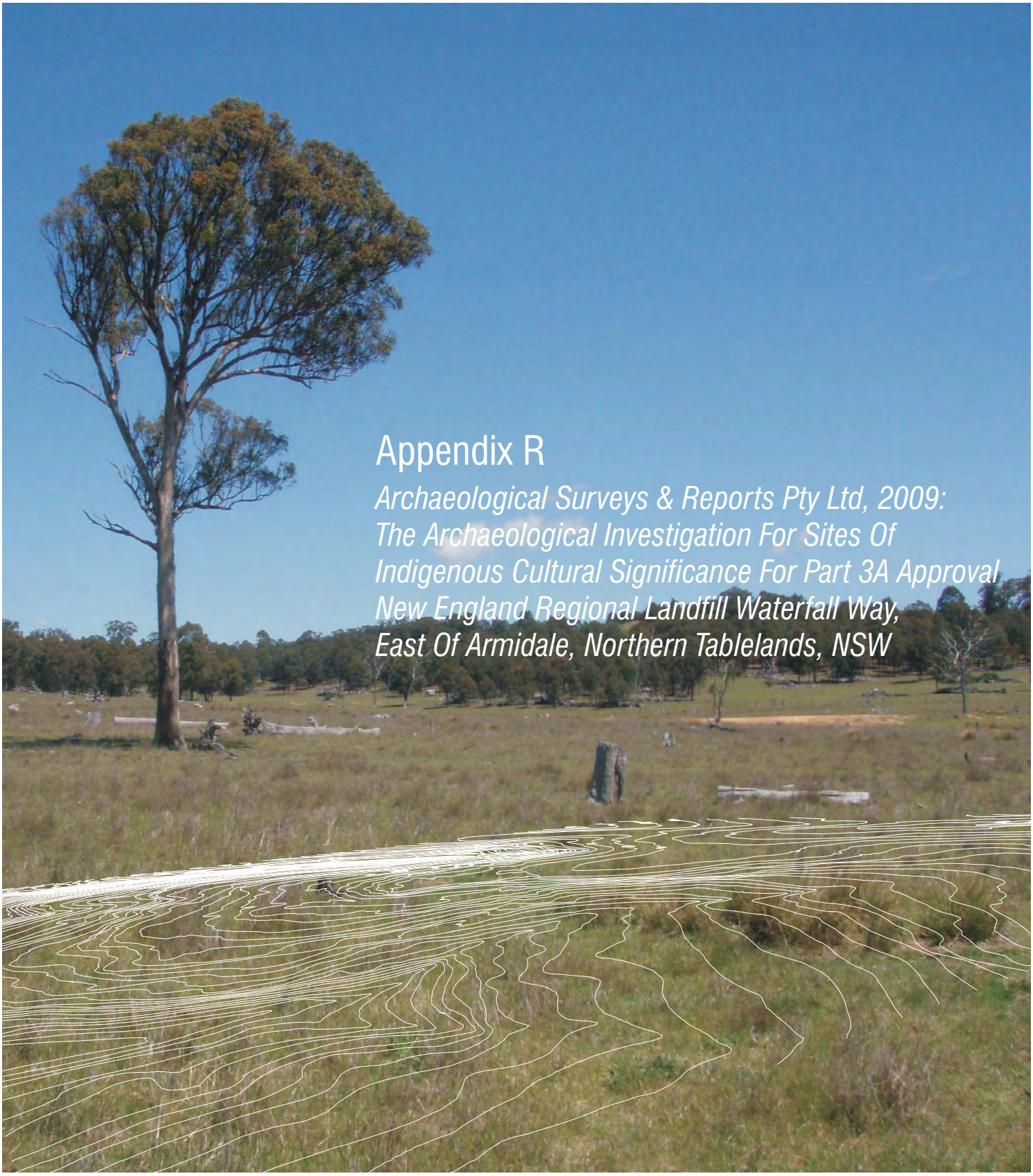
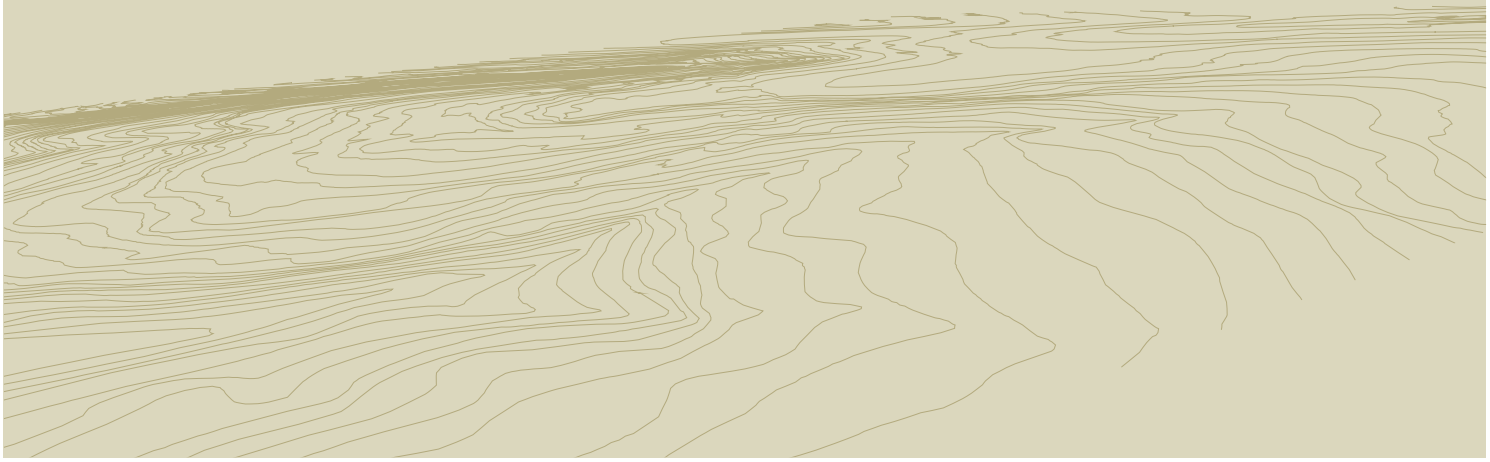


