



WALLSEND REZONING
Aboriginal Heritage Study

Prepared for Eden Estates

Newcastle and Lake Macquarie Local Government Areas

December 2020

Ref. 2012

KELLEHER NIGHTINGALE CONSULTING PTY LTD
Archaeological and Heritage Management
ACN 120 187 671

Level 10, 25 Bligh St
SYDNEY NSW 2000
Phone 02 9232 5373

Document Information

Project Name	Wallsend Rezoning: Aboriginal Heritage Study
Project Number	2012
Version	Final v1
Client Name	Eden Estates
Recipient	Trevor Jensen
Issue Date	December 2020
Prepared by	Dr Matthew Kelleher; Mark Rawson; Cristany Milicich; Shezani Nasoordeen
Approved by	Dr Matthew Kelleher

Executive Summary

Eden Estates is currently undertaking investigations regarding the urban development potential of recently acquired lands at Wallsend, near Newcastle, NSW. Findings will inform a planning proposal to support rezoning and eventual development. The subject land (referred to as the 'study area') is approximately 592 hectares in size and is located across the suburbs of Wallsend, Elermore Vale, Glendale, Cameron Park and Edgeworth and straddles the boundary between the Newcastle and Lake Macquarie Local Government Areas. The area is bisected by the Newcastle Link Road, which runs approximately east-west through the central part of the study area. The land was previously owned by The Newcastle Wallsend Coal Company Pty Ltd and was the site of the Gretley Coal Mine that ceased operations in late 2002.

The study area is currently zoned part E4 (Environmental Living), part SP2 (Infrastructure) and part R2 (Low Density Residential) under the Newcastle Local Environment Plan (LEP) 2012 and part RU6 (Transition), part SP2 (Infrastructure) and part E4 (Environmental Living) under the Lake Macquarie LEP 2014. Rezoning would seek to allow for mixed density residential development of the study area, as well as some commercial, educational and open space uses and provision of associated infrastructure. An indicative structure plan has been prepared to support rezoning.

Eden Estates engaged Kelleher Nightingale Consulting Pty Ltd to complete an Aboriginal heritage study of the Wallsend study area to identify Aboriginal heritage opportunities and constraints early in the project, to plan for and allow for the effective management of Aboriginal heritage in the rezoning and future development of the site.

Background research, desktop assessment and archaeological visual inspection identified a total of 15 Aboriginal archaeological sites and five areas of Potential Archaeological Deposit (PAD) within the study area. Sites and PADs occurred in all landform contexts and comprised a variety of types including open artefact sites, grinding grooves, a possible raw material extraction site, modified trees, and potential subsurface artefact deposit.

A three-level model of archaeological sensitivity (high, moderate, low) was developed for the study area using data on site distribution, environmental factors, archaeological context and existing landscape disturbance. Consideration of this model and the location of known sites against the indicative structure plan indicates that some level of impact to Aboriginal heritage is likely if the area is subject to development. The act and process of rezoning does not affect or impact Aboriginal objects in and of itself, and a detailed impact assessment does not form part of this study; however, rezoning enables subsequent development and land use that may potentially impact on objects, archaeological sites, and areas of Aboriginal cultural heritage value. Development of the masterplan should take Aboriginal heritage into account and seek to avoid or minimise impact wherever possible.

More detailed impact assessment and significance assessment will be required for the study area. Further assessment should be undertaken in accordance with Heritage NSW guidelines and requirements. It should include consultation with Aboriginal people and organisations in accordance with the *Aboriginal cultural heritage consultation requirements for proponents 2010*. Specific management recommendations (including mitigation, if required) may then be formulated for Aboriginal cultural heritage within the study area.

Contents

CONTENTS	III
FIGURES	IV
TABLES	IV
1 INTRODUCTION	1
1.1 PROJECT BACKGROUND	1
1.2 SUMMARY OF FINDINGS.....	1
1.3 INVESTIGATORS AND CONTRIBUTORS	2
2 ABORIGINAL COMMUNITY CONSULTATION	6
3 LANDSCAPE CONTEXT	7
4 ARCHAEOLOGICAL CONTEXT	9
4.1 DATABASE SEARCH (AHIMS) AND KNOWN INFORMATION SOURCES.....	9
4.1.1 <i>AHIMS web services</i>	9
4.1.2 <i>Other heritage registers and databases</i>	9
4.2 PREVIOUSLY RECORDED ABORIGINAL ARCHAEOLOGICAL SITES.....	11
4.2.1 <i>Sites within the study area</i>	11
4.2.2 <i>Sites within 50 metres</i>	12
4.2.3 <i>Summary</i>	13
4.3 PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS	15
5 REGIONAL CHARACTER	22
5.1 SITE PREDICTIONS	22
6 VISUAL INSPECTION	24
6.1 SAMPLING STRATEGY	24
6.2 FIELD METHODS	24
6.3 RESULTS	25
6.3.1 <i>Newly identified Aboriginal archaeological sites</i>	28
6.3.2 <i>Potential archaeological deposits</i>	36
6.4 SUMMARY	38
7 ASSESSMENT OF ARCHAEOLOGICAL SENSITIVITY	40
8 DISCUSSION	42
9 INDICATIVE STRUCTURE PLAN	43
10 LEGISLATIVE CONSIDERATIONS	46
11 MANAGEMENT STRATEGIES AND POLICIES	47
12 CONCLUSIONS AND RECOMMENDATIONS	50
REFERENCES	51
APPENDIX A AHIMS EXTENSIVE SEARCH RESULTS	53

