Appendix H Aboriginal Cultural Heritage Due Diligence Assessment

EVERICK
Heritage Consultants Pty Ltd

ABN 78102206682

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ABORIGINAL CULTURAL HERITAGE DUE DILIGENCE ASSESSMENT

SLY'S QUARRY
LOT 2 DP 1055044
MORORO, CLARENCE VALLEY NSW

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EXECUTIVE SUMMARY

This assessment provides supporting information to an Application to the Director General for expansion of the existing Sly's Quarry at Lot 2 in DP 1055044 at Mororo in the Clarence Valley LGA, NSW (the 'Project Area').

Everick Heritage Consultants ('The Consultant') was commissioned by GHD Pty Ltd ('GHD') on behalf of its client Newman Quarrying Pty Ltd ('The Proponent') to undertake this assessment. The intent of the assessment is to identify any cultural heritage constraints to the expansion of the quarry. Risks to Aboriginal cultural heritage were assessed through archaeological survey and application of the Office of Environment and Heritage ('OEH') *Due Diligence Code for the Protection of Aboriginal Objects in NSW* (2010).

The brief for this Project was to undertake a Cultural Heritage Due Diligence Assessment of suitable standard to be submitted as a stand-alone report in support of a Development Application. In accordance with the relevant administrative and legislative standards for New South Wales (see Section 2 below), the methods employed in this assessment included:

(a) searches of applicable Indigenous heritage registers;

(b) a review of current and historic satellite imagery;

(c) archaeological survey of the Project Area;

(d) desktop assessment;

(e) assessment of the Project Area in accordance with the Due Diligence Code; and

(f) a report of findings and recommended management strategies.

The Project Area is in Northern New South Wales approximately 15 km north-west of the town of Iluka and approximately 25 km north of the township of Maclean. Lot 2 is approximately 374 ha. The application would involve increasing the existing quarry by 19.6.

A search was conducted on 6 October 2014 of the OEH Aboriginal Heritage Information Management System ('AHIMS'), service number 118615, centring on the Project Area with a 1000 m buffer. The search of the AHIMS Register returned no Aboriginal Sites within the search area.

As a result of the desktop study and field inspection of the proposed expansion to the Sly's Quarry extraction areas and consultation with Yaegl Local Aboriginal Land Council ('LALC') Sites Officer Dale Mercy, the following were agreed to:

(a) Parts of the Project Area have seen minimal past 'disturbance' within the meaning of the Due Diligence Code. Detailed archaeological research and modelling has therefore been undertaken (see Sections 5 and 6 below).

(b) No Indigenous cultural heritage sites or relics were identified within the proposed expansion areas of Sly's Quarry.

(c) No areas have been identified that are considered to potentially contain subsurface deposits of significant Aboriginal heritage.

(d) The Yaegl LALC representative agreed in discussion that no further Aboriginal cultural heritage investigation was required.

Recommendations: Indigenous Cultural Heritage

The following recommendations are cautionary in nature. Whilst it is considered unlikely that they will be required, they should be noted and adhered to, as they relate to managing the legal obligations of the Proponent, which will continue to apply in relation to cultural heritage.

Recommendation 1: Aboriginal Cultural Material Finds Procedure

It is recommended that if it is suspected that Aboriginal material has been uncovered as a result of earth working activities within the Project Area:

(a) work in the surrounding area is to stop immediately;

(b) a temporary fence is to be erected around the site, with a buffer zone of at least 10 metres around the known edge of the site;

(c) an appropriately qualified archaeological consultant is to be engaged to identify the material; and

(d) if the material is found to be of Aboriginal origin, the Aboriginal community is to be consulted in a manner as outlined in the OEH guidelines: Aboriginal Cultural Heritage Consultation Requirements for Proponents (2010).

Recommendation 2: Notifying the OEH

It is recommended that if Aboriginal cultural materials are uncovered as a result of development activities within the Project Area, they are to be registered as Sites in the Aboriginal Heritage Information Management System ('AHIMS') database managed by the OEH. Any management outcomes for the site will be included in the information provided to the OEH.

Recommendation 3: Aboriginal Human Remains

It is recommended that if human remains are located at any stage during earthworks within the Project Area, all works must halt in the immediate area to prevent any further impacts to the remains. The location where they were found should be cordoned off and the remains themselves should be left untouched. The nearest police station, the Yaegl LALC, and the OEH Regional Office (Coffs Harbour) are to be notified as soon as possible. If the remains are found to be of Aboriginal origin and the police release the scene, the Aboriginal community and the OEH should be consulted as to how the remains should be dealt with. Work may only resume after agreement is reached between all notified parties, provided it is in accordance with all parties' statutory obligations.

It is also recommended that in all dealings with Aboriginal human remains, the Proponent should use respectful language, bearing in mind that they are the remains of Aboriginal people rather than scientific specimens.

Recommendation 4: Conservation Principles

In the unlikely event that Aboriginal cultural heritage is identified during Project works, it is recommended that all effort must be taken to avoid any impacts on Aboriginal Cultural Heritage values. Should a situation arise where impacts to Aboriginal cultural heritage is unavoidable, mitigation measures should be negotiated between the Proponent, OEH and the Aboriginal Community.

Recommendations: Non-Indigenous (Historic) Heritage:

There are no recommendations with regard to historic heritage. The Project does not impact on places of historic heritage significance

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DEFINITIONS

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

Aboriginal Place means 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.

ACHCR Guidelines means the OEH *Aboriginal Cultural Heritage Consultation Requirements for Proponents (2010).*

AHIMS means the Aboriginal Heritage Information Management System.

Archaeological Code of Practice means the OEH *Code of Practice for Archaeological Conduct in New South Wales (2010).*

Due Diligence Code means the OEH *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales (2010).*

EPA Act means the *Environmental Planning and Assessment Act 1979 (NSW).*

EPBC Act means the *Environment Protection and Biodiversity Conservation Act 1999 (NSW).*

GHD means GHD Pty Ltd.

GSV means Ground Surface Visibility, and is a percentage of how much ground surface (bare earth) can be seen at the time an archaeological survey is conducted.

Heritage Act means the *Heritage Act 1977 (NSW).*

In-situ an archaeological technical term for features remaining undisturbed in their original context.

LEP means the Local Environmental Plan.

NCREP 1988 means the *North Coast Regional Environmental Plan 1988*.

NPW Act means the *National Parks and Wildlife Act 1974 (NSW).*

OEH means the New South Wales Office of Environment and Heritage.

PAD means Potential Archaeological Deposit.

PHU means Pacific Highway Upgrade.

Project Area means the land subject to Aboriginal cultural heritage assessment, and being part of Lot 2 DP 1055044 as shown in Figure 2.

Proponent means Newman Quarrying Pty Ltd, and all employees and contractors of the Proponent.

The Project means the proposed quarrying and extraction expansion area from 12.5ha to a proposed 42.55 extraction area also as identified in Figure 2.

The Consultant means qualified archaeological staff and/or contractors of Everick Heritage Consultants Pty Ltd.

TSC 1997 means the N.S.W *Threatened Species Conservation Act* 1997.

1. INTRODUCTION

1.1 Purpose of the Cultural Heritage Assessment

This assessment provides supporting information to an Application to the Director General for expansion of the existing Sly's Quarry at Lot 2 in DP 1055044 at Mororo in the Clarence Valley LGA, NSW ('the Project').

1.2 Proponent & Project Brief

Everick Heritage Consultants ('the Consultant') was commissioned by GHD Pty Ltd ('GHD') on behalf of its client Newman Quarrying Pty Ltd ('the Proponent') to undertake this assessment. The intent of the assessment is to identify any cultural heritage constraints to the expansion of the quarry. Risks to Aboriginal cultural heritage were assessed through archaeological survey and application of the Office of Environment and Heritage ('OEH') *Due Diligence Code for the Protection of Aboriginal Objects in NSW* (2010) ('Due Diligence Code').

1.3 Methodology used during this assessment

The brief for this project was to undertake a Due Diligence Assessment of suitable standard to be submitted as a stand-alone report. In accordance with the relevant administrative and legislative standards for New South Wales (see Section 2 below), the methods employed in this assessment included:

(a) searches of applicable Indigenous heritage registers;

(b) a review of current and historic satellite imagery;

(c) archaeological survey of the Project Area;

(d) desktop assessment;

(e) assessment of the Project Area in accordance with the Due Diligence Code; and

(f) a report of findings and recommended management strategies.

1.4 Defining the Project Area

The Project Area is in Northern New South Wales approximately 15 km north-west of the town of Iluka and approximately 25 km north of the township of Maclean (**Figure 1**). Lot 2 is approximately 374 ha. The application

would involve increasing the existing quarry by 12.5 ha to a total of 42.55 ha. Detailed plans of the lands under cultural heritage assessment ('Project Area') are provided in Figure 3.

1.5 Report Authorship

The site survey was undertaken by Everick Heritage qualified Senior Archaeologist Adrian Piper and Dale Mercy of Yaegl Local Aboriginal Land Council ('LALC') on 17 October 2014. The desktop study was undertaken by Adrian Piper and Tim Robins. This report was written by Adrian Piper assisted by Tim Robins and Tim Hill.