Appendix R

Archaeological Surveys & Reports Pty Ltd, 2009: The Archaeological Investigation For Sites Of Indigenous Cultural Significance For Part 3A Approval New England Regional Landfill Waterfall Way, East Of Armidale, Northern Tablelands, NSW

ARMIDALE REGIONAL LANDFILL

Environmental Assessment



The archaeological investigation for sites of Indigenous cultural significance for Part 3A Approval

NEW ENGLAND REGIONAL LANDFILL

Waterfall Way, east of Armidale, Northern Tablelands, NSW.

John Appleton

ARCHAEOLOGICAL SURVEYS & REPORTS PTY LTD

MARCH 2009

Report No. 473/09

For

AECOM

on behalf of

ARMIDALE DUMARESQ COUNCIL

ASR

This report has been compiled in 'Plain English',
but presented in a format suitable for developing policies
for the management of the cultural resources,
and as a basis for scientific reference
in future research studies.

Project No. 473/09

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The Chairperson
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EXECUTIVE SUMMARY

This investigation was performed for AECOM on behalf of Armidale Dumaresq Council (ADC). AECOM was engaged by ADC to prepare an Environmental Assessment (EA) for the construction of a landfill facility at Gara, off Waterfall Way, approximately 12 km east of Armidale, on the Northern Tablelands, and AECOM engaged Archaeological Surveys & Reports Pty Ltd (ASR) to undertake an archaeological investigation of the property to meet the criteria for the EA.

The field investigation for this project was undertaken in May 2006 (Appleton 2006), but subsequently Council decided to seek approval for the project as a Part 3A "Major Project", under 'Section 6 Approvals' of the *National Parks and Wildlife Act 1974* (as amended).

In 2006 the scope of works was for ASR to conduct an archaeological investigation of the study area with the assistance of a representative of the Anaiwan Aboriginal Traditional Owners Resource and Cultural Heritage Management Association Incorporation (Anaiwan Aboriginal Traditional Owners), to identify any Aboriginal sites and relics that might be present. The results of the investigation were to be presented in a report, which was to include an assessment of the significance of any cultural relics or places identified, an appraisal of the options and opportunities arising from the discoveries, and clear recommendations for the management of those cultural resources.

Subsequently, when Council elected to apply for development approval as a Part 3A "Major Project" it became necessary to comply with the requirements of the "Guidelines For Aboriginal Cultural Heritage Impact Assessment and Community Consultation" (DECC 2005). This requirement stipulates that "all interested Aboriginal stakeholders" should be consulted and informed of the proposed development. The brief required ASR to undertake the consultation with the interested Aboriginal stakeholders and to report on the consultation process and outcomes.

This report describes the field investigation of the site undertaken in May 2006, and the additional consultation with the registered Aboriginal stakeholders required for Part 3A Approval undertaken in March 2009.

Two isolated artefacts were recorded during the investigation, one in an eroding creek bank in the proposed road corridor, and the other on a saddle in partially cleared and significantly disturbed open woodland in the proposed Landfill Site.

On the recommendations of the Aboriginal Elders and ASR Council agreed to avoid impacting upon the two site locations, and to ensure that accidental damage did not occur to the site in the access road corridor a circle of vertical posts would be placed around site “GL ISO2” at a radius of 10m from the artefact. Given that Part 3A does not require a developer to make such a concession Council is to be applauded for its sensitivity.

Council is advised that both of the two artefact locations were registered as Aboriginal sites on the AHIMS Site Register although the listing will not be a constraint to Part 3A Approval.

While Part 3A Approval would render any constraints that might otherwise have applied under the National Parks and Wildlife Act 1974 (as amended) ineffective, ASR recommends that in the interests of the Armidale Aboriginal Community Council should instruct their employees, sub-contractors, machine operators and representatives, whether working on the project Site or elsewhere, that in the event of any bone or stone artefacts, or discrete distributions of shell, or any objects of cultural association, being unearthed during earthmoving, work should cease immediately in the area of the find.

In the event that any bone cannot be clearly identified by a qualified archaeologist as being of animal remains the police are to be informed of its discovery, and officials and/or their representatives of Armidale LALC, Nyakka Aboriginal Culture Heritage Corporation Archaeological & Cultural Heritage Consultants, and the Manager, Planning & Aboriginal Heritage, DECC, Coffs Harbour, advised that the bone is subject to police investigation.

Work should not recommence in the area of the find, until both the police (if bone has been found) and those officials or representatives have given their permission to do so. Those failing to report a discovery and those responsible for the damage or destruction occasioned by unauthorised removal or alteration to a site or to archaeological material may be prosecuted under the National Parks and Wildlife Act 1974, as amended.

TABLE OF CONTENTS

1. INTRODUCTION

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This report describes the field investigation of the site undertaken in May 2006, and the additional consultation with the registered Aboriginal stakeholders required for Part 3A Approval undertaken in March 2009.

1.1.1 Report Objectives

The objectives of this report are to describe the archaeological investigation of the survey area and to record any archaeological relics and sites that might be present. Further, the report documents the consultation process with the Aboriginal stakeholders, and the participation of an Aboriginal representative in the field survey, and their recommendations as to the future management of the survey area. In addition, the report includes a discussion of the results of the investigation in the context of other known sites in the area. Finally, the report includes a statement as to the recommendations for the future development of the survey area.

