tantangara	SU15	8	3	2	8	c	ch	24.3	4	bifacial core	p
Tantangara	SU15	8	3	2	9	f	ch	0.4	2	focal, hertzian, step, overhang removal	
Tantangara	SU15	8	4	2	10	ff	ch	0.1	1		t
Tantangara	SU15	8	5	2	11	cf	ch	23	6		t
Tantangara	SU15	8	5	2	12	ff	ch	0.2	2		
Tantangara	SU15	8	5	2	13	f	ch	0.2	2	broad, bending, feather, light grey	
Tantangara	SU15	8	5	3	14	ff	ch	1.6	3		
Tantangara	SU15	8	5	3	15	ff	ch	6.6	4		t

Tantangara	SU15	8	5	3	16	pos	ch	0.6	2		
Tantangara	SU15	9	1	1	1	ff	ch	0.1	2		
Tantangara	SU15	9	1	1	2	f	ch	0.2	2	crushed, hertzian, step	
Tantangara	SU15	9	1	2	3	f	fgv	7.1	4	crushed, hertzian, feather	p
Tantangara	SU15	9	1	2	4	f	fgv	16.2	5	broad, hertzian, feather, probably related to the fgv above	
Tantangara	SU15	9	1	2	5	ff	q	3.7	3		
Tantangara	SU15	9	1	2	6	ff	q	1.3	2		
Tantangara	SU15	9	2	1	7	ff	ch	0.7	2		
Tantangara	SU15	9	2	2	8	d	ch	1.6	3	feather	
Tantangara	SU15	9	2	2	9	f	ch	0.4	2	focal, hertzian, outrepasse	
Tantangara	SU15	9	2	2	10	f	ch	0.3	2	focal, hertzian, step	
Tantangara	SU15	9	2	2	11	d	ch	4.6	3	feather, light grey	t
Tantangara	SU15	9	2	2	12	d	ch	1.5	3	feather	
Tantangara	SU15	9	2	2	13	ff	q	0.3	2		p
Tantangara	SU15	9	2	2	14	pos	q	0.6	2		
Tantangara	SU15	9	3	1	15	f	ch	1.6	3	broad, hertzian, feather	
Tantangara	SU15	9	3	1	16	ra	q	1.8	3	steep retouch backing from ventral on mid area of one margin; 25.5 x 14.8 x 4.6mm	
Tantangara	SU15	9	3	1	17	m	q	0.2	1		
Tantangara	SU15	9	3	1	18	d	s	0.4	2	feather, light brown	
Tantangara	SU15	9	3	2	19	ff	q	0.3	2	bipolar	
Tantangara	SU15	9	3	2	20	f	q	0.4	2	bipolar, longitudinally split	
Tantangara	SU15	9	3	2	21	ff	q	0.1	1		
Tantangara	SU15	9	4	1	22	ff	ch	3.8	3	light grey	
Tantangara	SU15	9	4	1	23	ff	ch	1.3	2		
Tantangara	SU15	9	4	2	24	f	ch	0.1	2	focal, hertzian, feather, overhang removal	
Tantangara	SU15	9	4	2	25	ff	ch	0.5	2		
Tantangara	SU15	9	4	2	26	ff	ch	0.2	2		
Tantangara	SU15	9	4	2	27	f	q	5.3	3	broad, hertzian, feather, longitudinally split	
Tantangara	SU15	9	4	3	28	ff	ch	0.3	2		
Tantangara	SU15	9	5	2	29	fp	q	0.3	1		
Tantangara	SU15	9	5	3	30	ff	ch	6.9	4	following chert pieces from 30- almost certainly related	
Tantangara	SU15	9	5	3	31	fp	ch	14.3	4		
Tantangara	SU15	9	5	3	32	f	ch	5.7	4	broad, hertzian, feather	t
Tantangara	SU15	9	5	3	33	f	ch	6.8	4	focal, hertzian, feather	
Tantangara	SU15	9	5	3	34	f	ch	0.5	2	crushed, hertzian, feather	
Tantangara	SU15	9	5	3	35	f	ch	2.6	3	broad, hertzian, feather, two PFAs	
Tantangara	SU15	9	5	3	36	f	ch	2.2	3	focal, hertzian, feather, overhang removal	
Tantangara	SU15	9	5	3	37	ff	ch	3.1	3		