Figure 1: Regional location of the Project Area

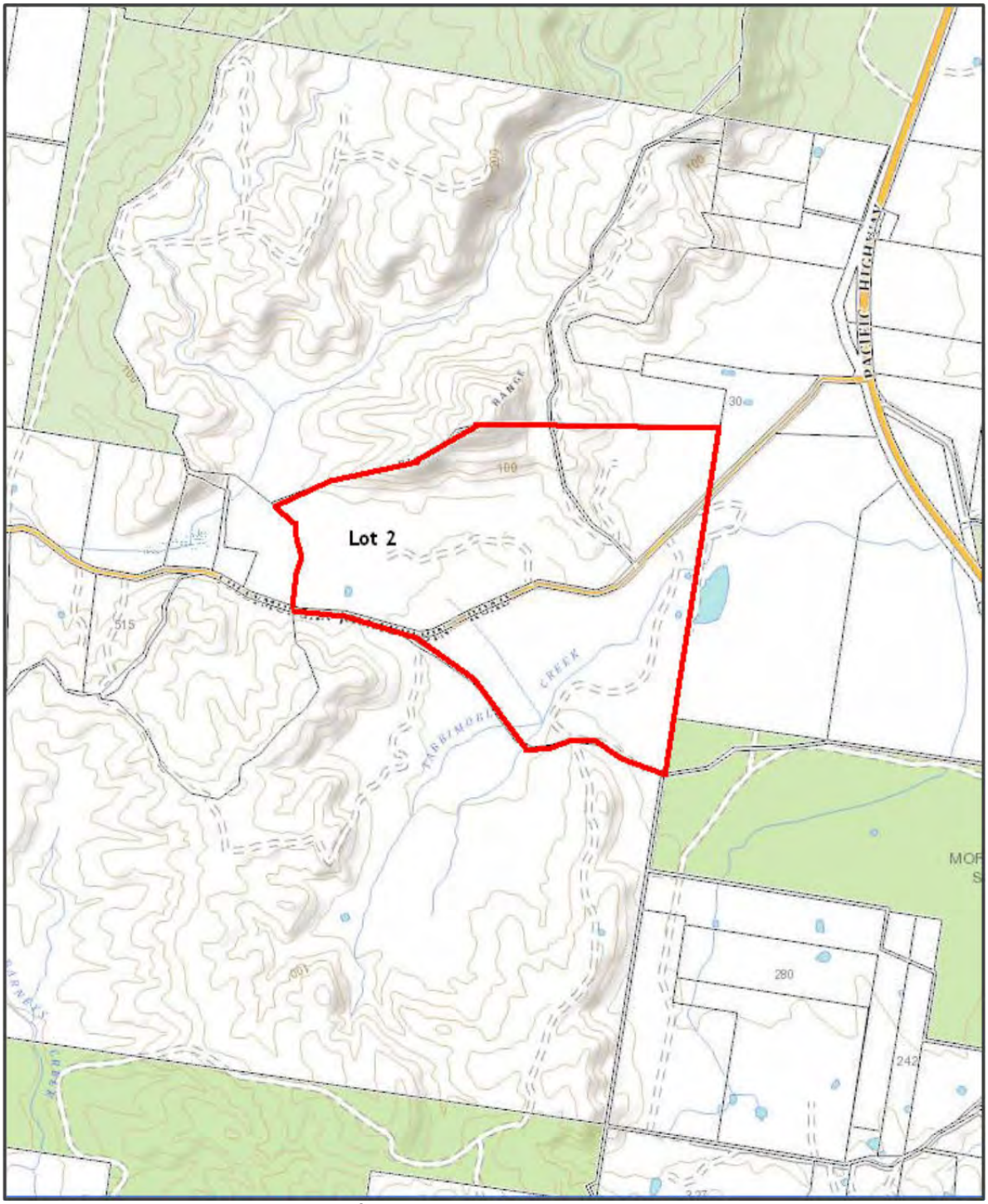

Figure 2: Location of the Project Area over 1:25000 topographic map.

2. LEGISLATIVE AND PLANNING CONTEXT

The following legislation provides the context for cultural heritage in NSW: the *National Parks and Wildlife Act 1974* (NSW) ('NPW Act'), the *Environmental Planning and Assessment Act 1979* (NSW) ('EPA Act') and Local Council Environmental Plans ('LEP') and Development Control Plans. The Commonwealth also has a role in the protection of nationally significant cultural heritage through the *Environmental Protection and Biodiversity Conservation Act 1999* (Cth) ('EPBC Act').

State legislative due diligence standards, as governed by the OEH, have also been referred to in this assessment. Whilst not strictly required, it is proposed that they offer assistance in objectively determining potential impacts and impact mitigation standards for the present scope of works.

In relation to cultural heritage, the proposed works primarily fall within the ambit of the *National Parks and Wildlife Act 1974* (NSW) ('NPW Act') and the *Heritage Act 1977* (NSW). The consent authorities will be the NSW Department of Planning and Environment and where a referral agency is required to be reported to, the OEH. The OEH will also be involved where the Project will impact on identified cultural heritage. The information below lists the legislative and policy framework within which this assessment is set.

The Commonwealth also has a role in the protection of nationally significant cultural heritage through the EPBCA Act *1999* (Cth) and *the Protection of Movable Cultural Heritage Act 1986* (Cth).

2.1 The National Parks and Wildlife Act 1974 (NSW)

The NPW Act is the primary legislation concerning the identification and protection of Aboriginal cultural heritage. It provides for the management of both Aboriginal Objects and Aboriginal Places. Under the NPW Act, an Aboriginal Object is any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area, regardless of whether the evidence of habitation occurred before or after non-Aboriginal settlement of the land. This means that every Aboriginal Object, regardless of its size or seeming isolation from other Objects, is protected under the Act.

An Aboriginal Place is an area of particular significance to Aboriginal people which has been *declared* an Aboriginal Place by the Minister. The drafting of this legislation reflects the traditional focus on Objects, rather than on areas of significance such as story places and ceremonial grounds. However, a gradual shift in cultural heritage management practices, towards recognising the value of identifying the significance of areas to Indigenous peoples beyond their physical attributes, can be seen in local and State government policies (such as

the Aboriginal Cultural Heritage Consultation Requirements for Proponents ('ACHCR') Guidelines discussed below).

Under Section 86 of the NPW Act, it is an offence to disturb, move, remove or destroy an Aboriginal Object without the consent of the Chief Executive of the OEH. This consent can be either to Investigate (Section 87) or Destroy (Section 90). If a land user is seeking Consent to Destroy, best practice is to generally seek a Section 87 permit first, and then demonstrate to the OEH the minimal significance of the site before applying for a Section 90 Consent. Before applying for Consent under Section 87 or 90, the applicant must undertake broad-based Aboriginal community consultation in accordance with the ACHCR Guidelines discussed below.

2.2 Due Diligence Code of Practice for the Protection of Aboriginal Objects

The Due Diligence Code has been applied to this assessment, and is addressed in Section 9 of this assessment. It operates by posing a series of questions for land users before they commence development. These questions are based around assessing previous ground disturbance. An activity will generally be unlikely to harm Aboriginal Objects where it:

- will cause no additional ground disturbance; or
- is in a developed area; or
- is in a significantly disturbed area.

Where these criteria are not fulfilled, further assessment for Aboriginal cultural heritage will typically be required prior to commencing the activity.

2.3 The ACHCRP (2010)

The ACHCRP (2010) Guidelines provide an acceptable framework for conducting Aboriginal community consultation in preparation for impacts to Aboriginal cultural heritage. Proponents are required to follow them where a Project is likely to impact on cultural heritage and where required by Council. It is recommended by the OEH that all cultural heritage assessments involve this level of consultation, although it is not strictly a requirement unless it meets the above criteria.

The ACHCR Guidelines typically take a minimum of 90 days to complete. However, in complicated Projects this period may need to be extended by several months. The Guidelines require public notice of the assessment, preparation of a proposed methodology, undertaking site meetings and excavations where required, the

production of a draft report, which is distributed to the registered Aboriginal groups and the production of a final report. Although not strictly required, a thorough consultation process will treat the ACHCR Guidelines as a minimum standard of community consultation. Generally, consultants must go to further effort to identify the significance of a given site to the Aboriginal community. This will likely include undertaking additional site inspections if requested by Aboriginal stakeholders, fully resourcing the community by providing copies of past archaeological and environmental assessments in the region and meeting with community members to ascertain their opinions of the site.

2.4 The Heritage Act 1977 (NSW)

The *Heritage Act 1977* (NSW) ('Heritage Act') is aimed at identifying and protecting significant items of historic (as opposed to Aboriginal) cultural heritage. The focus of the legislation is on identifying places of either local or state heritage significance, and protecting them by registration on heritage registers. Significant historic heritage items are afforded little protection (other than at the discretion of councils) where they are not on a heritage register.

Of note are the provisions allowing for interim heritage orders (Part 3), which grants the Minister or the Minister's delegates, (which importantly may include a local government agent) the power to enter a property and provide emergency protection for places that have not yet been put on a heritage register but that may be of local or State significance.

The Heritage Act also makes allowances for the protection of archaeological deposits and relics (Part 6). An archaeological 'relic' means any deposit, object or material evidence which relates to the settlement of the area, not being Aboriginal settlement. Importantly, a former requirement for an archaeological relic to be 50 years or older has recently been repealed. The focus is now on the item's potential heritage significance, not its age. As will be discussed below, it is highly unlikely that archaeological relics of significant historic sites are located within the Project Area.

2.5 Clarence Valley Local Environmental Plan 2012

The Clarence Valley LEP 2012 provides statutory protection for items already listed as being of heritage significance (Schedule 5), items that fall under the ambit of the Heritage Act and Aboriginal Objects under the NPW Act. It ensures that essential best practice components of the heritage decision making process are followed.

Under the Clarence Valley LEP Development consent is required for any of the following:

(a) demolishing or moving any of the following or altering the exterior of any of the following (including, in the case of a building, making changes to its detail, fabric, finish or appearance):

(i) a heritage item; or

(ii) an Aboriginal Object; or

(iii) a building, work, relic or tree within a heritage conservation area;

(b) altering a heritage item that is a building by making structural changes to its interior or by making changes to anything inside the item that is specified in Schedule 5 in relation to the item;

(c) disturbing or excavating an archaeological site while knowing, or having reasonable cause to suspect, that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed;

(d) disturbing or excavating an Aboriginal place of heritage;

(e) erecting a building on land:

(i) on which a heritage item is located or that is within a heritage conservation area; or

(ii) on which an Aboriginal object is located or that is within an Aboriginal place of heritage significance;

(f) subdividing land:

(i) on which a heritage item is located or that is within a heritage conservation area; or

(ii) on which an Aboriginal object is located or that is within an Aboriginal place of heritage significance.

