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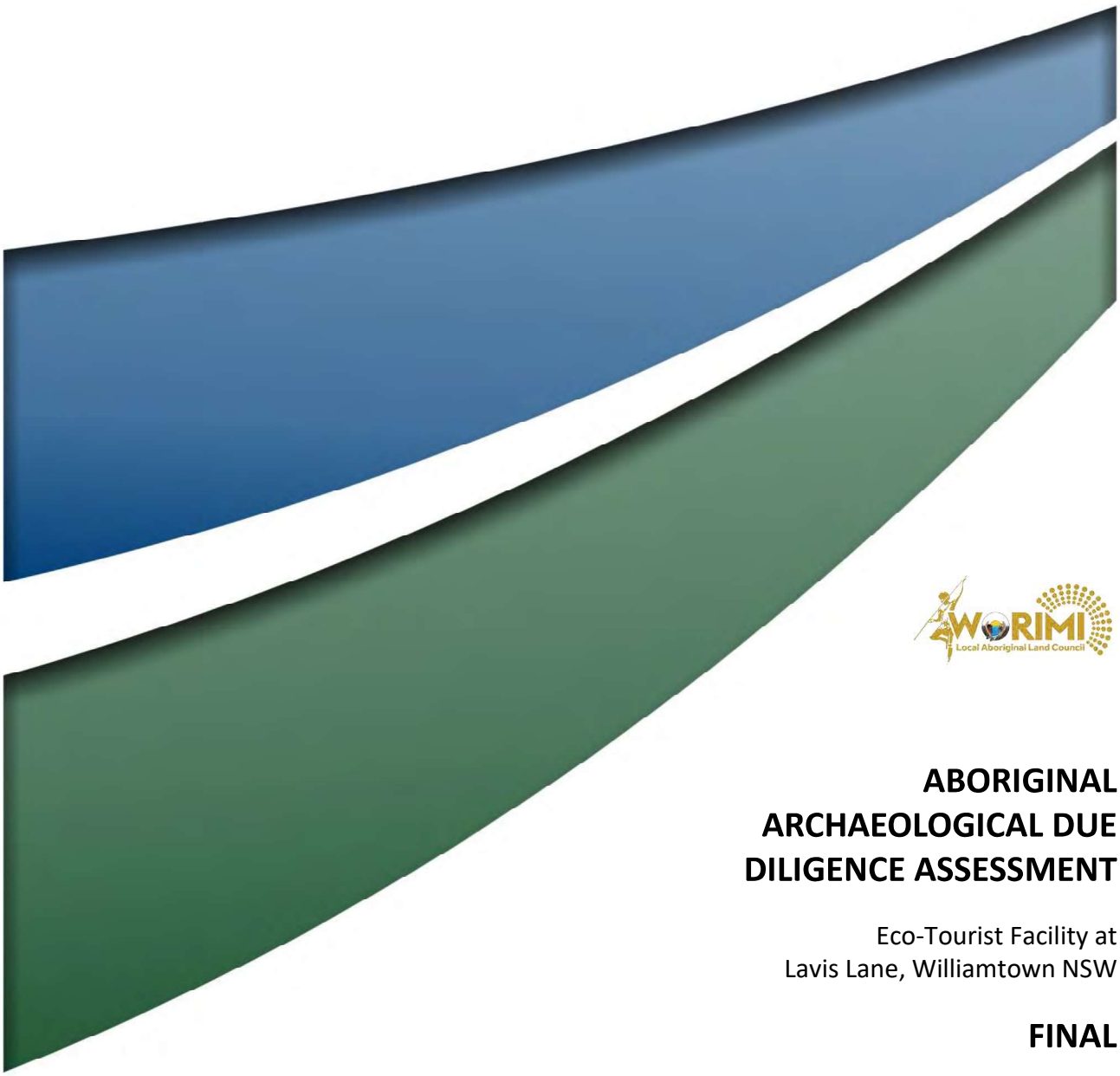

ABORIGINAL ARCHAEOLOGICAL DUE DILIGENCE ASSESSMENT

Eco-Tourist Facility at
Lavis Lane, Williamtown NSW

FINAL

May 2019

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Prepared by
Umwelt (Australia) Pty Limited
on behalf of
EPS, for Worimi Local Aboriginal Land Council

Project Director: Nicola Roche
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Report No. 4573/R01
Date: May 2019

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This report was prepared using Umwelt's ISO 9001 certified Quality Management System.

Document Status

Rev No.	Reviewer		Approved for Issue	
	Name	Date	Name	Date
Final	Nicola Roche	15 May 2019	Nicola Roche	15 May 2019

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Appendices

1.0 Project background and scope

EPS have prepared a Statement of Environmental Effects (SoEE) for an ecotourism development at Williamtown NSW, which is proposed by the Worimi Local Aboriginal Land Council (LALC). As part of this process, Port Stephens Council has requested further information about potential impacts on Aboriginal objects, in the form of a due diligence assessment prepared under the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW South Wales* (the Code - DECCW 2010). EPS commissioned Umwelt Environmental and Social Consultants (Umwelt) to undertake the Aboriginal archaeological due diligence assessment in accordance with the requirements of the code of practice.

1.1 Proposed development and site location

Worimi LALC proposes an eco-tourist facility on its land at Lot 227, DP 1097995 Lavis Lane Williamtown, New South Wales. **Figure 1.1** shows the location of the land. **Figure 1.2** shows the layout of the proposed development. The land parcel totals approximately 49 hectares (ha) in area.

The development includes a car park (for 77 vehicles and 6 coaches), quad bike storage and maintenance facility, 44 multifunctional lodges for overnight accommodation, amenities, a manager's residence and a 'commons' area. The 'commons' area will provide campground amenities and space for cultural presentations but also provides a safe refuge area in the event of a bushfire. There will be a sealed, all-weather access maintenance loop road.

As part of its management of the land, Worimi LALC also proposes to consolidate access tracks to the mobile dunes of Stockton Bight (within the Worimi Conservation Lands). The proposed eco-tourism facility will provide a new base for a number of cultural and business activities by Worimi LALC, including its award –winning quad bike tours, bush tucker sessions, cultural awareness tours, general flora/fauna tours and self-guided visits.

The proposed development is consistent with the Plan of Management for the adjoining Worimi Conservation Lands and with the Land Council's plans for economic self-sufficiency and socioeconomic resilience of Aboriginal members of the community.

1.1.1 Former land uses

The majority of Lot 227 (approximately 40 ha) is land that was formerly mined for mineral sand, between 1986 and 1992. The SoEE reports that the mining process involved wet dredging. The entire land surface and sand to a depth substantially below standing ground water level was excavated and passed through a series of screens installed on a floating barge. This former mining use means that the current terrain of most of the land has been reconstructed post mining. No original terrain, soil or vegetation remains within the footprint of the mined area.

Post mining rehabilitation of the disturbed area by Mineral Deposits Limited and the Worimi LALC Green Team has restored ground cover over the mined area and has also re-established areas of mid layer vegetation, with a different species diversity to the natural dune woodland on undisturbed land.

Three areas around the margin of the land were not disturbed by mineral sand mining. These areas retain their natural terrain features and intact dune forest vegetation. These areas are shown in **Figure 1.2**.

Prior to the operation of the mineral sand mine and continuing to the present day where vehicle access can be obtained, a number of four wheel drive tracks traverse the forested dunes at Stockton Bight, providing access to the unvegetated dunes and the beach. The main controlled beach access track at Lavis Lane is now located just to the west of the proposed development area. Worimi LALC continues to access the mobile dunes and beach from a track through the mined land. An old (now unused) track is incised into the forested dunes on the eastern side of the land. This track can be seen in **Figure 1.2**.

Some of the old tracks date to the Second World War. At that time, Stockton Beach was used for various military training and testing activities and tracks through the dunes were also fortified with 'tank traps' and other fencing.

1.2 The due diligence code of practice

The *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW South Wales* (DECCW 2010) (the Code) is the key reference for this report.

The Code guides proponents through a series of questions to help them determine whether they should apply for an Aboriginal Heritage Impact Permit (AHIP) for their proposed activities. An AHIP is required when proposed actions will harm Aboriginal objects.

The Code sets out the 'reasonable and practical steps' to be taken in order to:

- Identify whether or not Aboriginal objects are, or are likely to be, present in an area
- Determine whether or not the proposed activities are likely to harm Aboriginal objects (if present)
- Determine whether an AHIP is required

Use of the Code is appropriate in certain conditions. These are noted below (**Table 1.1**), with a note about whether they apply.

Table 1.1 Application of due diligence Code

Questions	Response	Apply Code?
Is the activity a declared Part 3A project (or equivalent)	No	Yes
Is the activity exempt under the NPW Act or other legislation	No	Yes
Will the activity involve harm that is trivial or negligible (such as walking across the surface)	No	Yes
Is the activity within an Aboriginal Place and are you aware of Aboriginal objects on the land (see AHIMS search results in Section 2)?	Not within an Aboriginal Place Recorded site present within the project area but requires clarification of potential harm to recorded site	Yes

Questions	Response	Apply Code?
Is the activity a low impact activity, as defined in the NPW Regulation? (these activities include disturbance due to farming activities, or disturbance due to maintenance of existing tracks and trails, or some environmental rehabilitation, or some removal of vegetation on land that has been disturbed)	No	Yes
Has a more detailed assessment been prepared as part of an REF or SoEE, adequately addressing Aboriginal cultural heritage issues	No. Port Stephens Council requested that this due diligence assessment is prepared, because the SoEE did not provide sufficient information about the Aboriginal cultural heritage issues to satisfy Council's requirements	Yes
Overall		Yes If the desktop assessment and site inspection conducted in relation to the Code confirm that Aboriginal objects are present or likely to be present, further investigation and assessment are necessary and an AHIP is likely to be required.

1.3 Project objectives and scope

The aim of this due diligence assessment is to determine whether or not it is likely that Aboriginal objects are present within the proposed development area and could be harmed by the proposed development.

The due diligence assessment follows the steps set out in the Code. These are (**Table 1.2**):

Table 1.2 Steps in Code assessment

Step	Where to find this information
Step 1: Will the activity disturb the ground surface	**Section 2.1**
Step 2a: Search the AHIMS data base and other sources of relevant information	**Section 2.2**
Step 2b: Evaluate the sensitivity of landscape features	**Section 2.3**
Step 3: Can harm to the object or disturbance of the landscape feature be avoided	**Section 2.4**
Step 4: Desktop assessment and visual inspection	**Section 2.5**
Step 5: Further investigations and impact assessment	**Section 3**

1.3.1 Limitations and exclusions

This assessment is prepared for the purpose of due diligence. It is not intended to be a comprehensive assessment of all Aboriginal cultural heritage and archaeological values of the project area and its landscape context.