Tantangara	SU15	9	5	3	38	p	ch	1	3	focal, hertzian, overhang removal	
Tantangara	SU15	9	5	3	39	ff	ch	0.9	3		t
Tantangara	SU15	9	5	3	40	f	ch	1.1	3	focal, hertzian, feather	
Tantangara	SU15	9	5	3	41	ff	ch	1.2	3		
Tantangara	SU15	9	5	3	42	ff	ch	0.8	3		
Tantangara	SU15	9	5	3	43	f	ch	0.7	2	broad, hertzian, feather	
Tantangara	SU15	9	5	3	44	f	ch	1.1	3	crushed, hertzian, longitudinally split	
Tantangara	SU15	9	5	3	45	f	ch	1.6	2	cruswhed, hertzian, step	
Tantangara	SU15	9	5	3	46	fp	ch	1.5	3		
Tantangara	SU15	9	5	3	47	f	ch	0.5	3	crushed, hertzian, hinge	
Tantangara	SU15	9	5	3	48	f	ch	0.8	2	broad, hertzian, feather	
Tantangara	SU15	9	5	3	49	f	ch	0.9	2	focal, hertzian, step	
Tantangara	SU15	9	5	3	50	ff	ch	0.2	2		
Tantangara	SU15	9	5	3	51	f	ch	0.3	2	focal, hertzian, feather	
Tantangara	SU15	9	5	3	52	f	ch	0.5	2	focal, hertzian, step	
Tantangara	SU15	9	5	3	53	d	ch	0.5	2	hinge	
Tantangara	SU15	9	5	3	54	f	ch	0.3	2	focal, hertzian, feather, core rotation	
Tantangara	SU15	9	5	3	55	f	ch	0.2	2	focal, hertzian, step	
Tantangara	SU15	9	5	3	56	ff	ch	0.3	2		
Tantangara	SU15	9	5	3	57	f	ch	0.4	2	focal, hertzian, step	
Tantangara	SU15	9	5	3	58	ff	ch	0.2	2		
Tantangara	SU15	9	5	3	59	f	ch	0.1	2	broad, hertzian, feather	
Tantangara	SU15	9	5	3	60	f	ch	0.2	2	broad, hertzian, feather	
Tantangara	SU15	9	5	3	61	f	ch	0.1	1	focal, hertzian, feather	
Tantangara	SU15	9	5	3	62	f	ch	0.1	1	crushed, hertzian, feather	
Tantangara	SU15	9	5	3	63	d	ch	0.1	1	feather	
Tantangara	SU15	9	5	3	64	f	ch	0.1	1	focal, bending, step	
Tantangara	SU15	9	5	3	65	f	q	0.3	2	broad, hertzian, feather, longitudinally split	
Tantangara	SU15	9	5	3	66	f	q	0.4	2	crushed, hertzian, feather	
Tantangara	SU15	9	6	2	67	ff	ch	15.2	4		p
Tantangara	SU15	9	6	2	68	f	ch	0.3	2	focal, bipolar	
Tantangara	SU15	9	6	2	69	f	ch	0.4	2	focal, hertzian, feather	t
Tantangara	SU15	9	6	2	70	f	q	0.6	2	bipolar	
Tantangara	SU15	10	1	2	1	d	ch	5.5	4	feather	
Tantangara	SU15	10	2	3	2	p	q	0.9	2	broad, hertzian, longitudinally split	
Tantangara	SU15	10	2	3	3	ff	q	0.6	2		
Tantangara	SU15	10	2	3	4	ff	q	0.4	2		
Tantangara	SU15	10	2	3	5	ff	q	0.4	2		
Tantangara	SU15	10	2	3	6	ff	q	0.1	1		
Tantangara	SU15	10	4	4	7	uu	ch	8.2	4	hertzian flake with edge rounding and micro scarring consistent with use on both margins;	

										micro scarring and edge smoothing plus a notch with usewear all from the ventral on the wide distal; notch 9mm wide;	
Tantangara	SU15	10	5	1	8	ff	s	0.4	2	light brown	
Tantangara	SU15	10	5	3	9	ff	s	3.3	3	same material as above, almost certainly related	