2.6 The North Coast Regional Environmental Plan (NCREP 1988)

The *North Coast Regional Environmental Plan 1988* ('NCREP 1988') recognises the importance of regionally significant heritage items and places to the State of NSW. It provides statutory protection for a select number of state and regionally significant heritage items and places in northern NSW. A 'heritage item' means a building, work, relic, tree or place of heritage significance to the North Coast Region specified as described in Schedule 2 or 3 of the NCREP 1988.

For these items, the Richmond Council remains the consent authority. Under the NCREP 1988, Council must consider:

a) the views of the Heritage Council;

b) the heritage significance of the item to the State or region;

c) the extent to which the carrying out of the development would affect the heritage significance of the item and its site;

d) whether the setting of the item, and in particular, whether any stylistic, horticultural or archaeological features of the setting should be retained;

e) measures taken to conserve and preserve the heritage item, including where appropriate, any conservation plan; and

f) if the item constitutes a danger to the users or occupiers.

3. DESCRIPTION OF PROPOSED WORKS

Newman Quarrying Pty Ltd operates Sly's Quarry to produce excavated sandstone rock products. Newman Quarrying intends to seek development consent for an expansion of the existing sandstone quarry so as to increase the area of land where sandstone extraction is approved by 19.6 ha (Figure 3), and increase the maximum annual rate of extraction of sandstone materials to 500,000 tonnes per annum.

The existing sandstone quarry operation takes place in the eastern section of Lot 2 on the northern side of Jackybulbin Road. The current development consent for quarrying on Lot 2 also covers the extraction of sand from the western section (on the northern side), and on the southern side of Jackybulbin Road. The sand extraction involves excavation of *insitu* sand to a depth of 1-4 m. The two sand extraction pits would be closed and rehabilitated, if the current proposal is approved.

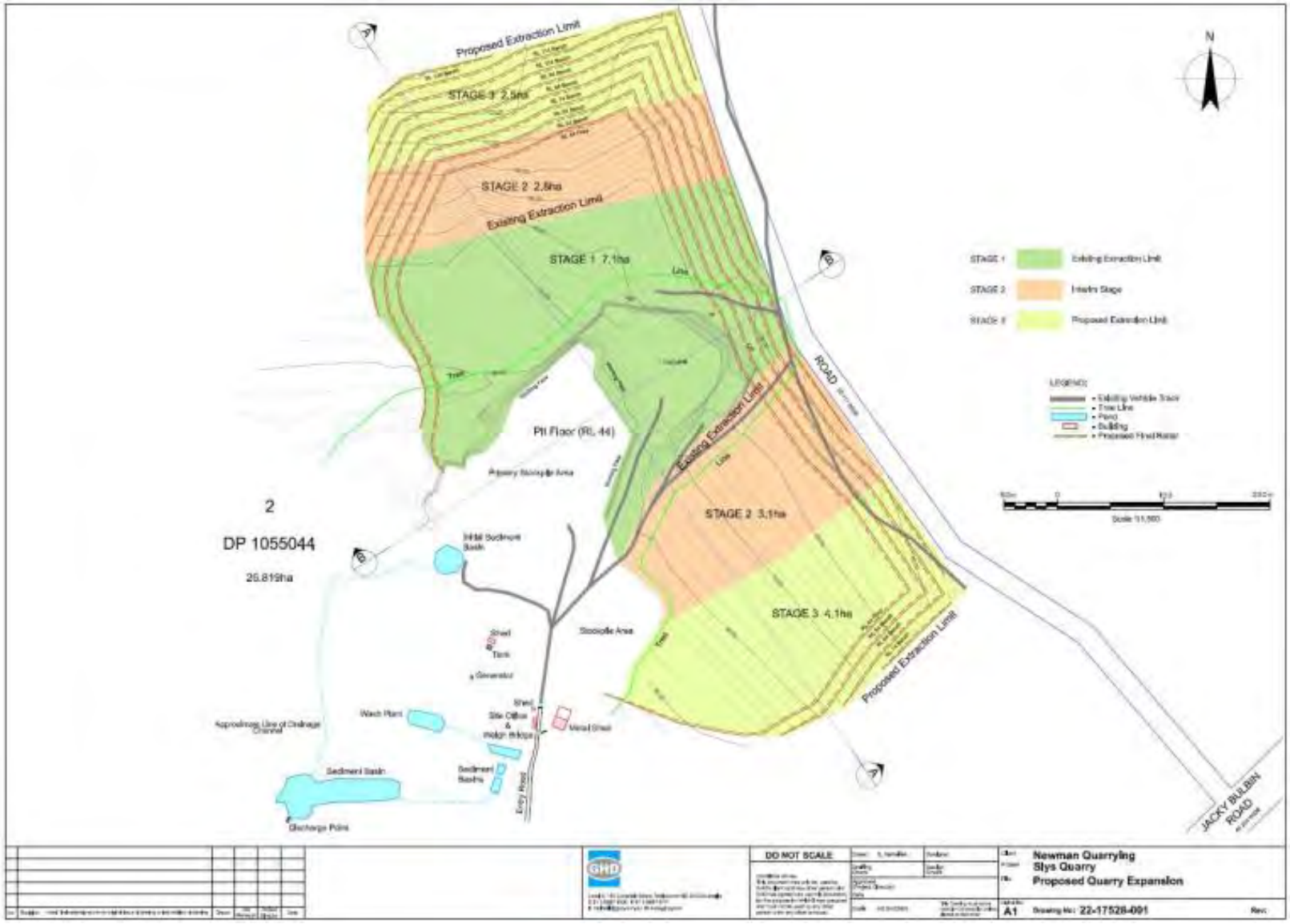

Figure 3: Map of proposed quarry expansion areas

4. ENVIRONMENTAL CONTEXT

4.1 Geology and Soils

The Project Area geology is 'Kangaroo Creek' sandstone formations, which are believed to date from the mid-to-late Jurassic or possibly mid-to-late Cretaceous periods. In the locality of the quarry, these sandstone deposits are generally well-exposed and quite accessible. The Kangaroo Creek sandstone is estimated to range in thickness from 150 m to 500 m within the Project Area. At the existing quarry face, the sandstone exists in a series of beds ranging in thickness from less than 1 m to up to 3 m. The beds are separated by thin layers of fine sandstone, siltstone and carbonaceous material (Novoplan 2014:9).

The area generally has poor soils of sandy composition mostly derived from the underlying sandstone. In lower-lying areas soils may be derived from stream deposition.

4.2 Vegetation

The lower slopes of Lot 2 north of Jackybulbin Road have been extensively cleared although there is a substantial treed buffer of dry sclerophyll forest along most of the road frontage. The clearing may have resulted from a long history of selective logging on the site and in the area. It is also associated with the sand extraction and quarrying activities approved for Lot 2 as mentioned above. The higher slopes of the quarry site retain extensive vegetation cover of open dry sclerophyll forest that includes dense under storey and many large native trees dominated by Blackbutt, Angophora and Syncarpia species. Vegetation arising from a wetter microclimate lies along the lines of watercourses (Novo Plan 2014: 10).

Historically, Lot 2 and the quarry site have had little or no agricultural activity, due to the poor soils and forest coverage. However there has been extensive long term logging and burning that has impacted on the forest cover. While there are some old growth trees, most other trees are in the region of 40-60 years old (NovoPlan 2014: 10).

4.3 Water sources

The quarry site drains from north to south via a number of intermittent watercourses that flow under Jackybulbin Road into Tabbimoble Creek. The creek in turn flows north-east into low coastal swamp land in the Bundjalung National Park and ultimately into the Esk River, a minor tributary to the Clarence that enters the river

near Iluka. The quarry site is not liable to riverine flooding although its intermittent watercourses can flow briskly during periods of heavy rain. (Novoplan 2014: 10).

4.4 Review of Historic Aerial Photography

Historic images from 1966, 1980 and 1993 show the level of prior land disturbance within the Project Area.

The 1966 image shows that no clearing had been undertaken within the project area. At this time the Project Area consisted mainly of open woodland. Jackybulbin Road is visible at this time.

By 1980 two small quarries are visible in the northern portion of the Project Area. The southern of these two quarries appears to be the initial stage of Sly's Quarry.

By 1993 the quarry footprint is developed and indicates full operation. No additional clearing appears to have taken place immediately adjacent to the quarry.