The conclusions of the report are based on desk top assessment and a targeted inspection of the surface of the project area only.

1.4 Report authorship

Umwelt prepared this report on behalf of EPS and the Worimi LALC. Personnel involved in the assessment are noted in **Table 1.3**.

Umwelt acknowledges the traditional owners and ongoing custodians of Worimi country and we pay respect to elders past, present and future.

Table 1.3 People involved in the due diligence assessment

Person	Organisation	Project role
Nicola Roche	**Manager Cultural Heritage, Umwelt**	Project Director Strategic advice and report review
Pam Dean-Jones	**Principal Consultant, Communities and landscapes, Umwelt**	Project Manager Client liaison, literature review, field assessment and report preparation
Amanda Crick	**Archaeologist, Umwelt**	Project coordinator Conduct site searches
Jamie Tarrant	**Worimi Local Aboriginal Land Council**	Site inspection and consultation during site inspection

1.5 Consultation

The Code states that consultation with the Aboriginal community is not a formal requirement of the due diligence process. The Code does suggest some consultation with the Aboriginal community where this will support informed decisions. This could include contacting organisations which can assist with identifying Aboriginal people who hold relevant cultural knowledge and can provide advice about the significance of objects or places.

1.5.1 Context and governance relating to Aboriginal parties with relevant cultural knowledge

The whole of the Stockton Bight dune landscape is significant to Worimi people.

The proposed development site is on land (Lot 227, DP 1097995) that is owned freehold by the Worimi LALC. Worimi LALC also owns the adjoining lands forming the Worimi Conservation Lands, which are leased to the NSW government and jointly managed by Worimi LALC and the NSW government, variously as Worimi State Conservation Area, Worimi Regional Park and Worimi National Park.

Tenure of these lands was transferred to Worimi LALC following a successful claim under the *NSW Aboriginal Land Rights Act 1983,* in 2007.

A number of registered Worimi Aboriginal Owners are members of the Worimi LALC and were parties to the claim under the Aboriginal Land Rights Act.

Section 3.1 of the Plan of Management for the Worimi Conservation Lands notes 'The area now known as the WCL was returned to Worimi ownership on 1 February 2007, at which time the Lease Agreement for the WCL commenced. In accordance with the NPW Act, the Worimi LALC holds the title to the WCL on behalf of the registered Worimi owners'.

Based on information available on Native Title Vision (http://nntt.maps.arcgis.com/apps/webappviewer/index.html?id=b221c006ae5d4cabaa1e18099bc11bb9) the project area is currently subject to a non-claimant application lodged by Worimi LALC under the Native Title Act. This claim is not currently identified for registration.

For further information about the cultural heritage value of the Stockton Bight coastal dune field to the Worimi people, readers should review the background provided in the Plan of Management for the Worimi Conservation Lands and consult with the Board of the Worimi Conservation Lands.

https://worimiconservationlands.com/plan-of-management/

The Plan of Management also explains the importance of the freehold ownership of the Worimi Conservation Lands and associated tourism activities to the Board's objectives of enhanced economic independence; enhanced opportunities to teach others about land and culture; and to develop respect for Worimi values of land and culture.

The Plan of Management has as one of its highlights, the development of designated campsites and facilities, to reduce the impacts of uncontrolled camping on the dunes and beach.

1.5.2 Consultation about the proposal

For the purpose of this due diligence assessment, Worimi LALC is in a position to provide advice about cultural values on behalf of its members, who include registered Worimi Aboriginal Owners.

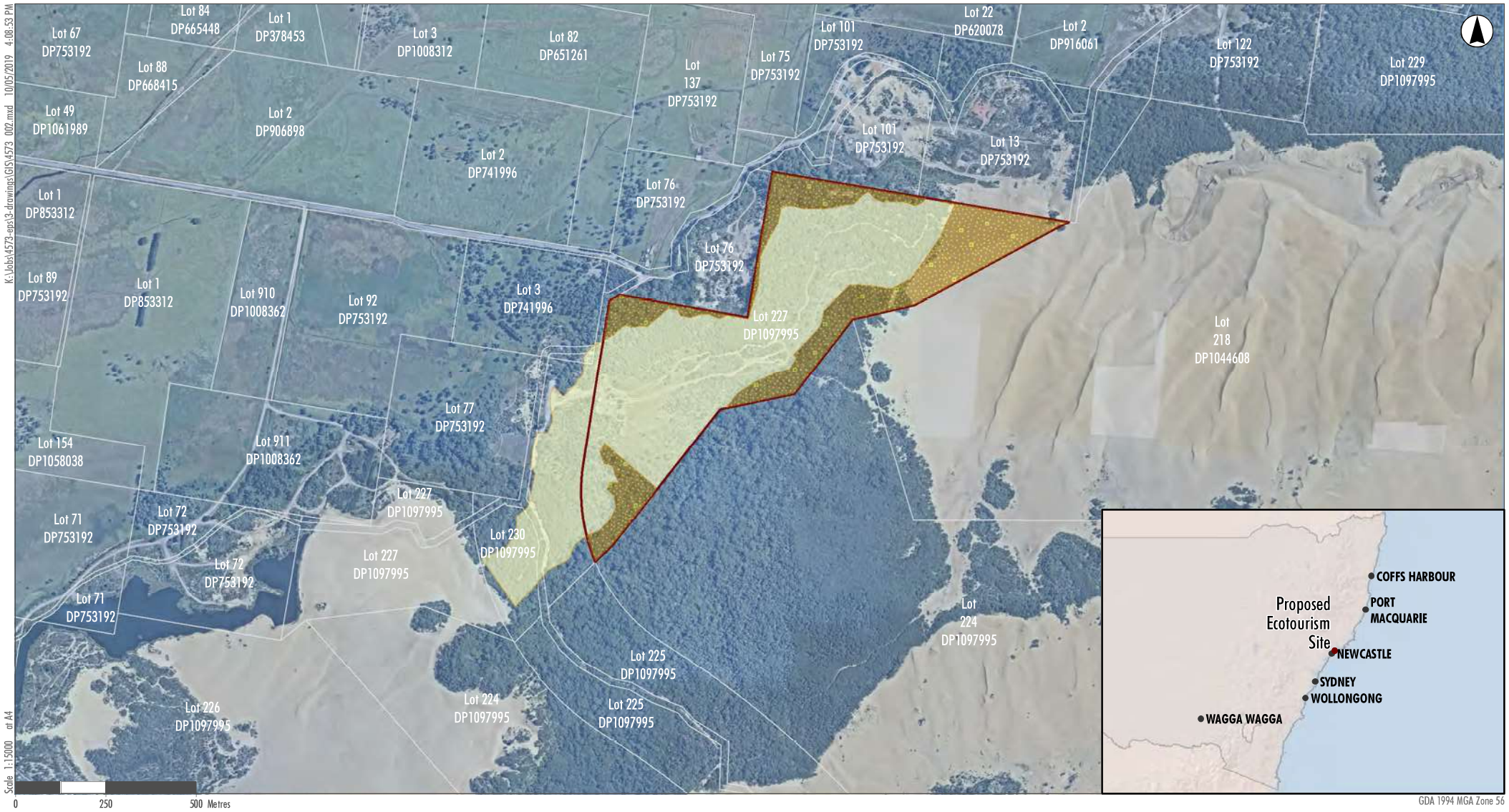
Worimi LALC is the proponent and its objectives for the site relate to enhanced communication of the cultural heritage values of the dune landscape, raising awareness of why the landscape is important and how the Worimi people look after country. The project also aims to support the economic independence of the Aboriginal community and manage access onto the archaeologically and culturally significant areas of mobile dunes in the Worimi Conservation Lands.

Worimi LALC contributed to the development concept, the purpose and design of the proposed development and reviewed the text about cultural heritage in the SoEE prepared by EPS.

The SoEE states:

> *'It is considered that the proposal will have no adverse impact on the cultural heritage of the locality of the site (i.e. the Stockton Beach dune system in general).*
>
> *The proposal will enhance the heritage value of the site through physical connection of WLALC to the area, development of cultural education information resources and art, and enabling cultural heritage tours of the site to take place. Further, the site has been significantly disturbed through previous use for mineral sands mining and as such, the likelihood of encountering an heritage object is very low and will be managed through an unexpected finds procedure.'*

The due diligence assessment provides further information and evidence about the potential for Aboriginal objects to be disturbed by the proposed development. A representative of Worimi LALC participated in the site inspection and discussed the potential for any of the undisturbed dune forest landscape to contain objects which could be disturbed by the proposed development.