Tantangara	SU15	10	5	3	10	f	q	1.8	3	bipolar, longitudinally split	
Tantangara	SU15	10	6	2	11	f	s	0.2	2	crushed, hertzian, feather, same material as the two pieces in square 5 above; likely to be related	
Tantangara	SU15	10	6	3	12	ff	s	6.2	4	silcrete pieces from 12-15 same material as above and almost certainly related	
Tantangara	SU15	10	6	3	13	m	s	1.5	2	parallel arises	
Tantangara	SU15	10	6	3	14	d	s	0.7	2	hinge	
Tantangara	SU15	10	6	3	15	f	s	0.1	2	crushed, hertzian, feather	
Tantangara	SU15	10	6	3	16	ra	s	0.9	2	geometric, distally retouched only from half way down margin, 19.9 x 10.2 x 5.1mm	
Tantangara	SU15	10	6	3	17	ff	q	0.3	2		
Tantangara	SU15	11	1	4	1	f	q	0.7	2	crushed, hertzian, step	
Tantangara	SU15	11	2	2	2	ff	s	0.4	2	same brown silcrete material as transect 10	
Tantangara	SU15	11	2	2	3	ff	s	0.2	2	as above	
Tantangara	SU15	11	3	3	4	f	q	.3.	3	compression flake, longitudinally split	
Tantangara	SU15	11	3	3	5	pos	q	0.3	2		
Tantangara	SU15	11	3	3	6	pos	q	0.4	1		
Tantangara	SU15	11	3	3	7	ff	ch	0.2	2	light grey	
Tantangara	SU15	11	3	4	8	ff	q	2.7	3		
Tantangara	SU15	11	3	4	9	ff	q	0.5	2		
Tantangara	SU15	11	3	4	10	ff	q	0.6	2		
Tantangara	SU15	11	3	4	11	ff	q	0.4	2		
Tantangara	SU15	11	3	4	12	f	q	0.2	2	bipolar flake, feather	
Tantangara	SU15	11	3	4	13	f	q	0.2	2	bipolar	
Tantangara	SU15	11	3	4	14	ff	q	0.3	1		
Tantangara	SU15	11	3	4	15	f	ch	0.2	2	broad, hertzian, feather, light grey/red	
Tantangara	SU15	11	3	4	16	f	ch	0.9	2	broad, hertzian, feather	
Tantangara	SU15	11	3	4	17	ff	ch	0.4	2		
Tantangara	SU15	11	4	3	18	m	s	1	3	same material from 18-21 as in previous squares and transect 10 and almost certainly related; parallel arises	
Tantangara	SU15	11	4	3	19	d	s	0.5	2	feather	
Tantangara	SU15	11	4	3	20	ff	s	0.7	2		
Tantangara	SU15	11	4	3	21	ff	s	0.1	2		
Tantangara	SU15	11	4	3	22	m	q	0.3	2	dark grey hue	
Tantangara	SU15	11	4	3	23	pos	q	0.4	2		

Tantangara	SU15	11	4	4	24	ff	q	0.8	2	quartz pieces from 24-33 have dark grey hue and almost certainly related to the artefact #22 above in spit 3	
Tantangara	SU15	11	4	4	25	d	q	0.3	2	feather	
Tantangara	SU15	11	4	4	26	ff	q	0.3	1		
Tantangara	SU15	11	4	4	27	ff	q	0.1	1		
Tantangara	SU15	11	4	4	28	fp	q	0.7	2		
Tantangara	SU15	11	4	4	29	fp	q	1.1	2		
Tantangara	SU15	11	4	4	30	fp	q	1.1	2		p
Tantangara	SU15	11	4	4	31	ff	q	0.5	2		
Tantangara	SU15	11	4	4	32	ff	q	0.4	2		
Tantangara	SU15	11	4	4	33	ff	q	0.2	2		