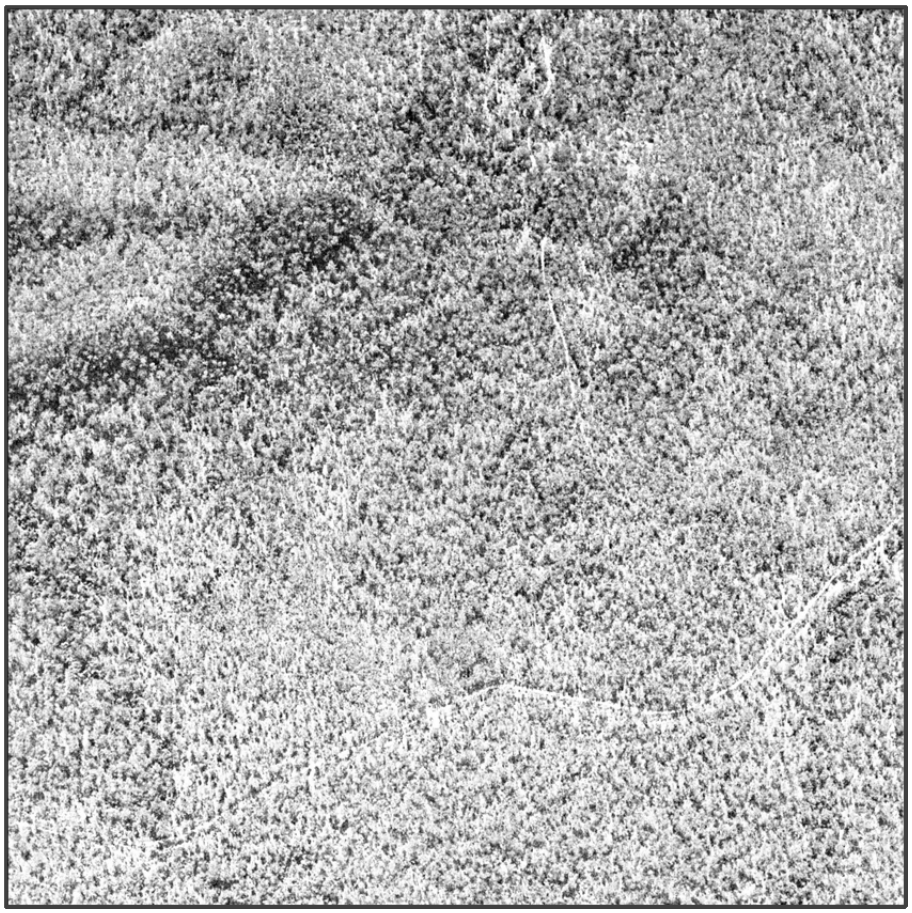

Figure 4: Sly's Quarry Project Area 1966

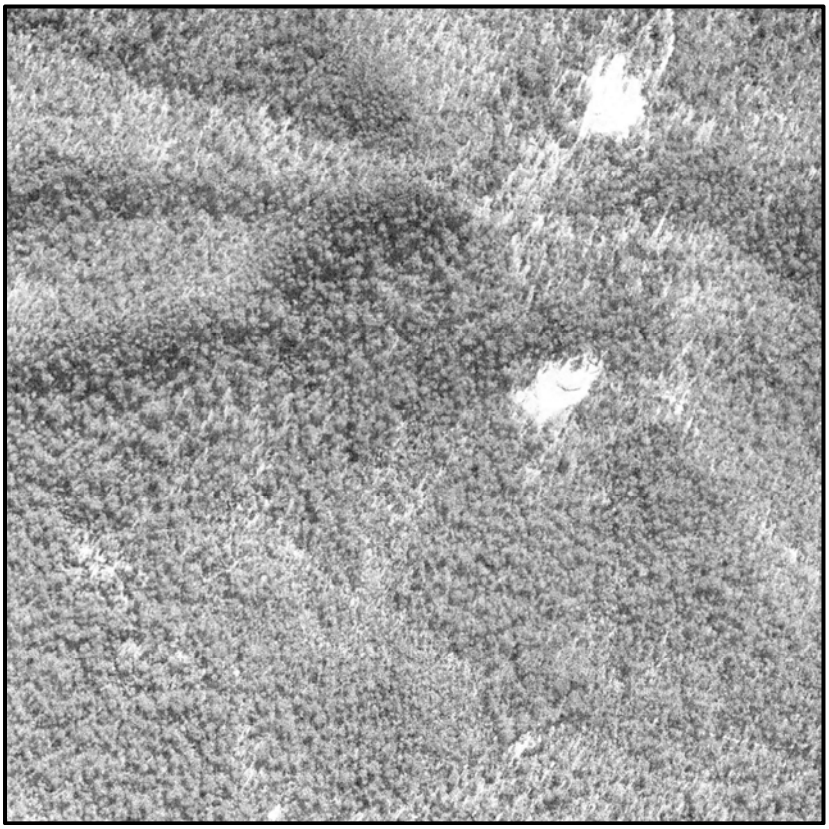

Figure 5: Sly's Quary Project Area 1980

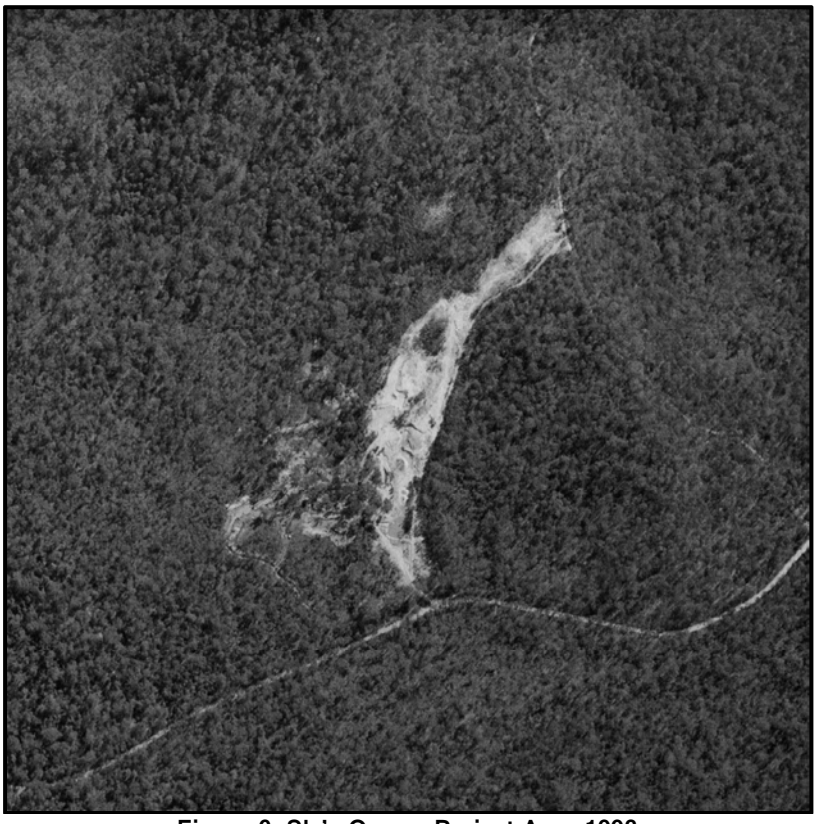

Figure 6: Sly's Quarry Project Area 1993

5. DESKTOP REVIEW: ABORIGINAL CULTURAL HERITAGE

5.1 Traditional Owner Knowledge

The Aboriginal Stakeholders are the primary determinants of the significance of their cultural heritage. Members of the Aboriginal community have been consulted in this instance, with regard to known archaeological sites in the region, and cultural values such as areas of historic and spiritual significance and values relating to flora and fauna. Everick recognise that there is Traditional Owner knowledge associated with the region that may have to be treated in a confidential manner.

5.2 Previous Indigenous Archaeological Assessments

The purpose of a review of previous archaeological and broader Aboriginal cultural heritage assessments is to provide insights into the potential types and locations of sites to be found in the wider locality. However the information must be used bearing in mind topography, access to food and material resources and the past and potential impacts of European land uses. It is seldom that the assessment purpose, environmental, historical and social contexts between one area of assessment and another allows the simple extrapolation of previous results to a current project assessment.

A broad outline of the known chronology of occupation of the immediate coastal zone between the Tweed and the Clarence Rivers is outlined below. The Aboriginal occupation of the Clarence region fits within the known chronology for the far North Coast. Coastal sites in northern N.S.W. date to within the Holocene period. The earliest of these is a shell midden at the base of Sexton Hill on the lower Tweed River where an occupation phase was dated between 4,700 BP and 4,200 BP (Appleton 1993:34). At Ballina a shell midden on Chickiba Creek was found to have accumulated between 1,750 BP and c.100 BP (Bailey 1975:52). Shell samples from the Angels Beach area are dated between 800 BP and 530 BP, with one sample at 900-1,000 BP (Rich 1994: 195). Stone artefacts were assessed on technological grounds to date to within the past 2,000 years (Rich 1994: 161). Bailey's basal date of 1,750 BP (1974) suggests that the modern resource-rich environment may not have been productive enough at an earlier time to support any more than small groups. In contrast, the Tweed River estuarine site was in use some 3,000 years earlier than this (Appleton 1993).

Beach foreshore sites investigated to date have been associated with more recent phases of occupation. Fore dune sites typically take the form of narrow bands of pipi shell, or surface scatters of pipi and stone artefacts. Pipi horizons at South Ballina and Broadwater have dated to 260 years BP and 200 years BP respectively (McBryde 1982: 77). A more substantial pipi midden (AHIMS: #04-06-0061) investigated on the beach foreshore

at Byron Bay had been used between approximately 1,000 and 400 years BP. The 80 cm deep midden deposit was overwhelmingly dominated by pipi shell, with minor inclusions of periwinkle, limpet, sand snail, oyster and cartrut. Bream was the most abundant vertebrate species. Although in lower quantities relative to bream, a broad range of fauna was represented in the midden, including other types of fish, tortoise, macropods, bandicoot, possums, rodents, birds and reptiles. The midden's stone assemblage was characterized by primary flaking debitage which reflected the poor knapping quality of the raw materials used. All of these materials are believed to have been collected from intertidal pebble beds adjacent to the site (Collins 1994).

The earliest dated coastal site in the Clarence area is the estuarine midden at Woomba, now located 10 km inland and 10.5 km south east of the Project Area. The deposit indicated an occupation phase between c. 3260 BP and the contact period (McBryde 1974). The Woomba site had been the earliest known coastal occupation site in northern New South Wales until a shell midden excavation on the Tweed River indicated an occupation phase between 4,700 BP and 4,200 BP (Appleton 1993). At the Woombah site the bulk of shell remains were oyster (90%). Animal and fish bone were rare, suggesting that the economy was based almost entirely around the gathering of shellfish (McBryde 1974: 290). Few stone artefacts were represented. The stone kit consisted of unifaced pebble tools, perhaps used for preparing plant foods, ground edge axes, utilised flakes, some small retouched tools and a few bone points (McBryde 1974: 290). The presence of glass artefacts indicated use of the site into the contact period. Despite the high volume of shell, McBryde concluded the site represented a great number of short sporadic occupations of the site, seasonal visits lasting only a few months (McBryde 1974: 288). Bailey (1975) drew similar conclusions from his calorific research of the North Creek Ballina oyster middens. The oysters provided little more than a minor supplement to the diet and the middens could only have been amassed by large groups over a matter of days (Bailey 1975: 57-59).