1.1.2 Report Format

The report is presented in the following format:

i Executive summary
ii Contents
iii Introduction
iv Aboriginal consultation
v The environmental context
vi The archaeological record
vii Models for site location
viii The survey
ix The results
x Discussion
xi Significance assessment
xii Recommendations.

1.2 The Survey Area

The irregularly shaped survey area occurs on two properties in the Parish of Gara, the northern section of the survey area on “Edington” – part of Lot 1 DP 253346, an area of

approximately 18.5 ha; and the southern section on "Sherraloy" – parts of Lot 2 DP 253346 and Lot 1 DP 820271, an area of approximately 29.3 ha. The survey area occurs on, and is surrounded by pasture/grazing land, but the proposed northern access road will be from Waterfall Way via a defunct section of track through a Travelling Stock Reserve, and a road corridor across pastureland to the landfill site.

Figure 1 on the following page is detail from a Topographic map of the area, with the survey area outlined in red, and red diamonds to indicate the locations of Aboriginal sites previously recorded in the area, and black diamonds to indicate the locations of the two artefacts recorded during this investigation. **Figure 2** is detail from an aerial photograph showing the conceptual footprint of the landfill. **Figure 2** also shows the locations of the two sites recorded during the investigation – see 'Results' below.

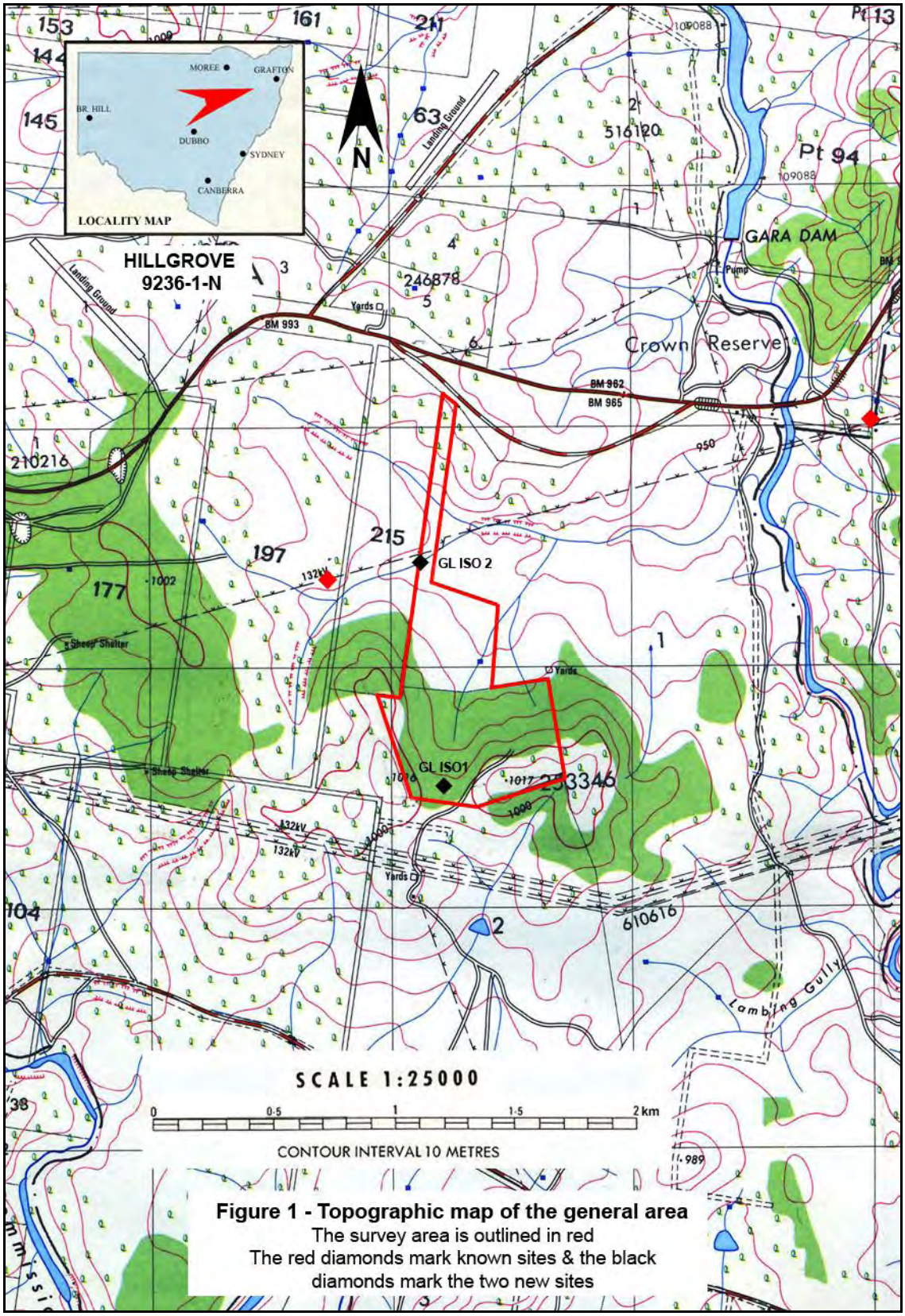
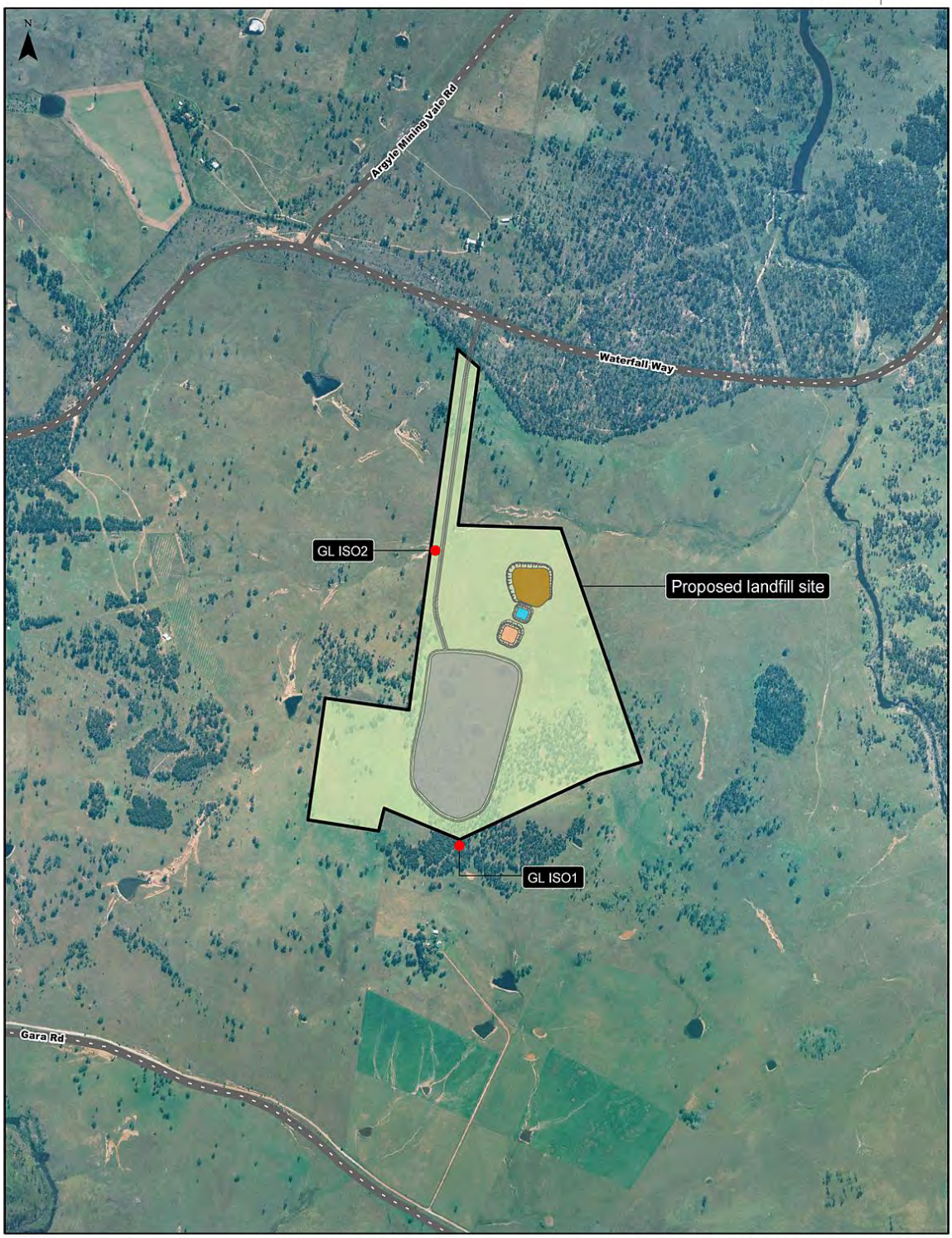