Tantangara	SU15	11	4	4	34	ra	s	0.2	2	light brown, same material as in earlier squares in T11 and T10. Narrowly spaced parallel arises, steeply bifacially retouched on one end approximately one third down a margin; 13.3 x 6.8 x 2.7mm	
Tantangara	SU15	11	4	4	35	f	q	0.6	2	broad, hertzian, feather	
Tantangara	SU15	11	4	4	36	ff	q	1	3		
Tantangara	SU15	11	5	3	37	ff	q	1.2	3		
Tantangara	SU15	11	5	3	38	ff	q	1.2	3		
Tantangara	SU15	11	5	4	39	d	ch	0.8	2	hinge	
Tantangara	SU15	11	5	4	40	ff	q	0.3	2		
Tantangara	SU15	11	6	3	41	f	t	6.6	4	focal, hertzian, step, lots of overhang removal, parallel arises	
Tantangara	SU15	11	6	3	42	ff	t	0.7	2		t
Tantangara	SU15	11	6	3	43	ff	q	1.9	3		
Tantangara	SU15	11	6	3	44	ff	q	2	2		
Tantangara	SU15	11	6	3	45	d	q	0.7	2	feather	
Tantangara	SU15	11	6	3	46	ff	q	0.2	1		
Tantangara	SU15	11	6	3	47	ff	q	0.1	1		
Tantangara	SU15	12	1	4	1	f	q	4.1	4	bipolar	
Tantangara	SU15	12	2	3	2	p	s	0.4	2	focal, hertzian, parallel arises	
Tantangara	SU15	12	2	3	3	m	s	0.3	2	parallel arises, conjoins one above	
Tantangara	SU15	13	2	3	1	d	ch	5.2	3	feather	
Tantangara	SU15	13	2	3	2	d	q	3.6	3	feather, cortex is red rose pink similar to some we have seen previously	p
Tantangara	SU15	13	1	1	3	f	fgv	1.3	3	focal, hertzian, hinge	
Tantangara	SU15	13	3	2	4	f	q	17.2	6	compression flake	
Tantangara	SU15	13	4	1	5	ff	q	0.3	2		
Tantangara	SU15	13	5	3	6	ff	ch	20.6	4		p

Tantangara	SU15	13	5	3	7	fp	ch	8.2	3		p
Tantangara	SU15	13	5	3	8	p	ch	1.5	2	broad, bending	
Tantangara	SU15	13	5	3	9	ff	ch	1	2		
Tantangara	SU15	13	5	3	10	d	ch	0.3	2	hinge	
Tantangara	SU15	13	5	3	11	ff	ch	0.3	2		
Tantangara	SU15	13	5	3	12	ra	s	5.6	3	light brown silcrete same material as Transect 11 and 10; thumbnail scraper in shape (plan view); steeply retouched on one end from distal, micro flaking including systematic step flaking from ventral along the retouched margin; 24.1 x 21.1 x 9.7mm	
Tantangara	SU15	13	5	3	13	ff	s	0.8	2	white	
Tantangara	SU15	13	5	3	14	d	q	0.2	2	feather	
Tantangara	SU14	14	1	3	1	f	q	5.9	4	compression flake	
Tantangara	SU14	14	1	3	2	f	q	1.2	2	compression flake	
Tantangara	SU14	14	1	3	3	ff	q	1.5	3		
Tantangara	SU14	14	1	3	4	ff	q	0.4	1		
Tantangara	SU14	14	1	3	5	ff	q	0.2	2		
Tantangara	SU14	14	1	3	6	ff	q	0.5	2		
Tantangara	SU14	14	1	3	7	ff	t	1.2	3	tuff pieces from 7-10 are almost certainly related	
Tantangara	SU14	14	1	3	8	ff	t	1.9	3		
Tantangara	SU14	14	1	3	9	fp	t	0.6	2		
Tantangara	SU14	14	1	3	10	ff	t	0.1	1		
Tantangara	SU14	14	1	4	11	ff	t	2.8	3	almost certainly related to tuff above	
Tantangara	SU14	14	3	2	12	f	s	5	4	focal, hertzian, hinge, white with dark grey inclusions	