Archaeological assessment by Piper of the northern approaches to the Mororo Bridge identified three sites of isolated artefacts on low spurs adjoining the floodplain. The materials were a scraper/core, a retouched flake and flakes all on siliceous materials (Piper 1991). An earlier archaeological assessment sampled the low foothills, floodplain and the dune fields adjacent to Iluka Road and the Clarence River. No Aboriginal sites were identified in the hills and sloped landform units (Piper 1982). Byrne's Heritage Study of the Maclean Shire identified the suite of sites, principally middens, between Woomba and Woody Head as worthy of Class 1 status, Complete Conservation that if adopted required that all designated developments be preceded by archaeological surveys and all sites be retained (Byrne 1986).

Aboriginal cultural heritage assessments in relation to the Pacific Highway Upgrade ('PHU') Woolgoolga to Ballina, have been the most numerous comprehensive studies in this region, be it by necessity, in a narrow corridor of search and subsequent archaeological investigations. The Iluka Road to Woodburn assessment section resulted in seven Aboriginal heritage sites and two Potential Archaeological Deposits ('PAD') (both

associated with existing sites) being located within or near the PHU project boundary i.e. the highway upgrade corridor. These included one scarred tree near New Italy (13-1-0111) and a burial area at Sawpit Creek south of New Italy (13-1-0059). In the vicinity of the Woodburn Interchange an artefact scatter and PAD (13-1-0112), an isolated artefact and a PAD (13-1-0115) as well as an isolated artefact (13-1-0113) were found. The PADs returned 11 mainly silcrete artefacts and three artefacts respectively from test pits on the spurs from the Richmond Ranges called the Tabbimobile rises (EIS 2012:50-54). The sites were assessed as being of moderate to high overall Aboriginal significance with exception of isolated artefacts 13-1-113 and 13-1-0114 which were deemed low (NSW RMS EIS 2013:56).

5.3 The OEH Aboriginal Heritage Information Management System (AHIMS)

Care should be taken when using the AHIMS database to reach conclusions about site prevalence or distribution. For example, a lack of sites in a given area should not be seen as evidence that the area was not occupied by Aboriginal people. It may simply be an indication that it has not been surveyed for Aboriginal sites, or that the survey was undertaken in areas of poor surface visibility. Further, care needs to be taken when looking at the classification of sites. For example, the decision to classify a site an artefact scatter containing shell, rather than a midden, can be a highly subjective exercise, the threshold for which may vary between archaeologists. There are also errors with the data.

A search was conducted on 6 October 2014 of the OEH AHIMS (AHIMS service number 118615), centring on the Project Area with a 1000 m buffer. The search of the AHIMS Register returned no Aboriginal Sites within the search area (Appendix A).

5.4 Other Heritage Register Searches

The following heritage registers were accessed for Indigenous places located in the Clarence Valley area:

- **The World Heritage List**: Contains no Aboriginal heritage listings places within close proximity to the Project Area.
- **Register of the National Estate**: Contains no Aboriginal heritage listings places within close proximity to the Project Area.
- **Commonwealth Heritage List (Australian Heritage Council)**: Contains no Aboriginal heritage listings places within close proximity to the Project Area.
- **The National Heritage List (Australian Heritage Council)**: Contains no Aboriginal heritage listings places within close proximity to the Project Area.

- **The State Heritage Register (NSW Heritage Office)**: Contains no Aboriginal heritage listings places within close proximity to the Project Area.
- **The Clarence Valley LEP 2012**: Contains no Aboriginal heritage listings places within close proximity to the Project Area.

5.5 Cultural Context

5.5.1 Settlement

The Aboriginal people of the lower Clarence River were part of linguistically and culturally associated groups called the Bundjalung, the coastal extent of which occupied the Clarence to Logan Rivers and west to the Dividing Range (Crowley 1978). Tindale (1974) recorded a Jiegera tribe occupying the Clarence River upstream to Grafton. Modern usage refers to the 'Yargir' (Yaegl) as the traditional Aboriginal occupants. Heron (1991) records that the 'Yargir' is more closely related to the southern Gumbaybggir than the Bundjaung, their territory extended south to Corindi Beach, west to Ulmara and north to the Clarence River including 98 of the 100 islands of the Clarence River (Heron 1991: 10). While 'Yargir' country is smaller than neighbouring territories, it is one of the richest in the region in terms of natural resources (Heron 1991: 16).

A review of sightings of Aboriginal coastal groups in Coleman's review of ethno historical sources led her to the conclusion that in the initial stages of European contact, observers of coastal groups described; '…consistently high, semi sedentary local populations on the coast with a highly sophisticated organic material culture which vanished almost overnight with European contact' (Coleman 1982: 7). Population densities for the lower Clarence are considered high, no doubt reflecting the wide variety of ecologies and hunting/gathering opportunities contained. Fry, Commissioner for Lands in the Clarence District, estimated the population for the Clarence as between 525 and 1050 persons (Fry 1894 in Belshaw 1978), a density of one person per three to six square miles.

Later researchers consider that populations for the coastal plains and estuaries were much higher, at possibly one person per three square miles between the Clarence and Evans Rivers (Belshaw 1978: 730). In areas where marine and terrestrial foods were particularly abundant, which would apply to the lower Clarence, estimates may be placed even higher (Pierce 1978; Heron 1991). Population estimates by eye witnesses of Aboriginal numbers for the coastal regions, immediately after European settlement, are highly likely to be underestimates of pre contact numbers due to the impacts of diseases, particularly small pox that spread throughout coastal groups prior to official settlement.

Land belonged to clan groups whose boundaries had been established in Yargir mythology (Creamer and Godwin 1984). Contact between local clans and more distant groups took place for the purposes of exchange, inter marriage, initiations, armed conflict and at times of seasonally abundant food supply. There are two current demographic models to describe possible settlement/movement patterns. One suggests that clan groups would range between the sea coast and the foothills of the coastal ranges on a seasonal basis (McBryde 1974). On ethno-historical evidence McBryde suggests that some seasonal movement was common and that the basic subsistence economy of hunting, fishing and gathering was neither static, nor completely migratory, but characterised by movement between the coast and the foothills (McBryde 1974: 337). A number of early references refer to seasonal movement on a limited scale including Ainsworth (1922) on the Richmond River, Dawson (1935: 25) and McFarlane (1934) on the Clarence River. Bray (1923) states that the Lismore 'tribe' used to go to Ballina at the mouth of the river. Sullivan (1976: 20) notes that inland groups were allowed to come to the Tweed coast for a time. The archaeological evidence for movement in the coastal river valleys is less conclusive (McBryde 1974: 338).

From the few eye witness sources available for the North Coast we can suggest that contact between members of the coastal clans was frequent and may have involved relatively large numbers. Bray records that the coastal Coodjinburra '…used to mix very much with the Ballina Richmond River Blacks' (Bray 1901:9). However it may have been a way of life that rapidly disappeared under the impacts of disease and restrictions on Aboriginal groups by 'authorities' on the movement of Aboriginal people. A review of sightings of Aboriginal coastal groups in Coleman's review of ethno historical sources led her to a conclusion that in the initial stages of European contact, observers of coastal groups describe, '…consistently high, semi sedentary local populations on the coast with a highly sophisticated organic material culture which vanished almost overnight with European contact' (Coleman 1982:7).

McBryde (1974 and 1976) argues for a seasonal movement of people between the coast in summer exploiting marine foods and hunting inland in winter. On the ethno-historical evidence McBryde suggested that some seasonal movement was usual and that the basic subsistence economy of hunting, fishing and gathering was neither static, nor completely migratory, but characterised by movement between the coast and the foothills (McBryde 1974: 337). A number of early references refer to seasonal movement on a limited scale including Ainsworth (1922) on the Richmond River and Dawson (1935) and McFarlane on the Clarence River. Bray (1923) states that the Lismore 'tribe' used to go to Ballina at the mouth of the river. Sullivan (1964: 20) recorded that inland groups were allowed to come to the Tweed coast for a time. The archaeological evidence for movement in the coastal river valleys is less conclusive (McBryde 1974: 338).

5.5.2 Economy

Early recorders of the Yargir economy emphasise the major role of marine foods in their diet. Small, an early resident, observed that while on the coast Yargir people lived on fish and shellfish of all kinds, especially oysters (Small 1898: 46-47). Gray described the Yargir fishing near Micalo Island to the south east of the Project Area. '*Each man had a net made of stinging bark tree attached to a bough about six feet long. Holding a net in each hand they would encircle a school of sea mullet and catch dray loads of the best fish I ever saw*' (Gray 1972). Fishing was conducted by spear (single point) and net on the Clarence, Tweed and Richmond Rivers. Neither the shell fishhook, nor pronged or barbed spear is evident in the archaeological record or in the ethnohistorical record (McBryde 1974). Fish traps were 'made by mangrove bushes arranged in such a way, fish found their way to the centre and weren't able to find their way out' (McCarthy 1917). The use of a natural fish trap on a rock platform at Angourie is recorded by Heron (1993: 24).

Ethnohistorical records are largely directed towards descriptions of hunting techniques employing large groups of people and obvious types of technology requiring demonstrable physical skills; the use of spears, clubs, boomerangs, the 'tow-row' (net) etc. The role of plant foods in the local economy is often understated or overlooked entirely. Certainly, vegetable foods are given no particular prominence in Ainsworth's recollections at Ballina. He refers to yams obtainable in the scrubs, and to bread made from nuts which grew on the coastal headland (Ainsworth 1922: 43). McFarlane (1934), writing of the Clarence River, placed greater emphasis on the role of vegetable foods *'..the woods supply much variety in the shape of fruit or berries but every description of vegetable contributed to the digestive requirements of the collector of food necessities*'.

Aboriginal use of plant foods in the Yamba area has been documented in Heron's (1991) study of the Yargir people. Heron's informants describe the use of Cheeky face yam (Dioscorea bulbifera), Rock fig (Ficus platypoda), Lillypilly (Syzygium paniculatum), Pigface (Carpobrotus glaucesens), Mistletoe (Amyema sp.) and Cunjevoi (Aloasia macrorrhizos) both as a food and medicine. The use of the scrub lily and cunjevoi, a poisonous plant rendered edible after being soaked, ground and kneaded into a cake, is recorded by Small (1898).