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- Proposed Ecotourism Site (Part of Lot 227 DP1097995)
- Previous Sand Mining Impact Area
- Areas inspected in Due Diligence Survey

FIGURE 1.1

Location of the Project Area

Image Source: Copyright:© 2014 Esri Data source: OEH (2019); DFSI (2019)

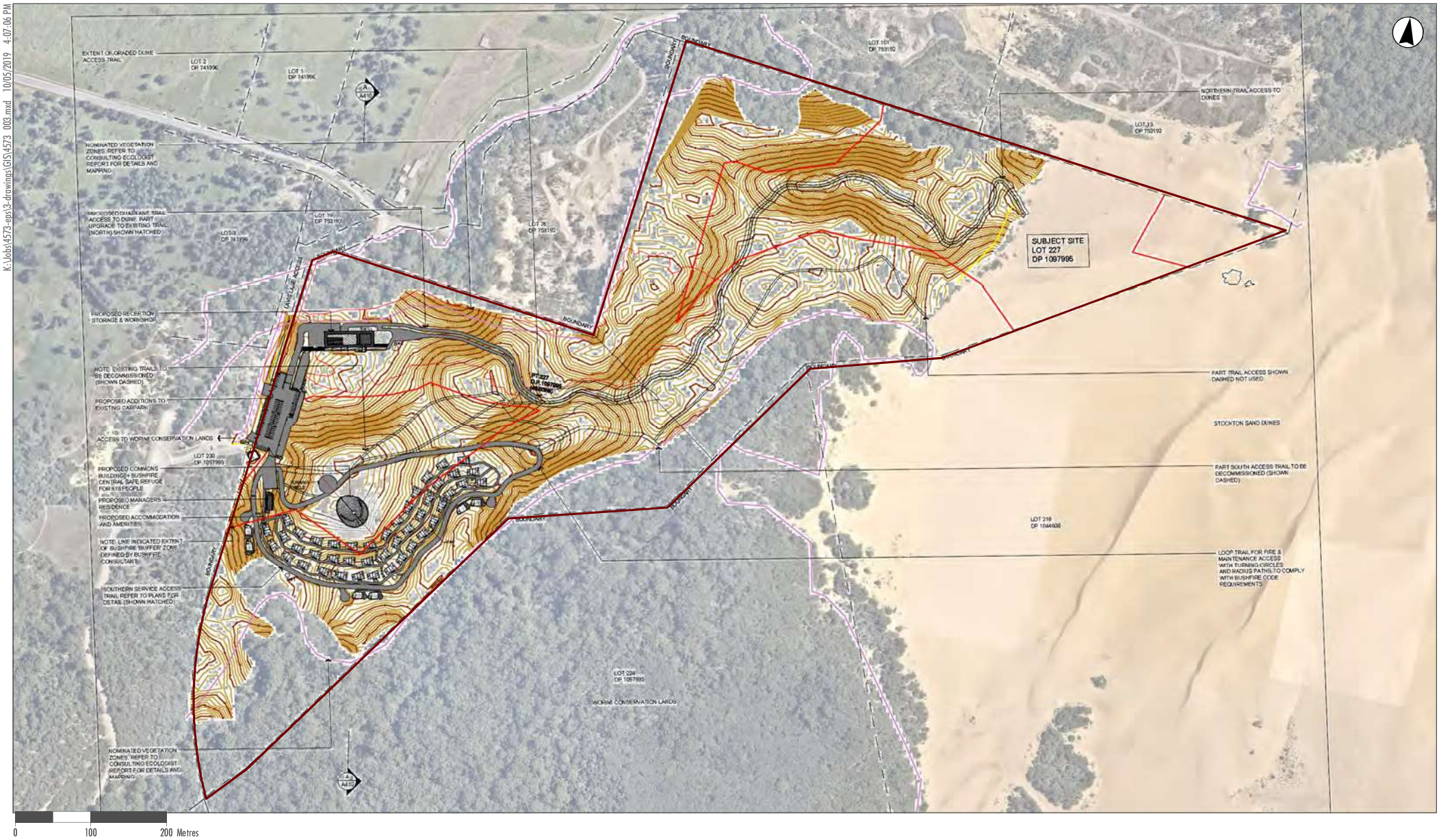


FIGURE 1.2

Layout of the Proposed Development

Image Source: Derive Architecture and Design (2018); Nearmap (2018) Data source: OEH (2019); DFSI (2019)

2.0 Application of the Code of Practice

2.1 Will the activity disturb the ground surface

The proposed activity will further disturb the ground surface of the previously disturbed areas of the land. The proposed development will not extend into the three parts of the land that have not been disturbed by the previous mineral sand mining activity. Specific recommendations are provided in **Section 2.7** to ensure that these areas are not subject to incidental impact.

2.2 AHIMS searches and review of other sources of information

Umwelt completed a search of the AHIMS data base on 1 April 2019. OEH provided information about four sites that had previously been recorded in the vicinity of the project area. The locations of these sites are shown in **Figure 2.1**, and basic site information is summarised in **Table 2.1**.

Table 2.1 Known archaeological sites in the vicinity of the project area

Site ID	Site name	Site features/site type	Recorded by, and when	Comments
38-4-0302	Williamtown 2	Midden, open campsite with shell and artefacts	Pam Dean-Jones, 1989	Recorded during dune transects for the 1989 Stockton Bight archaeology/ geomorphology study. Coordinates based on 1:25,000 map sheets and likely to have a margin of error. This site appears to be equivalent to part of 38-4-0057, see discussion below.
38-4-0057	Freshwater Lagoons	Artefacts, open camp site	Len Dyall, 1975	Coordinates based on 1:250,000 and 1:63,360 map sheets and likely to have a margin of error. See discussion below about the history of recording and management recommendations about this site
38-4-1031	Lagoons 5	Artefacts	Peter Anderson	
38-4-1324	Williamtown 3	Artefacts	Pam Dean-Jones, 1989	Recorded during dune transects for the 1989 Stockton Bight archaeology/ geomorphology study. Coordinates based on 1:25,000 map sheets and likely to have a margin of error

Of these sites:

- 38-4-0302 is located on the back barrier/back dune terrain outside the project area
- 38-4-1031 is located in the mobile dune area to the south east of the project area
- 38-4-1324 is located in disturbed terrain adjacent to the 'Stockton Bight Track', approximately 1 km to the west of the project area

Site 38-4-0057, listed in AHIMS as being recorded by Len Dyall in the 1970s is shown in the centre of the area that was disturbed by mineral sand mining between 1986 and 1992.

2.2.1 Review of records of site 38-04-0057

Umwelt has investigated the records of this site and previous recommendations about its management.

All or parts of the site are described in at least four archaeological/management reports, based on observations made in 1970/71 to 1989. These are:

- J Starling 1974. A survey of the Aboriginal sites on the north coast of NSW (based on field work in 1970/71). Unpublished report to NPWS
- Dyall L, 1975. Report on Aboriginal sites near Newcastle. Report to NPWS
- M Sullivan, 1980. An investigation of an archaeological site at Stockton Bight, NSW. Report to NPWS
- Dean-Jones, 1990. Newcastle Bight Aboriginal Sites Study. Report to NPWS and National Estate Grants Committee

The report prepared by Sullivan (1980) after a targeted site inspection conducted with Mineral Deposits Limited, is the key link from the two earlier reports to the later report and provides a potential explanation for the continued presence of a valid site record in an area that has clearly been impacted by mineral sand mining. Sullivan states that the purpose of her site inspection was to describe and assess a site known to be within a proposed MDL mining path and that MDL intended to apply for a s90 Consent to Destroy.

Sullivan 1980 describes two distinct parts of a very large site adjacent to an area known as 'Freshwater Lagoons' (see **Figure 2.1**) on the 1966 edition of the 1:250,000 non-Quaternary Geology Map (Newcastle Sheet). Part 'A' of the site had been mapped by Starling (1974) and Part 'B' of the site was mapped and described by Dyall (1975).

Sullivan 1980 notes that the Part 'A' 'Freshwater Lagoons' site recorded by Starling in 1974 (based on a broad scale 1971 survey) had changed dramatically by 1980 and none of the original stratified midden remained. The site had been severely deflated and visible artefacts were all sand blasted. Starling's site had several different exposures – but all were considered to be part of one site around the seepages at Freshwater Lagoons. There were some remaining exposures of the A horizon of the dune podsol, related to the former stable dune surface. This site was within the proposed mineral sand mine path.

The Part 'B' Freshwater Lagoons site (recorded by Dyall 1975) consisted of stratified deposit, about 40cm thick and included both beach shell and estuary shell. It was situated on a 'back dune' landform, adjacent to the floodplain wetlands and thus provided access to diverse resources. Sullivan 1980 notes that Dyall 'grid sampled' part of the site in 1975 and that a detailed description of the abundant worked stone was available in the NPWS file in 1980. This site has the appearance of long and intensive use by Aboriginal people. Sullivan shows Part 'B' as being located on the landward margin of the high dune complex and approximately 80 metres outside of the proposed mineral sand mine path.

It seems likely that the grid reference that is listed in AHIMS for site 38-4-0057 refers to the part of the site reported by Starling in 1974. The part of the site recorded in detail by Dyall 1975 is located a few hundred metres to the north/north west. Given the grid references were initially recorded on small scale maps (1:63,360 or 1:250,000 (geology sheet)) with different coordinate systems to those currently in use, and have been translated, it is likely that there is an error margin of 200 to 300 metres.

Sullivan's recommendations in 1980 were that:

- Although much of the area has very difficult access, sand mining should not proceed until a systematic survey for archaeological sites had been carried out and that MDL could confirm that no other similar large and complex sites were present in the mine path.
- The site recorded by Starling 1974 could be permitted to be destroyed, but that the Director of NPWS should consider some form of salvage.
- The site recorded by Dyall 1975 should be protected, and various conservation measures were suggested.

Dean-Jones 1990 also recorded sites in this area as part of the Stockton Bight Aboriginal Sites Study. The 1990 report describes a complex site with diverse shell and stone materials located on a low sandy spur extending into the wetland behind the back barrier flat (near Long Bight Swamp). The site contained three separate areas, including stratified midden, a deflated area with stone but no shell, and a thin scatter of shell and stone. Both beach and estuary shell species were recorded. There were multiple raw materials represented in the flaked artefacts.

Dean-Jones 1990 notes that this site (now in AHIMS as 'Williamtown 2', 38-4-0302) had previously been described by Dyall 1975 and Sullivan 1980. The 1:25,000 grid reference for Williamtown 2 places it outside the mined area, which would be consistent with Sullivan's 1980 description. Dean-Jones 1990 mapped the site as about 400 metres north-west of the grid reference for 38-4-0057, on a low bench sitting up above the estuary flats. It is understood that this site is still present, off to the side of the main carpark for the Stockton Bight access track.

It was not clear from the review of reports and site record cards if a s90 Consent to Destroy was issued for the part of the site recorded by Starling (Part a of site 38-5-0057) prior to mining. There is no separate site record number and card for this area. It is possible that a s90 was issued, but that the site card has not been updated – in part because of confusion about the appropriate grid references for the parts of a very large and complex site area.

Umwelt sought advice from OEH about the potential for a former s90 Consent to be found in their records, and about a process to update the site card, to confirm that Part A of site 38-4-0057 has been destroyed.

Information provided to OEH is included in **Appendix 1**. OEH responded that it is appropriate to update the site card for site 38-4-0057, subject to completion of an Aboriginal Site Impact Record (ASIR) form. This form has now been submitted to OEH. OEH regional officers have advised the registrar of AHIMS that the site has been destroyed and AHIMS will now show that the site record for Site 38-4-0057 has been destroyed.