Figure 1 - Topographic map of the general area
The survey area is outlined in red
The red diamonds mark known sites & the black diamonds mark the two new sites

MAUNSELL | AECOM



Biodiversity offset area
Landfill footprint
Leachate pond
Sedimentation pond
Dry basin

ARMIDALE DUMARESQ COUNCIL - ARMIDALE REGIONAL LANDFILL
LOCATION OF HERITAGE SITES
Source: ASR (2006), Map Data (2008)
0 150 300 600 m

FEB 2009
60011672
Fig. **0**

Figure 2

1.3 Potential impact of development.

The impact from the proposed development of the survey area has the potential to disturb or destroy any archaeological material or depositional contexts within the impacted areas, either from earthworks during site preparation, or during the construction of roads, or during the clearing of the vegetation and landscaping of peripheral areas, or from burial beneath the landfill.

As a consequence of this survey it is unlikely that the same area will be surveyed again, thus from an archaeological perspective, this was an opportunity to observe and record any sites that might be present, and to propose a strategy for the management of any known or potential archaeological and/or cultural material in the future development of the area.

2. ABORIGINAL CONSULTATION

DECC guidelines require that all investigations should be undertaken with an Aboriginal community representative and in most instances the Aboriginal representative is nominated by the Local Aboriginal Land Council, but unfortunately the office of Armidale LALC had been closed for several months prior to and at the time of the investigation in 2006, and Appleton (ASR) was unable to contact the past-Chairperson of Armidale LALC.

However, Appleton (ASR) had recently undertaken other investigations in the Armidale area with representatives of the Anaiwan Aboriginal Traditional Owners Resource and Cultural Heritage Management Association Incorporation (Anaiwan Aboriginal Traditional Owners), and so he contacted the Chairperson, Rhonda Kitchener, and requested that she provide someone to assist in the investigation to represent the Aboriginal Community. As a consequence Rhonda agreed to assist Appleton in the investigation, which was undertaken on 29th May 2006.

At various stages during the investigation Appleton and Kitchener discussed the survey strategy, the potential for sites to be present, and the results of the investigation. Following

the survey they discussed the results and the likely recommendations that the Anaiwan Aboriginal Traditional Owners would make.

Kitchener agreed to provide ASR with a written statement of the recommendations on behalf of the Anaiwan Aboriginal Traditional Owners, a copy of which is included as **Appendix i.**

Subsequently, ASR was advised by AECOM that approval for the project would be sought as a Part 3A Major Project. The consequence of which was that further Aboriginal consultation was required to meet the provisions of the "Guidelines For Aboriginal Cultural Heritage Impact Assessment and Community Consultation" (DECC 2005), under Part 6 Approvals of the *National Parks & Wildlife Act* 1974 (as amended), in-so-far-as they applied to Part 3A Major Projects.