The most detailed analysis of material culture of the North Coast has been that undertaken by McBryde (1978). McBryde's sources refer to shields (McFarlane 1934; Dawson 1935), single point fire hardened spears, three types of boomerangs (Dawson 1935), clubs, nulla nulla and pademelon sticks (McFarlane 1934), wooden battle axes, stone axes, digging sticks, bark and palm leaf bags, wooden water vessels, possum rugs, cane and shell necklaces and stone knives (Bundock 1898).

The region of the Tweed, Richmond and Clarence Rivers appears to form a distinct unit. This is particularly so in the case of fishing technology. The multi-pronged fishing spear and the shellfish hook are both absent from this

region. Fish were caught in nets or speared in the shallows (McBryde 1978: 187). Spears were single pointed fire hardened weapons (Dawson 1935: 22), of both lighter and heavier varieties (Byrne 1986: 3). Neither the woomera nor the spear throwing stick was used in this region (Dawson 1935: 22). The range of materials is considered wider than observed in central Australian tribes with fewer all-purpose items, few composite tools and a number of specialised ones. This may reflect a more sedentary life style in a rich environment that required fewer, but more specialised, tools (McBryde 1978: 187). The stone tool element in the material culture was small and unspecialised. The archaeological evidence suggests changes to a simpler stone technology took place only centuries before European settlement. The stone tools in use immediately prior to European settlement, 'show little typological sophistication and did not demand highly skilled craftsmanship' (McBryde 1978: 198).

6. PREDICTIVE MODEL

Previous archaeological and cultural heritage assessments have been limited in terms of the range of landscapes that they have assessed. In addition, there is insubstantial data about the propensity of different landform types to contain a greater or lesser 'body' of archaeological evidence. Previous archaeological assessments in this region have been invariably hindered by the lack of accessible land, and the limited range and area of landforms available to archaeologists. For this reason, researchers are not able to make confident comparisons as to the likelihood or otherwise of Aboriginal sites.

6.1 Predictive Models - Environmental & Landscape Context

From previous assessments we can say that to date, Aboriginal campsites in this coastal zone locality have been identified on dune fields, low hills and spurs that adjoin the Clarence River. They are also identified on some ridgelines, and within rock shelters at higher elevations. These sites statistically tend to be artefact scatters and isolated artefacts. Scarred trees, which would have been in far greater numbers in the region, mainly around regularly used campsites, have almost entirely disappeared due to clearing, cropping, urbanisation and natural processes.

One prevailing model in North Coast Aboriginal archaeology is the use of ridge lines as transit corridors between river valleys and major tributaries within those systems, advanced by many including Byrne (1984), and more recently Fox (2003). In the ridge line landform context, archaeological evidence has been found to consist similarly of artefact scatters, scarred trees and isolated artefacts in 'open' situations as opposed to rock shelters and caves. Associations between ridge line sites, in terms of their contemporaneousness and contents, have not been adequately tested by archaeological investigation. While ridge lines may have served as transit corridors

for Aboriginal groups on a sporadic basis their use as campsites is dependent upon other factors apart from slope, such as shelter from wind, ground covers, dryness, access to water ,material and food resources. In this case the lower eastern and southern margins of Mt Doubleduke adjoining the Clarence River floodplain would appear to have a higher potential than the mid to upper slopes that comprise the Project Area. Few if any sites would be found on the sloping sides of these ridges (Hughes 1991: 5-1). A lack of permanent water would also mitigate against Aboriginal sites of a permanent nature.

6.2 Aboriginal Sites and Features

The Project Area is located in what is considered inland open forest, however it is likely that during the mid to late Holocene period (that is less than 5000 BP) the coastline would have been significantly closer than its present position. There are no specific features of the Project Area or areas that could be demonstrated to have been particularly lucrative in terms of food or material resources that would warrant a moderate to high rating of potential for Aboriginal archaeological sites. The Project Area is not a natural corridor that would link creek headwaters or an area that would have provided distinct natural transit corridors between the coastal main range and the coastal plain and coast.

While there may be no surviving physical evidence of former Aboriginal sites within the landscape, the Aboriginal community may retain anecdotal traditions of ceremonial use and spiritual or mythological connections to a given location. Consultation, found no specific Aboriginal cultural associations with the current Project Area.

The following types of archaeological sites have a low to moderate potential to occur in the Project Area.

6.2.1 Isolated artefacts

These consist of single stone artefacts, which may have been randomly discarded or lost. They may occur in almost any environmental context exploited by Aboriginal people. They are commonly stone axes, single cores, hammer stones, bevelled pounders, pebbles and flakes. Their presence may indicate that more extensive scatters of stone artefacts exist or existed nearby, perhaps obscured by vegetation or dispersed by mechanical means.

It is predicted that this site type is the most likely type of site to occur within the Project Area, but would be more likely found in potential transit/camp areas on the ridge crest (Sly's Road) to the east of the Project Area. Given the steep and moderate slopes it is expected that isolated artefacts have a low potential to occur within the Project Area.

6.2.2 Artefact Scatters

The greatest number of recorded sites on the coastal plains and hills in this region are middens and artefact scatters. Artefact scatters may be found in almost any elevated position usually adjacent to wetlands or creeks. They may also be found on low grades or the level sections of ridge crests and spur lines, particularly where higher ground tapers toward the coastal plain. Materials at these sites are generally stone artefact material only.

As for isolated artefacts it is accepted that this this type of site has a low potential to occur within the Project landscape however ground disturbances through selective logging over a long period and a number of bushfire episodes suggests that the potential for this site type to remain *in situ* and intact is low.

6.2.3 Burial Sites

Burial sites cannot be excluded as there are records of numbers of burial locations in the coastal northern New South Wales region. The majority of these have been found in coastal sand substrate situations particularly in association with middens. Numbers of Aboriginal burials are registered with the OEH AHIMS in the dune fields between the Richmond River and Evans Head. There is a particular concentration of burials in the South Ballina Empire Vale dune fields. There is anecdotal and field evidence of burials on hilltops, rock shelters and rock faces within the Richmond and Tweed Valley regions, much of this information is confidential. The potential for this site type to occur within Area A of the Project Area is considered to be low/moderate due to the sand stone escarpment between the 100-120 m contour that contains small crevices and overhangs suitable for secondary interments (See Section 7: Figure 7 below). Area B is an open woodland side slope vegetated with regrowth with no potential for burials (Figure 7).

6.2.4 Scarred Trees

The majority of scarred trees on the North Coast of NSW result from the removal of bark for use as covering, shields, containers or canoes. There may also be carved trees where the bark has been removed and geometric patterns incised on the tap wood. Generally scarred tree sites are rare due to the extent of forest clearing and the natural aging and collapse of such trees that may have survived. There are few if any old growth trees within the Project Area, therefore scarred trees are of a low potential.

6.2.5 Quarries

The Project Area is comprised of sandstone, which is not typically used for the production of stone tools. Production of grindstones and grinding tools is a possibility however.

7. FIELD SURVEY: INDIGENOUS CULTURAL HERITAGE

7.1 Aboriginal Participation

The Project Area is within the area administered for Aboriginal cultural heritage purposes by Yaegl LALC. A survey for Aboriginal cultural heritage at the Sly's Quarry was undertaken by Mr. Dale Mercy, Sites Officer of the Yaegl LALC and Adrian Piper of Everick Heritage Consultants, on 17 October 2014.

7.2 Field Methods – Sampling Strategy and Recording

The archaeological or scientific aim of the survey was to locate physical evidence of Aboriginal occupation within the Project Area; the evidence of which is most commonly stone artefact scatters, middens and individual (isolated) artefacts. Woodland areas with 'old growth' trees would be inspected for evidence of Aboriginal scarring due to bark removal or holes/notches cut into bark and tap wood. The survey methods aimed to inspect exposed ground surfaces as conditions would allow, to record any archaeological material found and assess its significance, and assess the potential for concealed Aboriginal archaeological sites. For the purposes of describing the archaeological characteristics of the Project Area, the lands assessed have been divided into Area A and Area B. Each has distinct environmental and and use characteristics relevant to the assessment of archaeological potential.

Area A is so steep, densely vegetated and with a closed ground cover almost throughout, that it was not possible to undertake a field inspection in a systematic grid pattern of search (Figure 7). The areas of greatest surface visibility were the surveyed, mechanically cleared, northern and southern boundary lines of approximately 10-15 m width. The sandstone escarpment through the centre of Area A (Area A1) was of particular interest for its potential to contain rock shelters or overhangs that could provide Aboriginal habitation. GPS points were taken to approximately delineate the extent of the sandstone escarpment and lines of travel.

Area B is a moderate slope, similarly densely vegetated with post fire regrowth with a closed ground cover. There are no sandstone outcrops (Figure 7). Transects of approximately 30 m were undertaken across the slope. Search was confined to any surviving old growth trees for Aboriginal tree scars. GPS points were taken to approximately delineate lines of travel.

Photographs were taken as a record of general features and conditions, and to document the degree of surface visibility. Notes were made of the degree of surface visibility, the area of visibility, ground cover, land uses and any other relevant features.

Figure 7: Sly's Quarry expansion archaeological search areas

7.3 Constraints to Site Detection

An assessment of the constraints to site detection is made to assist in formulating a view as to the effectiveness of the field inspection to find Aboriginal sites and cultural materials. It also assists in the forming of a view of the likelihood of concealed sites, keeping in mind a site specific knowledge of the impacts that European land uses and natural processes may have had on the 'survivability' of Aboriginal sites in a Project Area.

The constraints to site detection are influenced by previous European land uses, the area of surface exposure, the degree of surface visibility, current land uses and natural and accelerated (man-made) erosion, aggradation and inundation by sediments (McDonald et. al. 1990: 92-96). The constraints to site detection in regions such as northern NSW are almost always most influenced by post European settlement land uses and seldom by natural erosion processes. These conditions are particularly the case in the proposed quarry expansion areas where it is unlikely that any of the steep to moderate slopes under field assessment have not been heavily disturbed due to the impacts of selective logging and recent and past bush fire episodes.