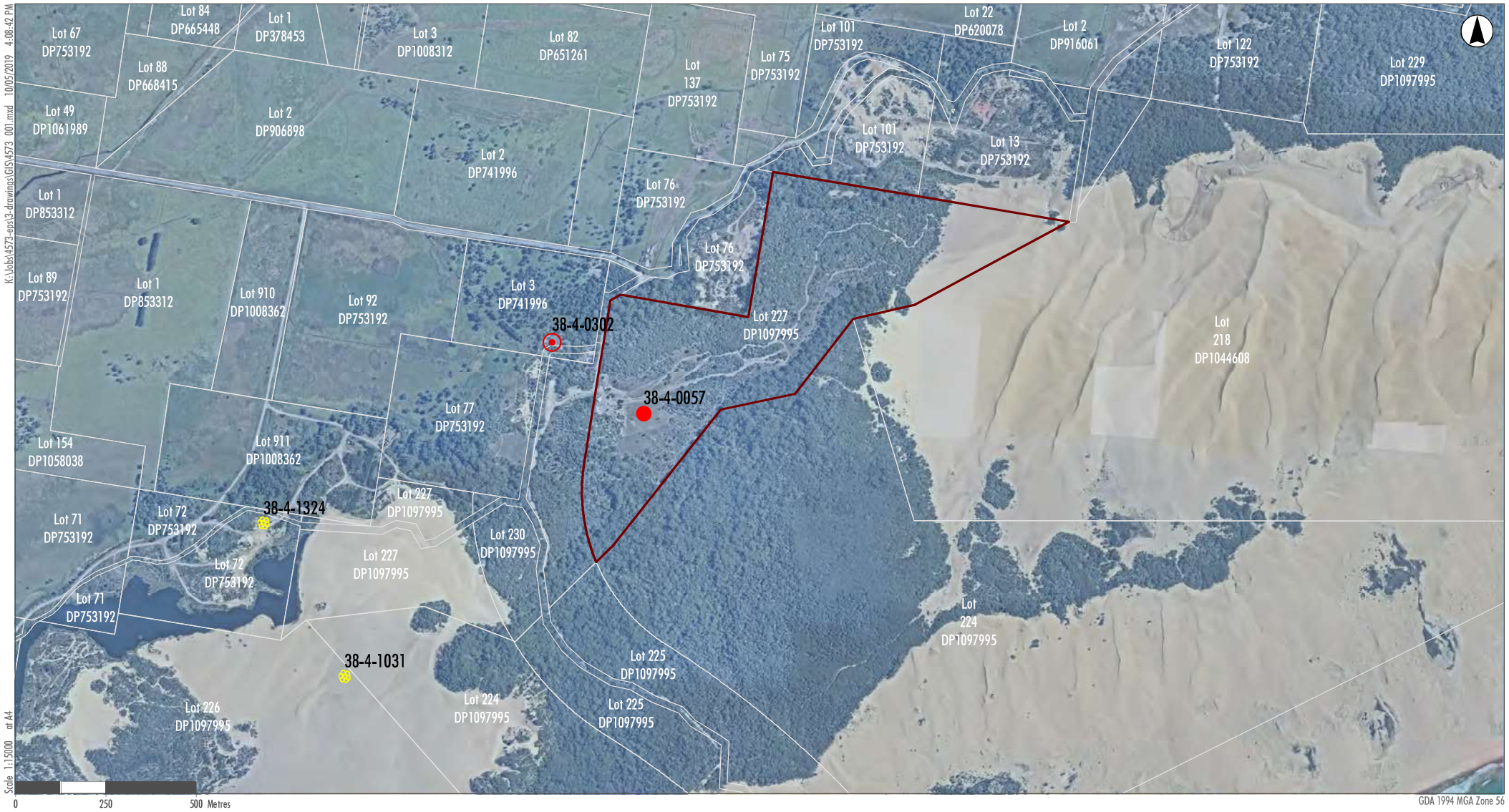
Site number 38-4-0302 (the site number registered following survey by Dean-Jones in 1990) will continue to apply to the former Part B of site 38-4-0057, which is located outside the current project area.

2.3 Terrain analysis to identify archaeologically sensitive landscape features

DECCW 2010 uses the criteria noted in **Table 2.2** to identify features and areas of land where Aboriginal objects are considered likely to occur (where this land is also not disturbed). **Table 2.2** also provides information as to whether the current project area meets the criteria.

Table 2.2 Archaeologically sensitive landscape features

Sensitivity criteria	Relevance to current project area
Within 200 metres of waters (any river, stream, lake, lagoon, swamp or wetlands, natural watercourse and tidal waters, including the sea)	The project area is generally more than 200 metres from any natural water course or wetland in the 'inter-barrier depression', the low lying landscape, including estuarine waterways, that separates the old Pleistocene dune system from the Holocene dune system of Stockton Bight. The proposed development site is approximately 200 metres from the inner edge of the Holocene dune field and is elevated 5 to 10 metres above the level of the floodplain/estuarine landscape. A drainage line is present just outside the north eastern corner of the property (see **Figure 2.1**). This drainage line lies between two areas of former mineral sand mining/sand extraction and may not be in exactly its natural location; however, it does display swamp forest vegetation characteristics of an established drainage line in sandy terrain. The project area is approximately 2 kilometres from the ocean and is separated from the open ocean shoreline of Stockton Bight by sequences of vegetated dunes, unvegetated dunes, a deflation basin and the frontal dune system.
Located within a sand dune system	The project area is situated within a coastal dune system, which is known to have high archaeological and cultural heritage value. However, approximately 90% of the project area has been disturbed to a depth of more than 4 metres by previous mineral sand mining. While the substrate of the property continues to be sand, only three remnant areas of pre mining landform and dune forest remain. These are all on margins of the property. Further discussion about the geomorphology of the intact dune landforms is in **Section 2.3.1**.
Located on a ridge top, ridgeline or headland	Not relevant
Located within 200 metres below or above a cliff face	Not relevant
Within 20 metres of, or in a cave, rock shelter or a cave mouth	Not relevant



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Proposed Ecotourism Site (Part of Lot 227 DP1097995)

AHIMS Extensive Search Results

- Artefact
- Artefact scatter
- Midden

FIGURE 2.1

Location of known Aboriginal sites

Image Source: Data source: OEH (2019); DFSI (2019)

2.3.1 Dune geomorphology

The natural dune landforms within the project area are part of the episodic transgressive dune system that forms the outer (Holocene) barrier of Stockton Bight. The oldest of the transgressive dunes have ages of around 4500 years BP and overlie early Holocene back barrier flats at the margin with the inter-barrier depression.

Thom et al (1992) provide an illustrative topographic and stratigraphic cross-section of the dune landforms at Lavis Lane, in close proximity to the project area. Key features of this cross section, relevant to the archaeological sensitivity of the project area, include:

- The stratigraphic units show the transition from early Holocene sand and shell transgressive shoreline, and shelly/muddy estuarine sand, to a back barrier flat that displays some evidence of washover. These are early Holocene. Some have been reworked along the early Holocene barrier lagoon shoreline into spits with low subparallel ridges.

- These units are overlain by hummocky back dune sand, which appears to predate the main transgressive dune phases on the outer barrier. A date of 5,410 years BP was obtained on the back dune sand units (Thom et al 1992). At Lavis Lane, the landforms from two subsequent phases of transgressive dune activity coalesce and their landward margin partially overlies the back dune features. While there are distinctive ridges relating to the first and second phases of dune transgression elsewhere along the outer barrier, at Lavis Lane Ridge 1 is overlain by Ridge 2.

- A third period of transgressive dune activity is associated with unvegetated dune ridges seaward of the combined Ridge 1/Ridge 2 form. The deflation basin that has developed with the ridge 3 transgressive dunes illustrates the potential for standing water to have been intermittently present in deflation features associated with the earlier periods of transgressive dune movement.

- The combined Ridge 1/Ridge 2 feature is a long-walled transgressive dune and was formed in the period 4500 to 2300 years BP. The dune crest reaches elevations of 15 to 20 metres. There are some steep sided depressions (parts of former deflation structures) within the dune field and also some steep sided 'constructional gullies' related to patterns of dune deposition. Thom et al (1992) note that these low lying landforms receive no overland flow, but may have wetland vegetation communities at the base and may hold water in prolonged wet periods.

- Like the more modern ridge 3 terrain (which is generally less than 500 years old), these long walled dunes display a steep slip off slope (also known as lee or avalanche slopes) at the landward side. Gradients are at the natural angle of repose of sand, but are now stabilised by dune forest vegetation.

Thom et al (1992) note that the age of these mid Holocene dune forms means there has been relatively little post deposition modification of the steep slopes (unlike the Pleistocene barrier, where dune forms tend to flatten out over time, as discussed by Dean-Jones 1990).

Soils formed in the fine, well sorted wind-blown sand deposits are dune podsol profiles. These soils are distinguished by a slightly organic A_1 horizon which has sufficient structure to form small vertical sections if later exposed; overlying a bleached weakly structured A_2 horizon; and a B horizon that displays some pan development. In the Holocene dunes, the A2 horizon is not strongly bleached and tends to have a cream colour rather than pale grey or white.

2.3.1.1 Archaeological sensitivity of dune landforms

Dean-Jones (1990) conducted archaeological surveys of the inner and outer barrier terrain of Stockton Bight, linking archaeological evidence to the geomorphic development of the barrier systems and transgressive dune ridges.

This work and subsequent archaeological surveys along the back barrier flat/back dune terrain on the landward side of the outer barrier indicates that these landforms have very high archaeological sensitivity, and multiple extensive and complex archaeological sites have been recorded. When Sullivan, Dyall and Starling inspected the Williamtown/Lavis Lane area between 1970 and 1980, areas of freshwater wetland remained in old deflation landforms at Freshwater Lagoons. This access to freshwater resources would have increased the likelihood of persistent or more intensive seasonal use.

At Lavis Lane today, these landforms lie outside the current project area and/or have been heavily disturbed by previous mining activity.

Dean-Jones (1990) also mapped occasional stone artefact scatters (sometimes with shell) across the vegetated transgressive dunes (i.e. Ridge 1 and Ridge 2). In general these sites (where archaeological material is visible at the surface) are situated on gentle rises and dune crests – i.e. on pathways that could be traversed between the back barrier landscape and the beach. The steeper slopes have a much lower archaeological sensitivity than more gently undulating dune landforms.