The Aboriginal consultation necessary for Part 3A approval required that an advertisement should be placed in the local newspaper inviting all Aboriginal stakeholders with an interest in the project to register their interest within 14 days of publication the advertisement. For that purpose an advertisement was placed in "*The Armidale Express*" of 2nd February 2009, and in "*The Armidale Independent*" of 4th February 2009 – see **Appendices ii** and **iii.**

Two responses to the advertisement were received, one from Nyakka Aboriginal Culture Heritage Corporation Archaeological & Cultural Heritage Consultants [Nyakka] (formerly Anaiwan Aboriginal Traditional Owners Resource and Cultural Heritage Management Association Incorporation); and Mr Tom Briggs Junior.

Registered stakeholders		
Nyakka AHCA&CHC	Mrs Rhonda Kitchener	02 6771 3329
Mr Tom Briggs (Junior)		02 6771 2429

On 26th February ASR contacted both respondents and explained the purpose of the advertisement and the requirements of Part 3A Major Project legislation in relation to this particular project, and asked them if they required a stakeholder meeting to discuss the project further.

Rhonda Kitchener, Managing Director of Nyakka, advised that she would discuss the issue with the Community Elders. Similarly, Mr Briggs advised that he would confer with Rhonda Kitchener to discuss whether or not a stakeholders' meeting was required. Subsequently, on 26th March Rhonda Kitchener advised ASR that the Community Elders were satisfied with the information they had been given and that a meeting of registered stakeholders was not required.

There being no further issues to satisfy the requirements of the Application for the project as a Part 3A Major Project, ASR concluded that the requirements for full Aboriginal Community consultation had been met.

3. THE ENVIRONMENTAL CONTEXT

Any discussion of the likely presence of Aboriginal cultural remains or of the basis why such remains might be discovered must be within the context of the environment and the resources that would have been available to any Aboriginal occupants of the area.

3.1 The general geology and topography

The survey area occurs less than four kilometres to the north of Gara Gorge on the eastern escarpment of the Northern Tablelands. The Northern Tablelands is a complex unit within the Great Dividing Range, formed from steeply dipping Sandon Beds (Palaeozoic marine sediment deposits), overlain by the horizontally layered Armidale Beds (Eocene fluvial deposits), interrupted by various intrusive basalt batholiths, and partially overlain by remnant caps of basalt. Such a complex formation includes metamorphic rocks formed at the margins

of the granites within the sedimentary deposits, and silcretes formed at the contact of the basalt with the sedimentary rock. Generally the contact zone between the basalt and the Armidale Beds occurs at about 1,030 m AHD, and outcropping of metamorphosed rock occurs between 960 and 1,030 m AHD.

The Landfill Site will be located in one of several drainage depressions that form the catchment to an unnamed creek that drains to the north-east then to the east, to flow into Gara River, some two kilometres to the north-east of the survey area. It is bracketed by two rounded hills and connecting saddle that form the backdrop to the landfill site. The hills are part of a north-west/south-east trending series of hills that separate the valleys of the southward-flowing Gara River and the eastwards-flowing Commissioners Waters to the south. Commissioners Waters flows into Gara River three kilometres to the south-east of the survey area a kilometre to the north of where Gara River enters Blue Hole, before beginning its descent into The Gorge Country.

The access road corridor enters the survey area from a ridge on Waterfall Way, and travels southwards over a mid-slope bench, before crossing a shallow drainage depression and a creek line, then continuing across the lower slopes of the westernmost of the southern hills flanking the landfill site.

While the survey area can generally be described as occurring within a landscape of rolling hills bisected by drainage depressions some of the ridges, particularly at the northern end of the survey area are marked by reef-like exposures of meta-sedimentary rock, while surface exposures along the drainage lines exhibit weathered almost stoneless sedimentary soils. Most slopes retain a surface layer, or A Horizon, of weathered coarse, sandy pasture soils formed on the surface of the Armidale Beds.

Elevation and soil type is an important predictor of site location in the Armidale region. McGarity (1977) observed that the variability of duplex soil associations in the Armidale district is due to the nature of the Palaeozoic metamorphic and sedimentary rocks on which they occur, and that the basement rocks contain metamorphosed sandstone, chert, some jasper and localised metabasalt.

Elevations in the survey area dip from 980 m AHD at the northern end of the road corridor down to approximately 955 m AHD where the road crosses the central creek bed, rising to the summits of the two hills at the southern end of the survey area at 1016 m and 1017 m AHD.

3.2 Vegetation

As the aerial photograph in **Figure 2** shows at least 60% of the survey area has been cleared for pasture, and much of the remaining 40% comprises eucalypt regrowth, or trees of less than 150 years old, in which grazing has severely limited regeneration and understorey growth.

3.3 Water resources

The proposed landfill site is positioned to utilise a ridge-flanked drainage depression but the creek lines are ephemeral at most, and would only have flowed briefly after heavy rain, as the metasedimentary soils of the surrounding slopes would absorb all but the heaviest of downpours. However, clean drinkable water was available to the Aboriginal occupants of the region, in the Gara River, a permanent water course only 1,200 metres to the east of the survey area. It is therefore unlikely that the absence of a reliable water source within the survey area was ever a constraint to its use by Aboriginal people.

3.4 Stone resources

As described above most of the soils of the survey area comprised of a shallow horizon of sedimentary pasture soils overlying Armidale Beds – neither of which would have contained stone suitable for knapping.

Many of the artefacts recorded during other investigations in the Armidale area including a site recorded less than 350 metres to the west of the survey area (see later) were

manufactured from silcrete. Silcrete has frequently been observed and recorded in a number of locations in the Armidale area on the upper slopes of hills and ridges at about 1,030 m AHD at the contact zone of the basalt with the sedimentary rock (Armidale Beds). However the summits of the hills to the south of the survey area were less than 1,020 m AHD and therefore below the level at which silcrete formed in situ, although there is a possibility that remnant lag deposits, that might include silcrete, derived from the hill tops before they were eroded to their present height, might be found in drainage lines or on hill slopes.