7.4 Survey Units

The proposed Sly's quarry expansion areas are side slopes off a ridge traversed by Sly's Road on the southern slopes of Mount Doubleduke. For the purposes of the study the following survey units provided the basis for the survey strategy and reporting. Area A is considered as two units: the sandstone escarpment between the 100 m and 120 m (AHD) contour and a second unit comprising the remaining slopes. The area of escarpment in relation to the total area of Area A (5.3 ha) is approximate. Area B is so uniform in its topography that it is considered as a single unit.

Area A. (Remaining slope) 4.6 ha. Steep to moderate slope. Dry sclerophyll regrowth forest. *Surface exposure*: 10%. *Types of exposure*: cleared surveyed boundary lines, animal corridors, quarried slope. *Surface visibility*: 80-100% (mean 90%).

Area A1. (Escarpment) 0.67 ha. Outcrops of sandstone containing faces, small overhangs, crevices and outlying boulders east to west across the slope. Dry sclerophyll regrowth forest. *Surface exposure*: 80%. *Types of exposure*: natural weathering. *Surface visibility*: 80-100% (mean 90%).

Area B. 7.2 ha. Broad moderate/gentle slope of dry sclerophyll forest. *Surface exposure*: 10%. *Types of exposure*: cleared surveyed boundary line. *Surface visibility*: 80-100% (mean 90%).

7.5 Ground Surface Visibility

Ground Surface Visibility (GSV) is a measure of how much ground surface (or bare earth) can be seen at the time of an archaeological survey. It is usually worked out as a percentage (%) of the overall Project Area, although it can also be worked out as a range when GSV changes dramatically within the Project Area. For this assessment, GSV was worked out by assessing a 1 m x 1 m area and inferring how much ground surface was seen within that. This gave a percentage of GSV within the square, which was extrapolated to the entire Project Area, so long as the ground conditions did not fundamentally change.

Table 1 presents information on the extent to which survey data provides sufficient evidence for an evaluation of the distribution of archaeological materials across the study area. The evaluation of survey coverage provides a measure of the potential for landform elements to reveal archaeological evidence. The calculations in Table 1 do not provide an exact percentage of coverage. The total average of surface available for site detection is achieved by totalling the areas for site detection in each unit and dividing by total area.

Table 1: Sly's Quarry Expansion Areas

Survey Unit	*Area A Escarpment*	*Area A1 Slopes*	*Area B*
Landform	Mid slopes	Mid slopes	Mid slopes
Landform Element	Side slope	Side slope	Side slope
Area (ha)	0.67	4.6	7.2
Exposure %	80	10	10
Area of Exposure (ha)	0.5	0.46	0.72
Visibility %	80	90	90
Area for Site Detection (ha)	0.48	0.41	0.6
% of LF for Site Detection	72	9	9
Total Average for Ground Detection: 12 %			

Closed ground covers of dead fall, grasses and shrubs were the main impediment to ground visibility (Figure 8, Figure 9, Figure 10 and Figure 11). However, in this type of environment, the percentages per landform unit available for site detection are in the 10 - 20% range and 'are the norm' for archaeological cultural heritage assessments. An average of 12% of ground surface available, over the Project Area as a whole, is probably an inflated figure due to the higher visibility over sandstone surfaces in the escarpment of Area A1. However given the poor terrain for Aboriginal campsites, small area of assessment and disturbance history, the low average for ground detection is still an adequate proportion on which to base statements as to a lack of cultural heritage archaeological sites with a high degree of certainty.

Figure 8: Sly's Quarry expansion Area A showing survey visibility along existing tracks

Figure 9: Slys Quarry Area A showing nature of sandstone outcrops on upper slopes

Figure 10: Slys Quarry expansion area showing regrowth forest and deep leaf litter

Figure 11: Slys Quarry expansion area showing dense regrowth forest

8. RESULTS OF ABORIGINAL CULTURAL HERITAGE ASSESSMENT

As a result of the desktop study and field inspection of the proposed expansion to the Sly's Quarry extraction areas and consultation with Yaegl LALC Sites Officer Dale Mercy, the following were agreed to.

- No Indigenous cultural heritage sites or relics were identified within the proposed expansion areas of Sly's Quarry.
- No areas have been identified that are considered to potentially contain subsurface deposits of significant Aboriginal heritage.
- All of the Project Area has been disturbed in a manner which constitutes 'disturbance' within the meaning of the Due Diligence Code and is consistent with the Due Diligence Code.
- The Yaegl LALC representative agreed in discussion that no further Aboriginal cultural heritage investigation was required.

9. CULTURAL HERITAGE DUE DILIGENCE ASSESSMENT

The Due Diligence Code recommends a staged analysis of land use, cultural and archaeological factors. This section discusses the analysis of the Project Area when compared against these guidelines.

9.1 Step 1: Will the activity disturb the ground surface?

Yes. See the proposed extraction activities described in the Project Description (Section 3).

9.2 Step 2a: Search of AHIMS Database

A search was conducted on 6 October 2014 of the OEH AHIMS (AHIMS service number 118615), centring on the Project Area with a 1000 m buffer. The search of the AHIMS Register returned no Aboriginal Sites within the search area.

9.3 Step 2b: Does the activity occur in an area where landscape features indicate the presence of Aboriginal cultural heritage?

Having regard to:

a) the nature of Aboriginal occupation in the region;

b) the Project Area's proximity to resources; and

c) the Project Area's original vegetation, soils and topography;

The Due Diligence Code identifies particular landforms as having a higher potential to contain archaeological sites. Ridgelines, elevated areas adjoining alluvial plains, dune fields and river/creek foreshores for example, are known to have a higher association with Aboriginal archaeological sites than slopes and seasonally or permanently inundated wetlands. Aboriginal occupation of the North Coast in the historical period appears to have centred on the major rivers, tributaries, back swamps and wetlands. In the Clarence Valley the majority of registered Aboriginal sites are in the floodplain and estuary. The Aboriginal archaeological evidence for sites in the low hills and moderate slopes of the 'inland' coastal hills of the lower Clarence is sparse. The imbalance may be a result of other factors, for example fewer archaeological surveys in the hills unit, the lower visibility of artefact scatters in woodland situations, the high visibility and extent of midden sites in riverine landscapes. However all historic observers and subsequent ethno historic researchers emphasise the important role of both fresh water and marine food resources although their dominance and dietary contribution in an annual cycle of resource gathering is a subject of debate.

Models to describe possible patterns of settlement and movement in the North Coast region vary considerably. One suggests that clan groups ranged between the seacoast and foothills of the coastal ranges on a seasonal basis (McBryde 1974). Early sources support this view to some extent as there are records describing the movement of inland groups of the Clarence River to the coast during winter (McFarlane 1934; Dawson 1935: 25).

A second model suggests that movement of coastal people was not frequent and that semi-sedentary groups moved north and south within the coastal plain rather than to the upper rivers (Coleman 1982). The model is based upon reports of numbers of small villages composed of dome-shaped weatherproof huts between the mid NSW coast and Moreton Bay. Flinders described a small group of huts in the vicinity of Yamba in 1799, and Perry described two villages on the banks of the lower Clarence in 1839. Similar sightings were reported by Rous on the Richmond (McBryde 1974: 9), Oxley on the Tweed (Piper 1976) and in Moreton Bay (Hall 1982). The construction methods described for these huts seem to suggest occupation for a period of months at a base camp rather than a constant wide-ranging pattern of low-level land use. Godwin (1999: 211-217) argues that

neither of the above 'models' is supported by the archaeological record, and that local conditions dictated exploitation strategies on the North Coast of NSW.

The predictive model advanced in this assessment is based upon the review of the results of previous assessments, archaeological and ethno historical research, an assessment of relationships between landscapes and their Aboriginal land use potential, Aboriginal community information and the review of the current AHIMS site listings. As most of the above sources of information are derived from assessments of Aboriginal cultural heritage in Clarence River floodplain and coastal landform situations it does not readily apply to the topography and other environmental contexts of the Project Area.

The Project Area is part of a low back hills complex emanating from Mt Doubleduke, therefore it may have served as part of the broader hunting and gathering range for groups occupying the Clarence River floodplains. There are no particular parts of the Project Area, which because of access to permanent water, food or material resources, would make the area ‘attractive’ as a campsite or ‘lucrative’ as a source of a particular food or material resource. A close search of the sandstone escarpment in Area A found no sandstone shelters or overhangs that may serve the purpose of occupation, art sites or burials. An Aboriginal transit corridor is unlikely as there is no distinct ridge line that would lead to the coastal uplands to the west or to the headwaters of river systems. There can be a low potential that a background scatter of stone artefacts lost or broken may be randomly scattered throughout the area. However devising a strategy to recover such items prior to the proposed extension to extraction is impractical and would be purely speculative.

9.4 Step 2c: Is there evidence of past ground disturbance?

Yes. The Project Area ranges between areas of disturbance and areas where an absence of old growth (greater than 150 years) trees, suggests that the former original closed forest is now mainly regrowth woodland. It is reasonable to form the conclusion that outside of those areas of demonstrably high or ‘total’ ground disturbance through quarrying and associated activities, the remainder is moderately disturbed. The main disturbances have been selective logging for mill production in the last fifty years and presumably logging in the early historic period of the nineteenth century. It would seem unlikely but not impossible that Aboriginal archaeological sites would ‘survive’ in-situ given the extent and apparent depths of disturbance to at least the upper metre. Under the definitions of the Due Diligence Code, whilst it is possible that all of the Project Area has been ‘disturbed’, a cautionary approach would conclude that some of it may not have been. Regardless, the issue of past ground disturbance is not seen as critical to this assessment, owing to the archaeological models described above.