Areas of high archaeological sensitivity occur where Ridge 1 overlies the back barrier features and also where Ridge 2 overlies Ridge 1 surfaces with a depositional interface. In these situations, there is potential for older occupation evidence to be stratigraphically sealed by later sand deposits. This stratigraphy may occur within the project area in the small vegetated dune remnants along the south eastern boundary and on the northern boundary. It is likely that buried soil surfaces occur within these dune forms and that some buried dune forms had the characteristics to attract occupation activities and preserve archaeological evidence. Where such surfaces have been exposed (e.g. during sand extraction and mineral sand mining) elsewhere along the vegetated dunes of the outer barrier, archaeological evidence has been observed. However, it is noted that, within the project area, these landforms have been disturbed to approximately 4 metres across 90% of the project area, in turn removing any such potential deposits.

Within the current project area, ground surface visibility in the dune forest areas is extremely low, with dense ground cover of understory species and fallen leaf/bark, timber litter. Further observations from the site inspection are in **Section 2.5**.

2.3.2 Other factors influencing archaeological sensitivity

The distribution of Aboriginal sites within the Stockton Bight dune field is affected by several other factors that are broadly related to landscape structure. These include:

- Availability of drinking water. As noted above, the project area is generally more than 200 metres from contemporary water resources. However the availability of water in this area has changed significantly during the Holocene period and the presence of standing surface water or shallow and accessible groundwater is dependent on the extent of vegetation, dune mobility (deflation) and climate conditions. As noted above in relation to Freshwater Lagoons, it is likely that water supply was more accessible at during periods of the mid Holocene and up to the mid twentieth century than it appears to be now.

- Access to stone resources for making stone implements. A key feature of a major sandy barrier system is that there is no rock outcrop. Siliceous tuffs that are a high quality raw material for flaked stone implements are an abundant resource in the coastal cliffs south of the Hunter River estuary and tuff/silcrete is available from locations to the south and west of the inner barrier (e.g. at Tomago and Thornton). At Birubi Point, igneous rocks and rounded cobbles suitable for use as hammer stones or for hearths are readily available. All these materials would need to have been carried up to 10 km from sources to the Williamtown area and access to the raw materials may have required a trading relationship with other groups. Flaked stone artefacts that have been recorded in Aboriginal sites at Williamtown are dominated by Nobbys tuff and silcrete raw materials.

- Flora and fauna resources. As for water resources, the flora and fauna resources of the locality have changed significantly during the Holocene. This includes access to marine (beach) shellfish, estuarine shellfish species, fin fish (ocean and estuary species) and crustacea, and flora and fauna resources associated with three or more terrestrial ecological communities and at least two estuarine communities (saltmarsh and mangrove). Broadly, the terrestrial communities include Angophera/blackbutt forests, swamp mahogany/melaleuca wet forest and swamp sclerophyll forests. Freshwater wetlands may also have been present intermittently.

2.4 Can harm be avoided?

There is no risk of harm to Aboriginal objects within the previously sand mined parts of the project area. All of this area has been disturbed to a depth of approximately 4 metres, a greater depth than any disturbance proposed as part of the development. The only exception is an administrative issue, as discussed in **Section 2.2**. a site card with a grid reference within the mining area does not indicate that a s90 Consent to Destroy was issued at the time.

Harm to any objects that may be present below the surface in the 10% of the project area that has not been disturbed by mining can be avoided by retaining a buffer area between the undisturbed dunes and the developed areas of the land in accordance with recommendations provided in **Section 2.7**. No development should occur within the remnants of Ridge 1 and Ridge 2 transgressive dunes and associated dune forest.

2.5 Desk top assessment and site inspection

2.5.1 Review of previous archaeological assessments

Multiple Aboriginal archaeology assessments (i.e. assessments concerned with impacts on objects and the scientific and cultural values attached to those objects) have been conducted in the dune landscapes of Stockton Bight over the last 30 years. This section provides an overview of the evidence and what it indicates about Worimi occupation strategies in the Holocene dunes. The results of these surveys and assessments demonstrate:

- Spatial variation in the types of archaeological evidence with the landforms and resources that characterise the dune system over the last 500 to 1000 years

- Temporal variation in the types of archaeological evidence, linked to the evolution of the landscape during the Holocene period.

Site types and artefact types that are known to occur in the vicinity of the project area include:

- Shell midden sites in ocean facing contexts and in contexts overlooking estuarine or wetland landscapes (such as the inter-barrier depression). Shell middens in the open ocean landscape may also contain fish bone and bird bone. Stratified middens with thick lenses of shell within intact soil profiles have been observed in open ocean and estuarine contexts. The stratification of midden sites is vulnerable both to human activity and to erosion processes, and many of the large and complex middens known from the 1970s and 1980s have now been severely damaged or destroyed.

- Midden sites with stone artefacts. These may be large and complex sites, with excellent examples being located at Birubi Point and on the back dune/back barrier flat, such as 38-4-0302 near to Lavis Lane. Artefacts included in these sites are generally relatively small implements of Nobbys Tuff and silcrete, but edge ground implements are also reported and occasional examples of vary large axes/choppers (Worimi cleavers) have been recorded. Analysis of residues on some Worimi cleavers indicate use for processing of plant materials such as fern roots

- Small scatters of flaked stone artefacts - usually in elevated dune contexts, away from direct access to water.
- Hearths
- Rare burials
- Special and sensitive cultural places such as women's sites.

Some archaeological reports have commented on vertical patterns in sites located in the coastal dunes, for instance, reporting observations that shell material tends to be concentrated higher in the soil profile with flaked stone artefacts in units between 30 and 70 cm below the modern ground surface. This pattern may reflect differential preservation of shell (weathered from older soil layers) or a change on technology (reduced use of flaked stone in the dunes over the last 1000 years). Available dates on shell at these stratified sites suggest the more intensive use of shell and shell deposition in middens occurred within the last 800 years (e.g. ERM 2005).

Implications of this overview of archaeological information from the outer barrier for the types of objects and sites that could have been associated with the project area include:

- Before mining, this area was at the interface of back-barrier/back dune and Ridge 1/Ridge 2 landforms. This combination of landforms is consistent with sensitivity criteria for both intensive Aboriginal occupation – leading to discard of objects, and to preservation of objects (including shell) associated with buried land surfaces. However, it is important to note that the more intensive occupation activity may have occurred well after the overlap of back dune landforms by Ridge 1 landforms.
- Where the ridge crests of high dunes remain and are linked by lower gradient sand spurs and wet depressions, flaked stone artefact scatters may be expected to occur. It is unlikely that activities occurred, or artefacts were discarded on the steep slip off slopes. Slip off slopes may bury older lower gradient landforms (that were formerly vegetated)
- Flaked stone artefacts on sand ridge crests (Ridge 1 and Ridge 2 ages) are more likely to be 50 cm or more below the surface.
- Within the project area, the sand ridge remnant at the north eastern edge of the property may have a higher likelihood of subsurface archaeological evidence than other sand ridge landforms that remain around the property margins. This area has a relatively level crest and is adjacent to the small drainage line incised into the dune terrain, which if it persisted through the mid to late Holocene, would have provided access to fresh water, at least intermittently.

2.5.2 Site inspection

An inspection of the proposed development area was conducted on Friday 29 March 2019. Pam Dean-Jones (Umwelt) and Jamie Tarrant (Worimi LALC) conducted the inspection on foot.

Based on the evidence from past land use, geomorphic history and analysis of archaeological sensitivity, the inspection focused on the landforms along the margin between mined and unmined land. The areas covered on foot are shown in **Figure 1.1**. Three areas of natural dune forest on old transgressive dune terrain were inspected (Areas A, B and C):

- Area A is the margin to the east of an old vehicle track across the dunes, as far as the current quad bike tour access route.
- Area B is the margin of dune forest to the south west of the old track.

- Area C is a patch of elevated dune terrain on the north eastern boundary of the project area and closest to a possible creek line/water body.

2.5.2.1 Observations from the site inspection

Photos in **Table 2.3** illustrate the nature of the terrain and vegetation at the interface between mined and unmined dune terrain.

Key observations from the inspection include:

- The boundary between mined and unmined land is distinct but, in some areas, includes a transition zone approximately 20 metres wide. The undisturbed dunes carry dune forest with large trees that have many habitat hollows and a complex and diverse understory. This ecological community is mapped as coastal sand apple-Blackbutt forest and is dominated by large specimens of *Angophera costata*, *Eucalyptus pilularis* and *Banksia serrata*. The vegetation of the mined area comprises grasses, tea tree and other species, with areas of bare sand or limited ground cover. The vegetation in the transition zone includes young trees of the same species as dune forest (likely to have been seeded from the forest), with an understory of rehabilitation species rather than native understory. The transition zone is interpreted as being the outer edge of mining disturbance (clearing) but may not have been totally excavated and reworked.

- Ground surface visibility in the dune forest is zero, and the ground surface lies beneath a dense cover of understory species, leaf litter, fallen bark and timber. Ground surface visibility across the rehabilitated land is variable, from zero to approximately 20%.

- The slope of landforms under the dune forest is consistent with a slip off slope landform.

- The large trees have scars and hollows from fallen branches, but no scars that could be associated with Aboriginal use of the dunes were observed in this inspection of the margins of the dune forest.

- Small subsurface exposures are visible where an old track is incised into the dune surface. The exposed sand is light grey/cream, consistent with mid Holocene dune podsol soil. The depth to any older dune soil is not known.

- There is no evidence that any objects remain within the mined area. It is clear that both terrain and vegetation of this area are post mining reconstructions.

Table 2.3 Vegetation and terrain characteristics of the project area

Photos	Notes
	Area 1 Mined land on the right of the photo and continuing through a transition area where there are examples of regrowth Angophera and blackbutt trees.
	Area 2 Large trees mark the area of intact dune landforms and vegetation; rehabilitated land with ground surface exposures linked to vehicle tracks. There is no stone of any sort exposed on the surface of the mined landscape.

Photos	Notes
	Area 2 Rehabilitated mined land, with tea tree sp. and grassland, adjoin intact dune forest in the background.
	Area 3 Large tree within slightly disturbed dune woodland; dense understory and zero ground surface visibility

Photos	Notes
	View across disturbed land in the centre of the project area – open grassland on reshaped land surface, following mining in the 1980s

2.6 Impact assessment

Table 2.4 provides responses to the three questions that must be addressed in a due diligence assessment prepared under the Code.