However, no potential source of material that might have been suitable for knapping into stone tools or weapons was observed within the survey area, and so if artefacts do occur within the survey area then they were probably sourced from a lag deposit source or outcropping metasedimentary formation outside the survey area.

3.5 Potential food resources

With such a limited vegetation regime there would have been few reliable potential food resources in the survey area, however, as in most New England environments there was always a potential for kangaroos, koalas, possums, bats, goannas, lace monitors, lizards, skinks, snakes, turtles, birds, and insects – and "sugarbag" or native bees' honey – to be present if only opportunistically.

3.6 Previous impacts

As discussed previously much of the survey area has been cleared for pasture. As a general observation the landscape remains relatively intact and free from significant alteration, other than for the two large dams in the footprint of the landfill site, and a small gravel-quarry in the eastern section on "Sherraloy". However, while the general profile of the land remains relatively unaltered it is clear from the numerous piles of felled timber in the open woodland that there has probably been significant disturbance to the sod layer or shallow A Horizon, particularly in the wooded areas. These piles could only have been formed mechanically and probably by dozer and so there is the potential for surface deposits to have been displaced

when the timber was pushed into piles, or by the tracks of the dozer reversing and turning in the shallow, looses surface deposits.

4. THE ARCHAEOLOGICAL RECORD

ASR made a search of the Aboriginal Heritage Information Management System (AHIMS: Site Register) for all sites within an area described by the AMG references Easting 380000-388000: Northing 6615000-6625000 (an area of 8 km west to east, by 10 km long north to south), centred on the survey area. Details of the results are included as **Appendix iv.**

Of the five sites occurring within the search area four were recorded by Appleton in October 1991 during an investigation for a Telecom optic fibre route (Appleton 1991), the fifth was recorded by Heather Burke and Wendy Beck on the western bank of Burying Ground Creek during a survey for a road realignment and bridge replacement on Waterfall Way (Heather Burke, pers. comm.).

Two of the sites were isolated artefacts ("TH/JA 4" & "TH/JA 6"), but one site, "TH/JA 4", beside Billys Gully, approximately 1,500 metres to the east of Gara River and less than three kilometres to the east of the survey area, contained an estimated "at least 2,000 artefacts". Another site, "TH/JA 3", that was recorded less than 350 m to the west of the landfill road corridor on a knoll overlooking a confluence of two tributaries of the catchment area in which the landfill site will be located, contained 26 artefacts and it was estimated that the site probably contained at least 500 artefacts. The vast majority of all of the artefacts in all five locations were manufactured from silcrete, and the remainder from silicified metasedimentary rock such as greywacke.

Of the five listed sites only two occur within the map coverage of **Figure 1**, "TH/JA 3" to the west of the road corridor, and the isolated artefact at "TH/JA 4" to the east of Gara River. The large site at "TH/JA 5" occurs less than 1,100 m to the east of "TH/JA 4".

The fact that only five sites have been recorded in the 80 sq.km, search area is not indicative of the distribution and density of sites in the region, but merely represents the results of two

very confined and targeted investigations. Sites are generally recorded during investigations required to comply with Development Applications or to meet local or state government statutory requirements, and so in an area in which the only 'developments' since 1979 when the Environmental Planning & Assessment Act was enacted, have been a road upgrade and bridge replacement, and the installation of optic fibre cable there have been very few opportunities in which sites might be observed and recorded. In numerous other investigations throughout the Northern Tablelands Appleton has found many sites in various environments, and based on that experience, would predict that there might be at least another 50 or so sites yet to be observed and recorded within the 80 sq km search area, the vast majority of which will be found along creek banks or in saddles or on the summits of hills and ridges overlooking water courses.

5. MODELS FOR SITE LOCATION

5.1 Site types and their location

In order to design an investigative strategy it is firstly necessary to develop a predictive model for site location. This is not to determine where the investigation should be conducted, but to establish a theoretical model for the distribution of archaeological material against which the effectiveness and subsequent analysis of the survey results can be tested, compared and reasoned. The basis upon which the predictive model is derived must however be one of consideration of which archaeological material might realistically be expected to not only be present, but also detectable.

The first objective of any archaeological investigation must be to observe and record sufficient of the archaeological record that is present to be able to propose that it is representative of the record as a whole. The investigative strategy is therefore directed and designed to detect that which is representative of the record in the particular study area, and naturally, as different study areas will comprise variations in environment, vegetation, topography, etc., so the investigative strategy must be designed to best suit the circumstances. The objective must be to detect material evidence, and so it is necessary to

consider the extent to which artefactual material may be present, and the degree to which it is visible or might be discovered.

There are several factors, which are likely to affect, firstly, where Aboriginal people are most likely to have been, secondly, where they have left evidence of their activities, and thirdly, the degree to which that evidence is observable in the present record.

People visited places mainly to obtain resources, and in general places that were richest in resources were more likely to have been visited by people than those places with fewer resources. Important resources were permanent water, ephemeral water, food resources, stone raw material sources, shelter (from sun, wind, and rain), and perhaps suitable surfaces for rock art, and proximity to mythological natural features. Those resources may have been a factor in the suitability of a location for particular ceremonial activities but cultural boundaries also influenced the choice of ceremonial grounds. Alternatively, sites frequently occurred along preferred access routes and particularly where that route coincided with a watercourse.

However, the attractions of such an environment frequently resulted in the archaeological record becoming discontinuous or significantly disturbed, as stock and vehicles impacted upon it in the post-European contact phase.