Tantangara	SU14	14	3	2	13	ff	ch	2.4	3	chert pieces form 13-23 are likely to be related	
Tantangara	SU14	14	3	2	14	fp	ch	13	4		p
Tantangara	SU14	14	3	2	15	f	ch	0.8	3	focal, hertzian, hinge	
Tantangara	SU14	14	3	2	16	f	ch	0.6	2	focal, hertzian, feather	
Tantangara	SU14	14	3	2	17	fp	ch	1.9	2		
Tantangara	SU14	14	3	2	18	ff	ch	1.2	2		
Tantangara	SU14	14	3	2	19	ff	ch	0.6	2		
Tantangara	SU14	14	3	2	20	fp	ch	0.8	2		
Tantangara	SU14	14	3	2	21	ff	ch	0.2	2		
Tantangara	SU14	14	3	2	22	f	ch	0.1	2	focal, hertzian, step	
Tantangara	SU14	14	3	2	23	f	ch	0.1	1	focal, hertzian, feather	
Tantangara	SU14	14	4	3	24	f	q	1.8	4	bipolar	
Tantangara	SU14	14	4	3	25	f	q	1.6	3	focal, hertzian, feather, yellow tinge	
Tantangara	SU14	14	4	3	26	ff	q	2.9	4		
Tantangara	SU14	14	4	3	27	ff	q	1.8	2	yellow hue	

Tantangara	SU14	14	4	3	28	f	q	0.4	2	bipolar	
Tantangara	SU14	14	4	3	29	ff	q	0.7	2		
Tantangara	SU14	14	4	3	30	f	q	0.3	2	bipolar	
Tantangara	SU14	14	4	3	31	d	q	0.2	2	feather	
Tantangara	SU14	14	4	3	32	ff	q	0.2	1		
Tantangara	SU14	14	4	4	33	f	q	0.8	2	bipolar	
Tantangara	SU14	14	4	4	34	ff	q	0.5	2		
Tantangara	SU14	14	4	4	35	d	q	0.2	2	feather	
Tantangara	SU14	14	5	1	36	d	ch	0.3	2	hinge, light grey	
Tantangara	SU14	14	5	3	37	f	ch	8.5	6	focal, hertzian, feather, light grey	
Tantangara	SU14	14	5	3	38	pos	ch	4.4	3	light grey	t
Tantangara	SU14	14	5	3	39	f	ch	3.8	3	focal, hertzian, longitudinally split	
Tantangara	SU14	14	5	3	40	ff	ch	0.6	2	light grey	
Tantangara	SU14	14	5	3	41	fp	ch	1.3	2	light grey	
Tantangara	SU14	14	5	3	42	ff	ch	0.1	2	light grey	
Tantangara	SU14	15	1	3	1	ff	q	0.5	2		
Tantangara	SU14	15	2	3	2	m	ch	1.6	3	chert pieces from 2-9 almost certainly related; parallel arises	
Tantangara	SU14	15	2	3	3	ff	ch	1.6	3		
Tantangara	SU14	15	2	3	4	f	ch	0.9	2	focal, hertzian, feather, overhang removal	t
Tantangara	SU14	15	2	3	5	pos	ch	1.5	3		t
Tantangara	SU14	15	2	3	6	ff	ch	0.7	2		
Tantangara	SU14	15	2	3	7	ff	ch	0.5	2		
Tantangara	SU14	15	2	3	8	d	ch	0.6	2	feather	
Tantangara	SU14	15	2	3	9	ff	ch	0.4	2		
Tantangara	SU14	15	2	3	10	pos	q	0.2	1		
Tantangara	SU14	15	2	4	11	ff	ch	1.4	2	chert pieces possibly related to those above in spit 3.	t
Tantangara	SU14	15	2	4	12	ff	ch	0.3	2		t
Tantangara	SU14	15	3	2	13	ra	ch	0.2	1	flake, proximal, hertzian, transversely snapped, steep retouch from ventral along one margin	
Tantangara	SU14	15	4	4	14	ff	q	1	2		
Tantangara	SU14	15	5	1	15	ff	t	0.4	2		
Tantangara	SU14	15	5	1	16	ff	ch	0.5	2		
Tantangara	SU14	15	5	1	17	pos	q	0.3	1		