Table 2.4 Impact assessment under the Code

Question	Response	Rationale
Identify whether or not Aboriginal objects are or are likely to be present in an area	No Aboriginal objects are, or are likely to be, present in the development footprint where it is within land formerly part of the mineral sand mine. Note however, that one site 38-4-0057 is still mapped as being located within this area in the AHIMS records. As discussed in **Section 2.2** and in **Section 2.7**, this needs to be resolved.	This due diligence assessment confirms that no Aboriginal objects are present or likely to be present in the footprint of the former mineral sand mine. The landforms within the former mine path have been recreated post mining and it is understood that sand sediments/soils were disturbed to a depth of approximately 4 metres. It is possible that Aboriginal objects are present at depth in the Ridge 1/Ridge 2 vegetated transgressive dunes that adjoin the development footprint to the south east. There is a low likelihood that any Aboriginal objects are at or close to the surface of the steep dune slopes that are closest to the former mined land. Risks of disturbing any Aboriginal objects can be further reduced by avoiding any disturbance of the intact dune landforms and vegetation during construction and operation of the eco-tourism development.

Question	Response	Rationale
Determine whether or not proposed activities are likely to harm Aboriginal objects	Proposed activities within the footprint of formerly mined land will not harm Aboriginal objects. These activities will not harm other Aboriginal cultural values	Subject to the clarification noted above, there is no evidence that Aboriginal objects are present within the footprint of former mined land. Provided the site record for 38-4-0057 can be clarified, there is therefore, no risk of harm within the mining footprint. It is possible that harm could occur if works are carried out within the dune forest that adjoins the mined land. The risk of harm can be minimised by maintaining a buffer around the margin of the proposed development where it adjoins natural dune landforms and forest, and by controlling recreational access into the dune forest. Quad bike tours should use only the approved vehicle track. Worimi LALC has previously advised that it considers this development has cultural heritage advantages for Worimi people. It will provide a facility for more efficient operation of the Land Council's dune tours and creates a new space for cultural awareness activities for community, for schools and for visitors to the area.
Determine whether an AHIP is required	An AHIP is not required for the works associated with the proposed development	The physical evidence of past mineral sand mining means that it is highly unlikely that any Aboriginal objects remain within the former mining land. However, the site record for site 38-4-0057 does not currently reflect this and needs to be resolved. There is a very low likelihood that objects will be disturbed within the natural dune landforms and dune forest during construction and operation of the recreation facility. An AHIP is not required.

2.7 Recommendations

The following recommendations are made with reference to the requirements of the NPW Act, the NPW Regulation and the due diligence code. It is noted that these recommendations are provided from an archaeological perspective only.

- Based on the information discussed in this assessment, the project may proceed without any further Aboriginal cultural heritage or archaeological investigation, provided that all works are undertaken as described in this assessment.

- This includes the requirement to avoid disturbance within areas not previously subject to impact from sand mining activities. To minimise the risk that undisturbed areas will be disturbed during the construction and operation of the development, the following measures should be incorporated into a site management plan. These measures avoid harm to the intact dune landforms and vegetation.

- The boundary of undisturbed land within the project area will be surveyed and marked before construction of the development commences. The boundary is to be based on the maximum extent of large pre mining specimens of dune forest species and the understory that is predominantly free of rehabilitation species and weeds

- The outer edge of development disturbance should be brought further into the mined land, providing a buffer of approximately 10 metres from the undisturbed land

- Construction traffic and other maintenance vehicles are to stay out of the undisturbed dune forest.

- All persons working on site that are involved in ground disturbing works should be made aware that it is an offence under Section 86 of the NPW Act to harm or desecrate an Aboriginal object unless that harm or desecration is the subject of an approved Aboriginal Heritage Impact Permit (AHIP).

- In the unlikely event that an Aboriginal object is identified whilst carrying out works within the project area, all activities in the immediate vicinity of the identified Aboriginal object should cease and a suitably qualified Worimi LALC sites officer should mark the location, obtain GPS coordinates and notify OEH cultural heritage staff at the earliest possible opportunity. If an Aboriginal object is identified within the development footprint at any time, work must cease and application for an AHIP will be required. Further cultural heritage investigations may be required to support the AHIP application.

- Umwelt has consulted with OEH to resolve the site record for site 38-4-0057 that indicates that a large site remains within the project area. The physical evidence and records of mineral sand mining disturbance in this area indicate that it is highly unlikely that any part of this site now exists. This is further supported by Sullivan's 1980 report which indicates that consent to destroy the site would be sought and also highlights the deterioration in the condition of the site between 1970 and 1980. Part of site 38-4-0057, also included in the AHIMS data base as 38-4-0302, is retained outside the mined area and also outside the proposed development area. These site records must be reconciled before the development can proceed.

  As a result of consultation with OEH, an Aboriginal Site Impact record (ASIR) has been prepared for site 38-4-0057. OEH regional officers have submitted the ASIR to the registrar of AHIMS with a recommendation that the site record be updated. Copies of the ASIR and the relevant correspondence are included in **Appendix 1**.

3.0 References

Dean-Jones P, 1990. Newcastle Bight Aboriginal Sites Study. Report to NPWS and National Estate Grants Committee.

DECCW 2010. Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW South Wales.

Dyall L, 1975. Report on Aboriginal sites near Newcastle. Report to NPWS.

EPS, 2018. Eco-tourism facility on Lot 227 DP1097995, Statement of Environmental Effects.

NPWS and Board of the Worimi Conservation Lands 2016. Plan of Management for the Worimi Conservation Lands.

Starling J, 1974. A survey of the Aboriginal sites on the north coast of NSW (based on field work in 1970/71). Unpublished report to NPWS.

Sullivan ME, 1980. An investigation of an archaeological site at Stockton Bight. Report to NPWS.

Thom BG, Shepherd M, Ly CK, Bowman GM and Hesp P, 1992. Coastal geomorphology and Quaternary geology of the Port Stephens Myall lakes area. Department of Biogeography and Geomorphology, ANU, Monograph 6.

APPENDIX 1

Information provided to OEH about Site 38-4-0057

Site 38-4-0057 (Macs 1/Freshwater Lagoons) at Lavis Lane, Williamtown.

Information for OEH

Purpose

To provide information demonstrating that part of site 38-4-0057 was destroyed by mineral sand mining between 1986 and 1992. This part of the site was located within land now owned by Worimi Local Aboriginal Land Council. The Land Council proposes a tourist development on the site of the former mineral sand mine.

Background

This site was a very large open campsite and midden deposit, with two main areas. It was originally recorded by Starling 1974 and by Len Dyall in 1975. Further detail was provided by Sullivan 1980 after a targeted site inspection with Mineral Deposits Limited (MDL).

At the time, MDL was proposing mineral sand mining operations that would impact on part of site 38-4-0057. Sullivan 1980 states that the purpose of the site inspection was to describe and assess a site known to be within the mine path and that MDL intended to apply for a section 90 Consent to Destroy.

Sullivan distinguished two distinct areas of site 38-4-0057:

- **Part A of 38-4-0057**. This is the area recorded by Starling 1974 as stratified midden. By 1980, none of the original stratified midden remained. The site had been severely deflated and visible artefacts were all sand blasted. Starling's site had several different exposures – but all were considered to be part of one site around the seepages at Freshwater Lagoons. There were some remaining exposures of the A horizon of the dune podsol, related to the former stable dune surface.

  This site area was within the proposed mineral sand mine path. Sullivan 1980 recommended that this part of the site could be permitted to be destroyed, subject to MDL demonstrating that no other large sites were located in the mine path and that consideration be given to some form of archaeological salvage.

- **Part B of site 38-4-0057**. This area was recorded by Dyall in 1975. It consisted of stratified deposit, about 40cm thick and included both beach shell and estuary shell. It was situated on a 'back dune' landform, adjacent to the floodplain wetlands and thus provided access to diverse resources. Sullivan 1980 notes that Dyall 'grid sampled' part of the site in 1975 and that a detailed description of the abundant worked stone was available in the NPWS file in 1980. This site has the appearance of long and intensive use by Aboriginal people. Sullivan shows Part 'B' as being located on the landward margin of the high dune complex and approximately 80 metres outside the edge of the proposed mineral sand mine path. She recommended that the site recorded by Dyall 1975 should be protected and suggested a range of conservation measures.

  The location described and sampled by Dyall was also inspected by Dean-Jones in 1990 (identified as Site 38-4-0302, Williamtown 2). It is outside the mineral sand mining area and was described as being located about 400m north west of the grid reference for 38-4-0057 (Starling's original grid reference), on a low bench (back barrier flat) above the estuary wetlands of the inter-barrier depression.

Current situation

The part of site 38-4-0057 identified by Starling's grid reference was disturbed by mineral sand mining to a depth of more than 4 metres between 1986 and 1992. The site would have been completely destroyed by the mining process. Landforms within the mine path have been reshaped post-mining. Neither the site nor its natural terrain context now exists.

It is understood that Part B of site 38-4-0057 (also recorded by Dean-Jones 1990 as site Williamtown 2) is still present, outside the boundary of the mined area. This portion of the site is also recorded on AHIMS as site 38-4-0302, which remains listed as a valid site.

The AHIMS register continues to show site 38-4-0057 as a 'valid' site. It is not known if a section 90 application was submitted or approved in the 1980s, or if salvage occurred, but the site card has not been updated.

Proposed action

It is requested that OEH update the records for site 38-4-0057 to be consistent with the history of site management:

- Part of site 38-4-0057 was recorded was by Dyall 1975 and was located outside the MDL mine path This portion of the site is the subject of an additional site record (38-4-0302), which remains a valid site. The portion of 38-4-0057 that was originally recorded as Part B therefore remains registered on AHIMS as an extant site (being 38-4-0302). Given that this extant portion of the site is protected within another site recording, and the remaining portion of site 38-4-0057 was within the MDL mine path and has been destroyed, the AHIMS register should be adjusted to list site 38-4-0057 as destroyed.

From: Nicole Davis <Nicole.Davis@environment.nsw.gov.au>
Sent: Monday, 29 April 2019 12:41 PM
To: Nicola Roche
Cc: Pam Dean-Jones
Subject: RE: AHIMS register adjustment - Site 38-4-0057

Hi Nic,

That's looks fine. Were you going to fill out a SIRF? Sorry I cannot remember. But I am happy to forward into AHIMS supporting the change in status. Just let me know re the SIRF.