Frequency of visits and use of particular locations was also determined by the ‘accessibility’ or freedom from environmental constraints in the area. For example, whether there were alternative, preferred or easier ways to travel around or over natural barriers, be they geological, geographical, cultural, or imposed by fauna or flora, or whether they were only seasonally accessible, such as mounds on flood terraces, or the availability of water during periods of drought, or whether or not floods, fire or snow hindered access.

Few past Aboriginal activities are represented by surviving material evidence. This in part is because many activities did not leave material evidence (eg. tools were reused), but it is also because very little cultural material survived. An exception to this was shellfish, which was very durable.

The survival of material that is durable was also affected by recent European land use. Cultivation has destroyed many archaeological sites. However, cultivation can also help expose sites that might otherwise be covered. This brings us to the other important point about site distribution, which is that to a great extent site distribution recorded by archaeologists reflects the distribution of places where the ground surface is sufficiently eroded to expose artefactual material.

By far the majority of recorded sites have been stone artefact scatters or isolated stone artefacts, and in the vast majority of sites they were found in one or more of the following contexts:

i) On or adjacent to deposits containing quartz, quartzite, jasper, silcrete, chert, chalcedony, metamorphosed greywacke, and other indurated or siliceous sedimentary rocks, or redeposited fine-grained volcanics, or

ii) On river banks or adjacent to river banks where the watercourse contains river pebbles of quartz, quartzite, jasper, silcrete, chert, fine-grained volcanics, basalts, etc., and particularly at the junctions of watercourses, or

iii) On ridges and spurs overlooking watercourses or on high vantage points affording uninterrupted views of swamps, water holes, saddles, passes, and any other likely access path into the observer's area, or

iv) In the vicinity of outcrops of suitable raw material such as basalt, silcrete, chert, or other highly silicified sedimentary rock.

Other site types do occur and perhaps because of their lower and less predictable profile, are present in far greater numbers than we are aware of. People died but there are few recorded burials. One reason may be that in many instances the soils are too acid for the preservation of bone, but a far more likely reason is simply that burial frequently entailed subsurface internment, and a surface survey will only discover a burial where there has been erosion of significant disturbance to the surface deposits. As a consequence many burials have only been discovered when exposed by erosion of a sand body or river terrace.

Other site types such as carved trees, scarred trees, stone arrangements, Bora rings, etc., may once have been present, but are unlikely to have survived in easily accessible country from the attention of non-indigenous people. Thus, much of what might have existed is now

lost or destroyed, and the archaeological record has become biased by the post-contact utilisation of resources, and by the selective exploitation and preservation of particular environments.

Other factors which affect the degree to which sites are recorded during an investigation include the time of year at which the fieldwork is performed (the seasonality of some vegetation growth) and the conditions under which the survey is performed – (wet, dry, cold, windy, poor light, etc.).

A brief description of site types such as isolated artefacts, open scatters, camp sites, knapping floors, quarries, middens, mounds, hearths, carved trees, scarred trees, stone arrangements, Bora rings, burials, engravings, paintings, grinding grooves, occupation deposits (and PADs), and ceremonial and mythological sites is given in **Appendix v**.

5.2 A predictive model for the study area

Based on all of the above the following model for site distribution was proposed for the study area in which there were no stone resources suitable for knapping material, no mature trees, no reliable water source, no particular food resources, no overhangs or shelters, and no exposed rock surfaces.

- Isolated artefacts may be present and visible in erosion features
- Low-density artefact scatters may be present and visible in erosion features, but it is unlikely that any debitage will be visible
- There is very little potential for any scarred trees to be present as there are few trees likely to be a hundred and fifty years old, which is the minimum age they would have to be to have been useful to the Aboriginal people at the time of European contact in the mid-19th century.
- There is very little potential for any carved trees to be present as there are few trees likely to be a hundred and fifty years old.
- There will be no shell middens
- In the absence of any shelters there will be no art sites

- There will be no surfaces exhibiting engravings, or grinding grooves
- There will be no intact occupation deposits
- There are no known Mythological sites in or near the survey area
- There will be no stone quarries
- There will be no visible evidence of burials
- There will be no surviving or visible Bora rings
- There will be no stone arrangements

6. THE SURVEY

6.1 The survey strategy

It was clear from the brief for the investigation that there was easy access to the area to be surveyed and it would possible to undertake a comprehensive survey on foot. In the absence of any significant features in the survey area it was decided to follow a transect strategy, walking two-abreast and about 10-15 metres apart.

The investigators commenced the foot survey at the north-western corner of that part of the survey area in "Sherraloy", at the southern end of the road corridor, or midway along the western boundary of the landfill site. They then proceeded southwards along the boundary to the south-western corner, then turned eastwards entering the woodland to target ground exposures in the area of the southern saddle. From there they ascended the slopes of the eastern hill to the central north/south (electrified) fence. They then briefly followed the fenceline northwards before turning westwards and descending into the woodland between the saddle and the southern dam, then turned northwards and surveyed the central track down to the southern dam. From there the investigators followed the drainage depression down as far as the corner of the fenceline on the property boundary, and then crossed into the eastern section of "Sherraloy". From there they turned southwards and followed the fenceline to the summit of the eastern hill. From there the investigators turned eastwards following the crest the hill to just short of the eastern boundary, where they turned northwards and descended the northern slopes to the gravel quarry, then turned north-westwards

crossing the property boundary and heading back to the starting point via the northern dam. Once back at the western boundary the investigators turned northwards and followed the road corridor to the northern boundary, before returning back to the starting point.

The area in the north-eastern section of the proposed landfill area was not surveyed because of the dense grass cover.

6.2 Details of the survey

Rhonda Kitchener, Chairperson, Anaiwan Aboriginal Traditional Owners, assisted Appleton in the field survey, which was undertaken on foot, in light ideal for observing artefactual material. All of the areas shown shaded in pink in **Figure 3** were surveyed on foot.