9.5 Additional Steps

Whilst the Project Area cannot be regarded as having entirely in situ soils, whether all parts have undergone 'disturbance' under the meaning of the Due Diligence Code has not been conclusively determined. However, additional archaeological research has failed to identify any area of particular potential to contain Aboriginal Objects (commonly referred to as Potential Archaeological Deposits). This analysis is consistent with the cultural knowledge provided by the LALC Site Officers, who are of the opinion that the Project has a low potential for harming significant Aboriginal cultural heritage.

10. DISCUSSION & RECOMMENDATIONS: ABORIGINAL CULTURAL HERITAGE

Having evaluated the cultural values of the Project Area, there would appear to be minimal cultural heritage constraints for the Project.

To aid in the interpretation of the site, the Project Area has been divided into a number of risk areas based on archaeological and disturbance characteristics. Table 2 presents a summary of the Aboriginal cultural heritage risks for the Project.

Aboriginal cultural heritage constraints to Projects typically come in three forms of cultural site (Table 2):

1. ***High Significance:*** Aboriginal sites of high significance that must be retained in-situ (where they lie). Sites of this nature typically included large Aboriginal middens, scarred trees or burials. The area affected typically ranges from 200 m^2 to 400 m^2, as even small sites will have to be retained in an appropriate setting.
2. ***Low – Moderate Significance:*** Aboriginal sites of low to moderate significance that need to be salvaged before development can commence. Sites of this nature typically include artefact scatters, isolated artefacts and cultural shell scatters. The area affected typically ranges from 100 m^2 to 2000 m^2.
3. ***Sacred Sites:*** Aboriginal sacred sites that hold special spiritual significance, and must be preserved. Sites of this nature typically include bora rings, ceremonial sites and story places. The area of these sites is generally confined to within 200 m^2 to 600 m^2. However, the site will be situated within a 'cultural landscape', the significance areas of which may extend well beyond the physical boundaries of the site.

Table 2: Aboriginal cultural heritage Risk Summary for the Project Area

Unit	Risk Type	Likelihood	Depth of Deposit (m)
A	High Significance	Nil	N/A
	Low – Moderate Significance	Extremely Low	0.5 – 1.0
	Sacred Sites	Nil	N/A
A1	High Significance	Nil	N/A
	Low – Moderate Significance	Extremely Low	0.5 – 1.0
	Sacred Sites	Nil	N/A
B	High Significance	Nil	N/A
	Low – Moderate Significance	Extremely Low	0.5 – 1.0
	Sacred Sites	Nil	N/A

Having regard to the above, any physical Aboriginal cultural heritage constraints for the Project would most likely be limited to randomly scattered isolated artefacts. However, the risk is extremely low.

If the Project was to proceed, Everick recommends that no further assessment or investigative works are required. This assumption is made on the basis that prior to European settlement the Project Area was quite unsuited to Aboriginal campsites and therefore unlikely to contain significant Aboriginal cultural heritage. We could not argue conclusively that there are no artefacts.

A number of cautionary recommendations would be included in a report to Council that would focus on developing an Aboriginal cultural heritage find procedure and inductions of contractors.

11. RECOMMENDATIONS

The following recommendations are cautionary in nature. Whilst it is considered unlikely that they will be required, they should be noted and adhered to, as they relate to managing the legal obligations of the Proponent in relation to cultural heritage.

Recommendation 1: Aboriginal Cultural Material Finds Procedure

It is recommended that if it is suspected that Aboriginal material has been uncovered as a result of earth working activities within the Project Area:

a) work in the surrounding area is to stop immediately;

b) a temporary fence is to be erected around the site, with a buffer zone of at least 10 metres around the known edge of the site;

c) an appropriately qualified archaeological consultant is to be engaged to identify the material; and

d) if the material is found to be of Aboriginal origin, the Aboriginal community is to be consulted in a manner as outlined in the OEH guidelines: ACHRP (2010).

Recommendation 2: Notifying the OEH

It is recommended that if Aboriginal cultural materials are uncovered as a result of development activities within the Project Area, they are to be registered as Sites in the AHIMS database managed by the OEH. Any management outcomes for the site will be included in the information provided to the OEH.

Recommendation 3: Aboriginal Human Remains

It is recommended that if human remains are located at any stage during earthworks within the Project Area, all works must halt in the immediate area to prevent any further impacts to the remains. The location where they were found should be cordoned off and the remains themselves should be left untouched. The nearest police station, the Yaegl LALC, and the OEH Regional Office (Coffs Harbour), are to be notified as soon as possible. If the remains are found to be of Aboriginal origin and the police release the scene, the Aboriginal community and the OEH should be consulted as to how the remains should be dealt with. Work may only resume after agreement is reached between all notified parties, provided it is in accordance with all parties' statutory obligations.

It is also recommended that in all dealings with Aboriginal human remains, the Proponent should use respectful language, bearing in mind that they are the remains of Aboriginal people rather than scientific specimens.

Recommendation 4: Conservation Principles

In the unlikely event that Aboriginal cultural heritage is identified during Project works, it is recommended that all effort must be taken to avoid any impacts on Aboriginal Cultural Heritage values. Should a situation arise where impacts to Aboriginal cultural heritage is unavoidable, mitigation measures should be negotiated between the Proponent, OEH and the Aboriginal Community.

12. DESKTOP REVIEW: HISTORIC CULTURAL HERITAGE

12.1 Heritage Register Searches

The desktop review concluded that no historically significant cultural heritage sites would be impacted by the Project. The following heritage databases were reviewed on 05 October 2014 to assess the potential for non-Indigenous heritage attributes within the Clarence Valley LGA and specifically for the Mororo area;

- **The World Heritage List**: Contains no historic heritage listings within or within close proximity to the Project Area.
- **Register of the National Estate**: returned four (4) historic heritage listings all of which were located in Woodburn, with the closest being the Broadwater National Park, situated northeast of the Project Area.
- **Commonwealth Heritage List (Australian Heritage Council)**: Contains no historic heritage listings within or within close proximity to the Project Area.
- **The National Heritage List (Australian Heritage Council)**: Contains no historic heritage listings within or within close proximity to the Project Area.
- **The National Trust Register:** Contains no historic heritage listings within or within close proximity to the Project Area.
- **The State Heritage Register (NSW Heritage Office)**: Contains no historic heritage listings for Mororo. One (1) historic heritage item is listed for Evans Head under Section 1 (Heritage Council) and will not be impacted by the Project. Section 2 (Local Councils, Shires and State Agencies) lists one (1) item for Evans Head and seven (7) listings for Woodburn, none of which will be impacted by the Project.
- **Clarence Valley Local Environment Plan 2012:** Contains no historic heritage listings for the Mororo area. 17 items are listed for Evans Head and 12 items are listed for Woodburn, none of which will be impacted by the Project.

13. RESULTS OF HISTORIC HERITAGE FIELD SURVEY

There are no places of historic heritage listed in heritage lists or have there been places of historic heritage found within the Project Area as a result of the field survey.

14. RECOMMENDATIONS: HISTORIC HERITAGE

There are no recommendations with regard to historic heritage. The Project does not impact on places of historic heritage significance

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APPENDIX A: AHIMS SEARCH RESULTS

Office of Environment & Heritage
NSW GOVERNMENT

AHIMS Web Services (AWS)
Search Result

Your Ref Number : EV.319
Client Service ID : 148613

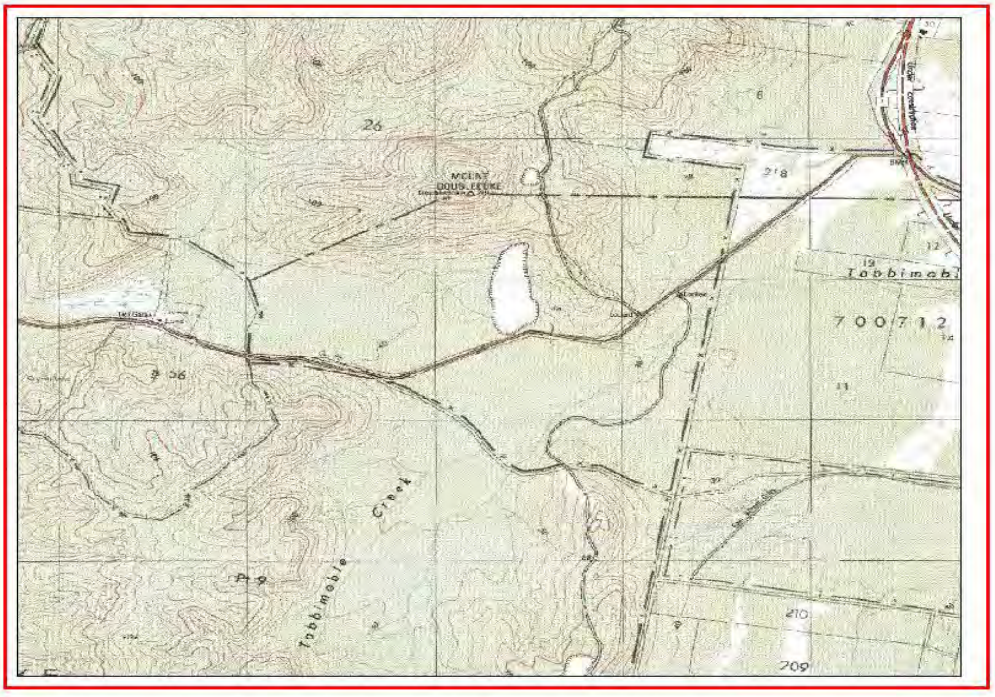
Everick Heritage Consultants Pty Ltd
47 Arthur Tce
Red Hill Queensland 4059
Attention: Jordan Towers
Email: j.towers@everick.com.au

Date: 22 September 2014

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lot : 2, DP:DP1055044 with a Buffer of 1000 meters, conducted by Jordan Towers on 22 September 2014.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

0	Aboriginal sites are recorded in or near the above location.
0	Aboriginal places have been declared in or near the above location. *

GHD

230 Harbour Drive
Coffs Harbour NSW 2450
T: (02) 6650 5600 F: (02) 6650 5601 E: cfsmail@ghd.com

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