Cheers Nic

Nicole Davis
Archaeologist - Planning
Hunter Central Coast Branch
Conservation and Regional Delivery Division

26 Honeysuckle Drive, Newcastle 2300
Locked Bag 1002, Dangar 2309
T 02 4927 3156 **M** 0409 394 343

From: Nicola Roche <nroche@umwelt.com.au>
Sent: Wednesday, 24 April 2019 4:38 PM
To: Nicole Davis <Nicole.Davis@environment.nsw.gov.au>
Cc: Pam Dean-Jones <pdean-jones@umwelt.com.au>
Subject: AHIMS register adjustment - Site 38-4-0057

Hi Nicole,

Please find attached information relating to a proposed adjustment to the AHIMS register, as discussed.

Happy to discuss at any stage.

Cheers
Nic

Nicola Roche
Manager Cultural Heritage

Umwelt (Australia) Pty Limited
75 York Street
Teralba, NSW 2284

Phone: (02) 4950 5322
Mobile: 0427 125 685

www.umwelt.com.au

From: Nicole Davis <Nicole.Davis@environment.nsw.gov.au>
Sent: Wednesday, 15 May 2019 1:41 PM
To: CCHD Information Systems & Assessment Mailbox
Cc: Nicola Roche; Pam Dean-Jones
Subject: FW: ASIR form for site destroyed by sand mining
Attachments: ASIR_38-4-0057.pdf

Hi AHIMS folks,

Please find attached an ASIR form for # 38-4-0057.

I can concur that the site is not longer extant and was most likely has been destroyed by sand mining / erosion.

Could you please update the site card and the sites status to *destroyed* when convenient. If you could confirm when completed, that would be greatly appreciated.

Please don't hessite to contact me should you require any further clarification or information.

Cheers Nicole

Nicole Davis
Archaeologist - Planning
Hunter Central Coast Branch
Conservation and Regional Delivery Division

26 Honeysuckle Drive, Newcastle 2300
Locked Bag 1002, Dangar 2309
T 02 4927 3156 **M** 0409 394 343

From: Nicola Roche <nroche@umwelt.com.au>
Sent: Tuesday, 14 May 2019 5:46 PM
To: Nicole Davis <Nicole.Davis@environment.nsw.gov.au>
Cc: Pam Dean-Jones <pdean-jones@umwelt.com.au>
Subject: ASIR form for site destroyed by sand mining

Hi Nicole,

As discussed, please find attached an ASIR form for site 38-4-0057 noting that the site has been destroyed by sand mining.

Should you wish to discuss, please don't hesitate to give me a call.

Cheers
Nic

Nicola Roche
Manager Cultural Heritage

Umwelt (Australia) Pty Limited
75 York Street

Teralba, NSW 2284

Phone: (02) 4950 5322
Mobile: 0427 125 685

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Aboriginal Site Impact Recording Form

AHIMS Registrar
PO Box 1967, Hurstville 2220 NSW
April 2012 OEH 2012/0558

1 This form must be completed following impacts to AHIMS sites that are:
   a) a result of test excavation carried out in accordance with the *Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW*
   b) authorised by an Aboriginal Heritage Impact Permit (AHIP) issued by the Office of Environment and Heritage (OEH)
   c) undertaken for the purpose of complying with Director General's Requirements issued by the Department of Planning and Infrastructure (DP&I) for:
      - State Significant Development (SSD - Part 4),
      - State Significant Infrastructure (SSI - Part 5.1), or
      - A Major Project (Part 3A - now repealed) under the *Environmental Planning and Assessment Act 1979 (EP&A Act)*, or
   d) authorised by a SSD/SSI/Part 3A consent/approval under the EP&A Act.
2 Completed forms must be submitted to the AHIMS Registrar (www.environment.nsw.gov.au/contact/AHIMSRegistrar.htm).
3 This form is intended to complement (not replace) the AHIMS Site Recording Form. Where there is a need to provide detailed information about the nature of a site, use the AHIMS Site Recording Form.
4 This form does not replace the need to submit reports to OEH (as a condition of an AHIP or SSD/SSI/Part 3A consent/approval) This form must be submitted in addition to any reports.

AHIMS site ID: 38-4-0057

Site impact authorisation (select one)	**Reference numbers, dates**
☐ Archaeological Code (The impacts to this site were the result of test excavation carried out in accordance with the *Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW.*)	Date OEH was notified (under requirement 15c of the Code): OEH Regional office notified:
☐ AHIP (The impacts to this site were authorised by an AHIP.)	AHIP number: Date issued/signed: AHIMS permit ID/number:
☐ SSD/SSI/Part 3A application (The impacts to this site were undertaken for the purposes of complying with Director General's Requirements issued by the DP&I ☐ SSD/SSI/Part 3A approved project (The impacts to this site were authorised by a consent/approval under Parts 4/5.1/3A of the EP&A Act.)	Project number: Date Director General's Requirements issued: or Date of project approval:

Site status following impacts:

- ☐ Not a site (The investigations concluded that this is not a site.)
- ☐ Valid site (The investigations confirmed that this is an Aboriginal site.)
- ☐ Partially destroyed (The site was partially destroyed following authorised impacts; a portion of the site remains in situ.)
- ☒ Destroyed (The site was completely destroyed following authorised impacts.)

Geographic location

Site name: Macs1/Freshwater Lagoons

Easting: **Northing:** **Coordinates must be in GDA (MGA)**

Map sheet:

Zone: 56 **Location method:** Topographic Map

Primary recorder

(The person responsible for the completion and submission of this form)

Title	Surname	First name
Mr	Dyall	Len

Organisation:

Address:

Phone: **E-mail:**

Date recorded: 04/08/1975 **Fax:**

Site information

Open/closed site: Open

Features:

- [ ] 1. Aboriginal ceremony and dreaming
- [ ] 2. Aboriginal resource and gathering
- [ ] 3. Art
- [ ] 4. Artefact
- [ ] 5. Burial
- [ ] 6. Ceremonial ring
- [ ] 7. Conflict
- [ ] 8. Earth mound
- [ ] 9. Fish trap
- [ ] 10. Grinding groove
- [ ] 11. Habitation structure
- [ ] 12. Hearth
- [ ] 13. Non-human bone and organic material
- [ ] 14. Ochre quarry
- [ ] 15. Potential archaeological deposit
- [ ] 16. Stone quarry
- [ ] 17. Shell
- [ ] 18. Stone arrangement
- [ ] 19. Modified tree
- [ ] 20. Water hole

Site condition

Written description of the condition of the AHIMS site (including relevant features) following the authorised impact of the site

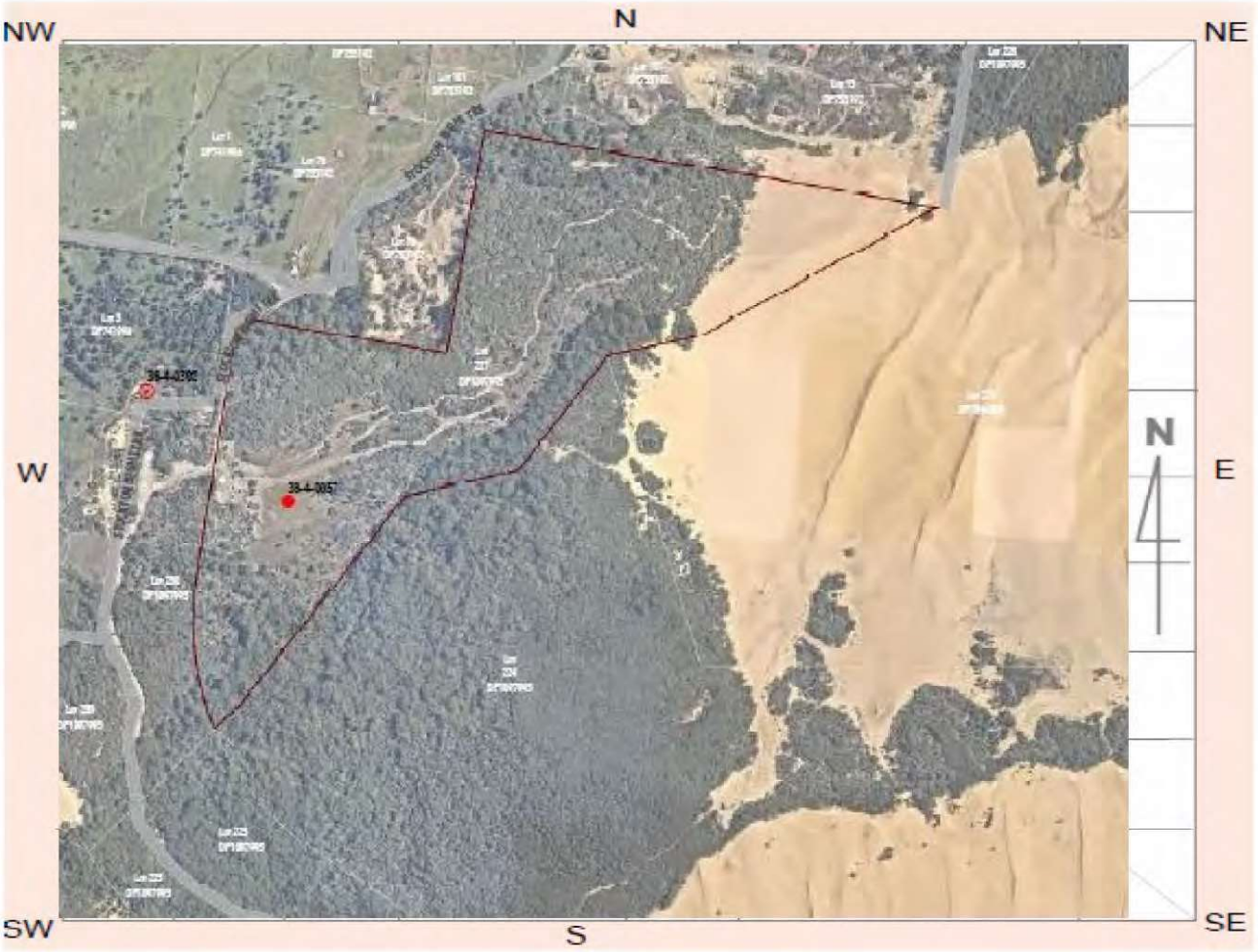
The site was originally recorded (by Starling 1974 and Dyall 1975) as a large open campsite and midden with two main areas. Sullivan (1980) reviewed the site and identified 2 areas- part A as recorded by Starling and Part B as recorded by Dyall.