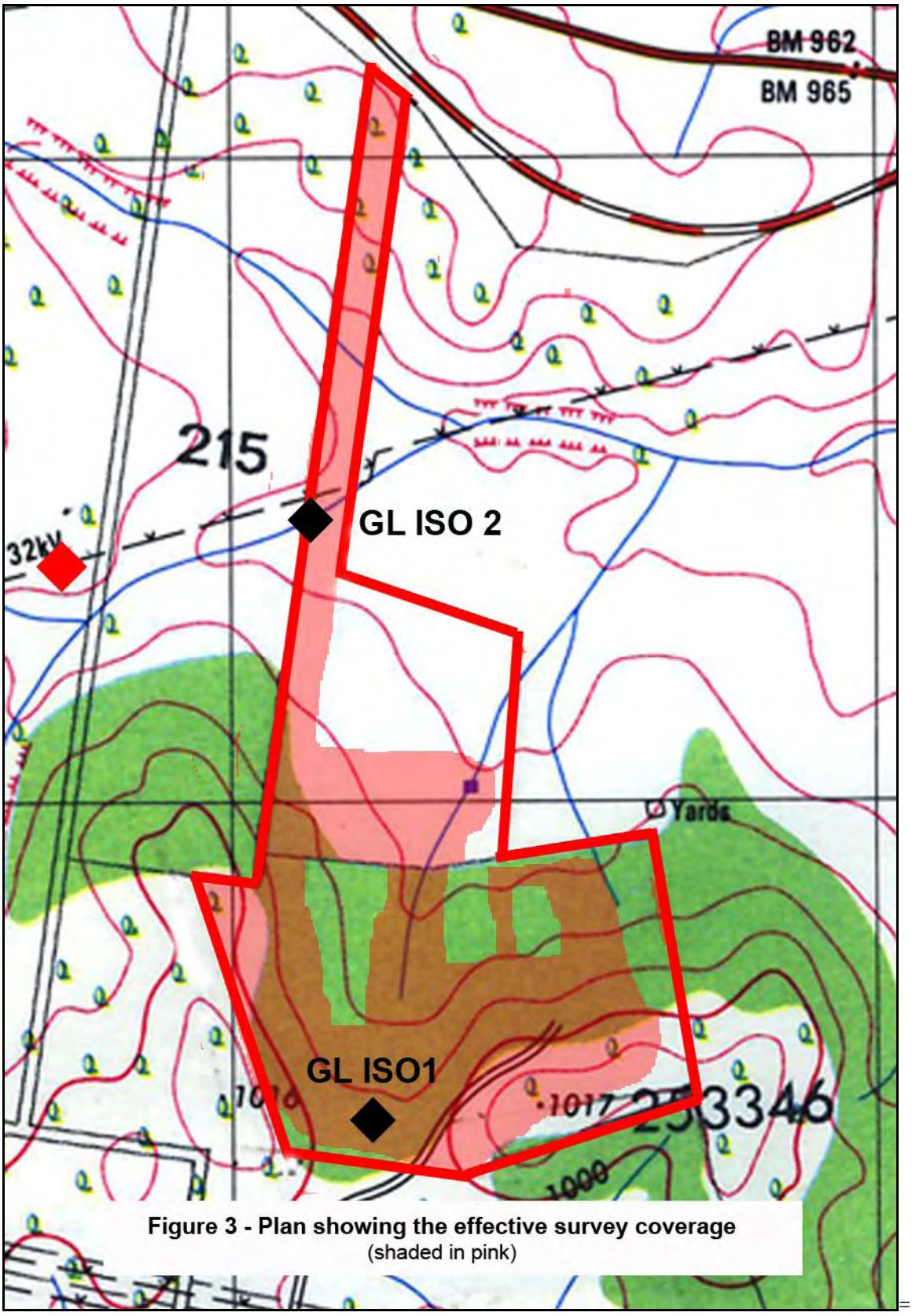


Figure 3 - Plan showing the effective survey coverage
(shaded in pink)

6.3 Site recording

All relevant observations as to the topography, vegetation cover, and conditions, were recorded in a field-log, and photographs taken with an Olympus Camedia C-3030 Zoom Digital Camera, to record the character of the survey area, and to witness survey conditions. The sites were recorded using a hand-held GPS (Global Positioning System) the site references being corrected to their location on the Topographic Map.

6.4 Effectiveness of the survey technique

As described previously other than for the two hills and saddle that formed the southern backdrop, and the larger of the two creek lines in the road corridor, the survey area was generally featureless. And while there were some surface exposures in those environments in which it had been predicted sites were most likely to occur, leaf and twig detritus severely restricted archaeological visibility in most woodland areas, while grass cover was a constraint to archaeological visibility in cleared and open areas.

The survey technique was the most appropriate one to use in the circumstances, and the results are believed to be generally representative of the archaeological record in the survey area, in which it was predicted very little artefactual material would be observed

6.5 Effective coverage

The following table is divided into units delimited by observed topographical features, environments, and/or land use, briefly described in terms of 'horizontal' or map area, soil, and archaeological visibility, and the percentage of the area actually surveyed.

Figure 3 shows the effective survey coverage based on the assumption that most artefactual material if exposed and visible can be observed for up to 5 metres to either side of the path of the observer. Clearly this would vary significantly between a path walked through dense vegetation, and a path across a claypan, and is given as a guide only.

The sequence of the photographic record that follows commences at the northern boundary of the road corridor, continuing to the south-western corner of the landfill site, then turning eastwards (in an anti-clockwise direction) to the central electrified fence. It then continues to the northern "Sherraloy" fenceline before doubling back along the eastern side of the electrified fence to the summit of the south-eastern ridge. From there the sequence goes northwards to the gravel pit, and then westwards back to the southern end of the road corridor.