Tantangara	SU14	15	5	2	18	uu	ch	18.2	8	flake, focal, hertzian, micro scarring and polish consistent with use along most of one margin	
Tantangara	SU14	15	5	2	19	ff	ch	0.8	3		
Tantangara	SU14	15	5	2	20	ff	ch	0.1	2		
Tantangara	SU14	15	5	2	21	pos	ch	1.6	3		
Tantangara	SU14	15	5	2	22	ff	ch	0.8	2		

Tantangara	SU14	15	5	2	23	p	t	0.6	2	focal, hertzian	
Tantangara	SU14	15	5	2	24	ff	fgv	0.5	2		
Tantangara	SU14	15	6	3	25	fp	ch	4.7	3	chert pieces from 25-35 probably related	
Tantangara	SU14	15	6	3	26	ff	ch	1.2	3		
Tantangara	SU14	15	6	3	27	ff	ch	1.3	2		t
Tantangara	SU14	15	6	3	28	ff	ch	0.5	2		
Tantangara	SU14	15	6	3	29	m	ch	0.4	2	parallel arises	
Tantangara	SU14	15	6	3	30	p	ch	0.2	2	broad, hertzian	
Tantangara	SU14	15	6	3	31	ff	ch	0.4	2		
Tantangara	SU14	15	6	3	32	p	ch	0.2	2	focal,hertzian	
Tantangara	SU14	15	6	3	33	f	ch	0.2	2	focal, hertzian, step	
Tantangara	SU14	15	6	3	34	ff	ch	0.4	2		
Tantangara	SU14	15	6	3	35	ff	ch	0.3	1		
Tantangara	SU14	15	6	4	36	pos	ch	12.4	4		p
Tantangara	SU14	16	2	3	1	pos	q	0.5	2		
Tantangara	SU14	19	2	3	1	f	ch	43.6	6	wedging flake, feather	t
Tantangara	SU14	19	2	3	2	f	t	0.1	2	focal, hertzian, hinge	
Tantangara	SU14	19	2	4	3	ff	ch	0.1	2		
Tantangara	SU14	19	5	2	4	f	ch	3.2	4	focal, hertzian, longitudinally split, light grey	
Tantangara	SU14	19	5	3	5	ff	ch	0.6	2	light grey	
Tantangara	SU14	19	5	3	6	ff	ch	0.7	2	light grey	
Tantangara	SU14	19	5	3	7	pos	ch	0.8	2		
Tantangara	SU14	20	1	2	1	f	q	0.4	2	broad, hertzian, longitudinally split	
Tantangara	SU14	20	2	3	2	p	s	2.5	3	focal, hertzian, same distinctive silcrete as previously observed with black and translucent inclusions	
Tantangara	SU14	20	2	3	3	ff	ch	4.6	4		
Tantangara	SU14	20	2	3	4	f	ch	0.8	2	focal, hertzian, outrepasse	
Tantangara	SU14	20	2	3	5	f	ch	0.2	2	focal, hertzian, longitudinally split	
Tantangara	SU14	20	2	3	6	ff	ch	0.1	1		
Tantangara	SU14	20	2	3	7	f	ch	0.2	2	broad, hertzian, feather	
Tantangara	SU14	20	5	2	8	ff	ch	3.2	3		
Tantangara	SU14	20	5	2	9	fp	ch	3.9	3		t
Tantangara	SU14	20	5	2	10	ff	ch	0.8	2		
Tantangara	SU14	20	5	2	11	d	ch	0.8	2	hinge	
Tantangara	SU14	20	5	2	12	ff	ch	0.5	2		
Tantangara	SU14	20	5	2	13	d	ch	0.3	2	hinge	
Tantangara	SU14	20	5	2	14	ff	ch	0.6	2		
Tantangara	SU14	20	5	2	15	ff	ch	0.6	2	light grey	
Gooandra	SU1/L9	3	4	2	1	ff	q	4.7	3		p
Gooandra	SU1/L9	8	6	1	1	ff	q	0.5	2	translucent	p

Gooandra	SU1/L9	12	1	2	1	f	q	0.5	2	focal, hertzian	p
Gooandra	SU1/L12	1	1	2	1	f	q	2.5	3	bipolar	
Gooandra	SU1/L12	1	-2	1	2	f	q	1.6	3	broad, hertzian, longitudinally split	