Part A was formerly a stratified midden distributed around Freshwater Lagoons. By 1980 it had been severely deflated and visible artefacts were sandblasted. Sullivan (1980) identified that the site was within the proposed MDL mine path and recommended that this part of the site could be permitted to be destroyed, subject to MDL demonstrating that no other large sites were located in the mine path and that consideration be given to some form of archaeological salvage. Part B consisted of stratified deposits about 40cm thick on a 'back dune' landform, adjacent to the floodplain wetlands and thus provided access to diverse resources. Sullivan (1980) noted that Dyall 'grid sampled' part of the site in 1975 and that a detailed description of the abundant worked stone was available in the NPWS file in 1980, which indicated that the site appeared to have been subject to long and intensive use by Aboriginal people. Sullivan shows Part 'B' as being located on the landward margin of the high dune complex and approximately 80 metres outside the edge of the proposed mineral sand mine path. She recommended that the site recorded by Dyall 1975 should be protected and suggested a range of conservation measures. The area containing Part B was also inspected by Dean-Jones in 1990 (identified as Site 38-4-0302, Williamtown 2). It is outside the mineral sand mining area and was described as being located about 400m north west of the grid reference for 38-4-0057 (Starling's original grid reference), on a low bench (back barrier flat) above the estuary wetlands of the inter-barrier depression.

The area containing Part A was disturbed by mineral sand mining to a depth of more than 4 metres between 1986 and 1992. The site would have been completely destroyed by the mining process. Landforms within the mine path have been reshaped post-mining. Neither the site nor its natural terrain context now exists.

Site map

Clearly demarcate the original AHIMS site boundary, show the boundaries of impacted areas and the areas where the site remains in situ. Display map coordinates.



Methodology and results

Summary of the methodology and results of the activity or works undertaken through the authorised impacts, as relevant to the AHIMS site

There is no record of archaeological salvage being undertaken at the site.

Management recommendations

Summary of any management recommendations for the AHIMS site

It is requested that OEH update the records for site 38-4-0057 to be consistent with the history of site management:

Part of site 38-4-0057 was recorded was by Dyall 1975 and was located outside the MDL mine path. This portion of the site is the subject of an additional site record (38-4-0302), which remains a valid site. The portion of 38-4-0057 that was originally recorded as Part B therefore remains registered on AHIMS as an extant site (being 38-4-0302).
Given that this extant portion of the site is protected within another site recording, and the remaining portion of site 38-4-0057 was within the MDL mine path and has been destroyed, the AHIMS register should be adjusted to list site 38-4-0057 as destroyed.

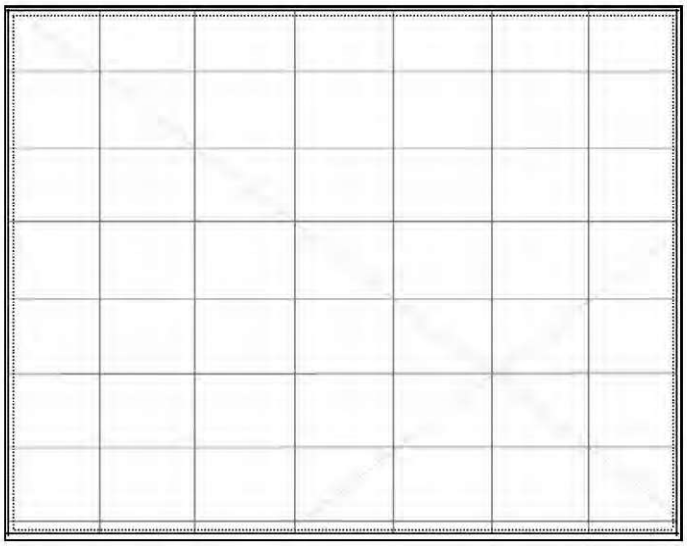
Post-investigation significance

Discuss if the scientific/archaeological or cultural significance of the site has changed in light of the results of the investigations or works conducted at the site.

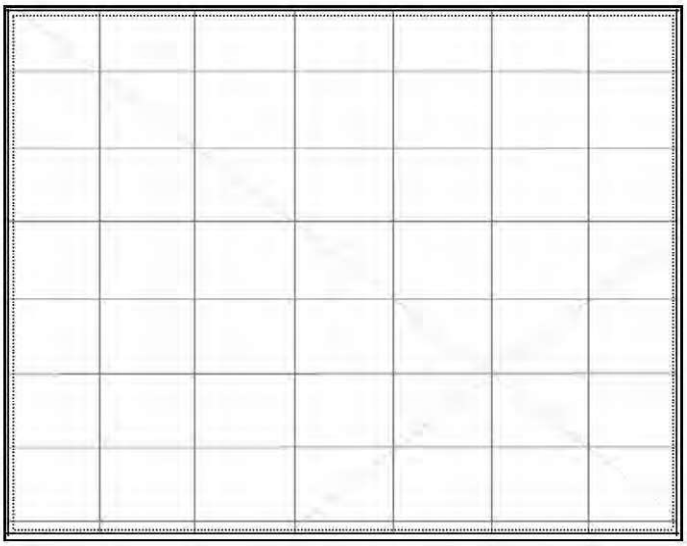
Additional comments

Site photographs

Include photographs of the authorised impacts activity, as relevant to the AHIMS site. Please keep photo size to a maximum of 200 kb.



Description:



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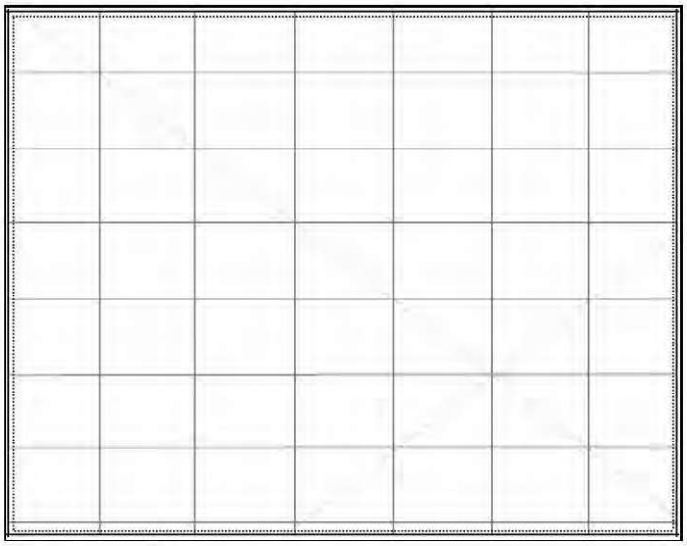

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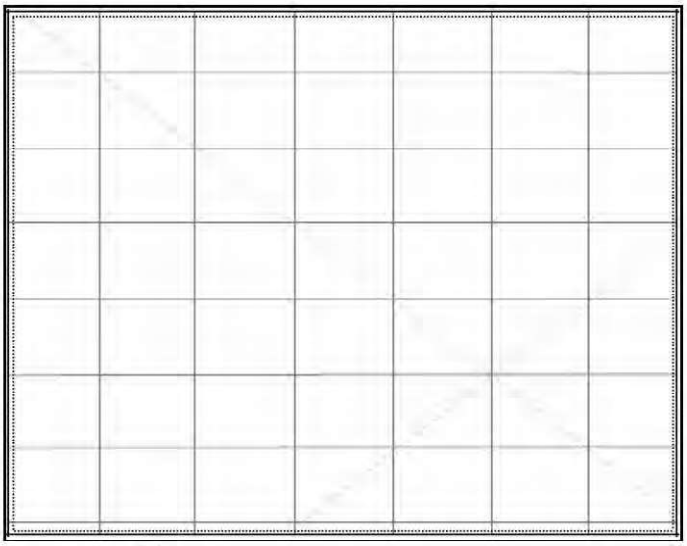

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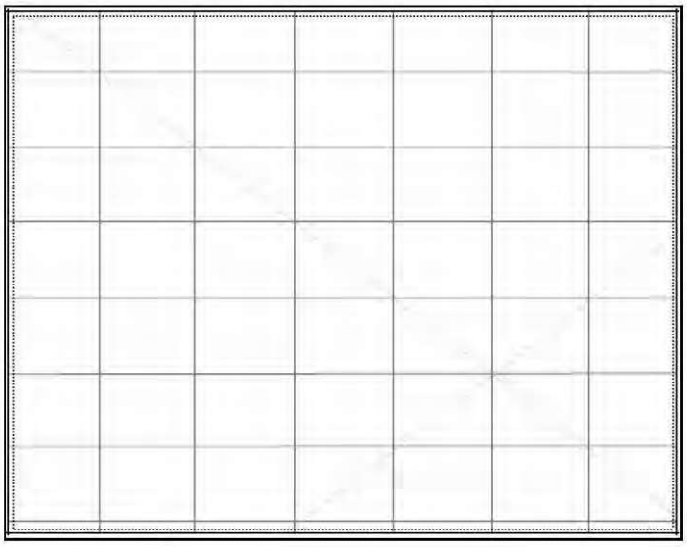

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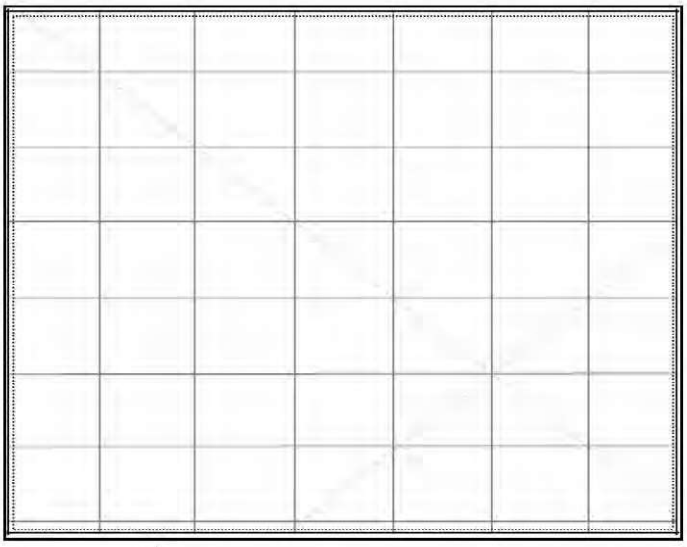

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