Figures

Figure 1. Study area location	3
Figure 2. Detail of the study area.....	4
Figure 3. Wallsend rezoning – preliminary structure plan.....	5
Figure 4. Previously registered Aboriginal sites (AHIMS search results).....	10
Figure 5. Previously registered AHIMS sites, as amended, showing corrected locations for 38-4-1284, -1285 and -1286 (now outside the study area).....	14
Figure 6. Identified Aboriginal archaeological sites within the study area – AHIMS and visual inspection results	39
Figure 7. Assessed archaeological sensitivity within the study area (moderate sensitivity shown no colour).....	41
Figure 8. Indicative structure plan and identified archaeological sites/PADs.....	44
Figure 9. Indicative structure plan and areas of archaeological sensitivity (moderate sensitivity shown no colour)	45

Tables

Table 1. Investigators/Contributors	2
Table 2. Frequency of site features from AHIMS database search	9
Table 3. Artefacts recorded at WR Brush Creek AFT 1.....	28
Table 4. Artefacts recorded at WR Brush Creek AFT 2.....	29
Table 5. Sample artefact recorded at WR Brush Creek AFT 3.....	30
Table 6. Artefacts recorded at WR Maryland Creek AFT 1.....	31
Table 7. Artefact recorded at WR Link Rd North AFT 1.....	32
Table 8. Artefact recorded at WR Link Rd North AFT 2.....	33
Table 9. Identified Aboriginal archaeological features of the study area	42
Table 10. Identified Aboriginal archaeological features and indicative structure plan	43

1 Introduction

1.1 Project background

Eden Estates is currently undertaking investigations regarding the urban development potential of recently acquired lands at Wallsend, near Newcastle, NSW. Findings will inform a planning proposal to support rezoning and eventual development. The subject land (hereafter referred to as the 'study area') is approximately 592 hectares in size and is located across the suburbs of Wallsend, Elmore Vale, Glendale and Edgeworth and straddles the boundary between the Newcastle and Lake Macquarie Local Government Areas (LGAs).

The area is bisected by the Newcastle Link Road, which runs approximately east-west through the central part of the study area. The land was previously owned by The Newcastle Wallsend Coal Company Pty Ltd and was the site of the Gretley Coal Mine that ceased operations in late 2002. The location of the study area is shown in Figures 1 and 2.

The study area is currently zoned part E4 (Environmental Living), part SP2 (Infrastructure) and part R2 (Low Density Residential) under the Newcastle Local Environment Plan (LEP) 2012 and part RU6 (Transition), part SP2 (Infrastructure) and part E4 (Environmental Living) under the Lake Macquarie LEP 2014. Rezoning would seek to allow for mixed density residential development of the study area, as well as some commercial, educational and open space uses and provision of associated infrastructure. A preliminary structure plan for the proposed rezoning is shown in Figure 3.

Eden Estates engaged Kelleher Nightingale Consulting Pty Ltd (KNC) to complete an Aboriginal heritage study of the Wallsend study area to identify Aboriginal heritage opportunities and constraints early in the project, to plan for and allow for the effective management of Aboriginal heritage in the rezoning and future development of the site.

The Aboriginal heritage study included background research, desktop assessment and an archaeological field inspection. The study has been undertaken with reference to Heritage NSW (formerly Office of Environment and Heritage (OEH)) requirements and guidelines, including:

- *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (OEH 2010a)
- *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (OEH 2010b)

Other relevant documents which have informed the development of management recommendations for Aboriginal heritage within the study area include:

- Draft Newcastle Heritage Strategy 2020-2030
- City of Newcastle Aboriginal Heritage Management Strategy 2018-2021
- City of Newcastle Heritage Policy (2013)
- Newcastle Local Government Area Aboriginal Heritage Study (AMBS 2005)
- Lake Macquarie Aboriginal Heritage Management Strategy (2011)

1.2 Summary of findings

Background research, desktop assessment and archaeological visual inspection identified a total of 15 Aboriginal archaeological sites and five areas of Potential Archaeological Deposit (PAD) within the study area. Sites and PADs occurred in all landform contexts and comprised a variety of types including open artefact sites, grinding grooves, a possible raw material extraction site, modified trees, and potential subsurface artefact deposit.

A three-level model of archaeological sensitivity (high, moderate, low) was developed for the study area using data on site distribution, environmental factors, archaeological context and existing landscape disturbance. Consideration of this model and the location of known sites against the indicative structure plan indicates that some level of impact to Aboriginal heritage is likely if the area is subject to development. The act and process of rezoning does not affect or impact Aboriginal objects in and of itself, and a detailed impact assessment does not form part of this study; however rezoning enables subsequent development and land use that may potentially impact on objects, archaeological sites, and areas of Aboriginal cultural heritage value. Development of the masterplan should take Aboriginal heritage into account and seek to avoid or minimise impact wherever possible. More detailed impact assessment and significance assessment would be required following development of a draft masterplan and prior to any development occurring. Specific management recommendations (including mitigation, if required) may be formulated at that time.

Further assessment should be undertaken in accordance with Heritage NSW guidelines and requirements. It should include consultation with Aboriginal people and organisations in accordance with the *Aboriginal cultural heritage consultation requirements for proponents 2010* (OEH 2010c).

1.3 Investigators and contributors

The study has been undertaken by the people in the following table.

Table 1. Investigators/Contributors

Investigator/Contributor	Affiliation	Role
Matthew Kelleher	KNC	Advisor, survey, reporting and review
Mark Rawson	KNC	Survey, reporting
Pete Townsend	LALC	Survey, cultural heritage advice
Cristany Milicich	KNC	Reporting
Shezani Nasoordeen	KNC	GIS mapping



Figure 1. Study area location

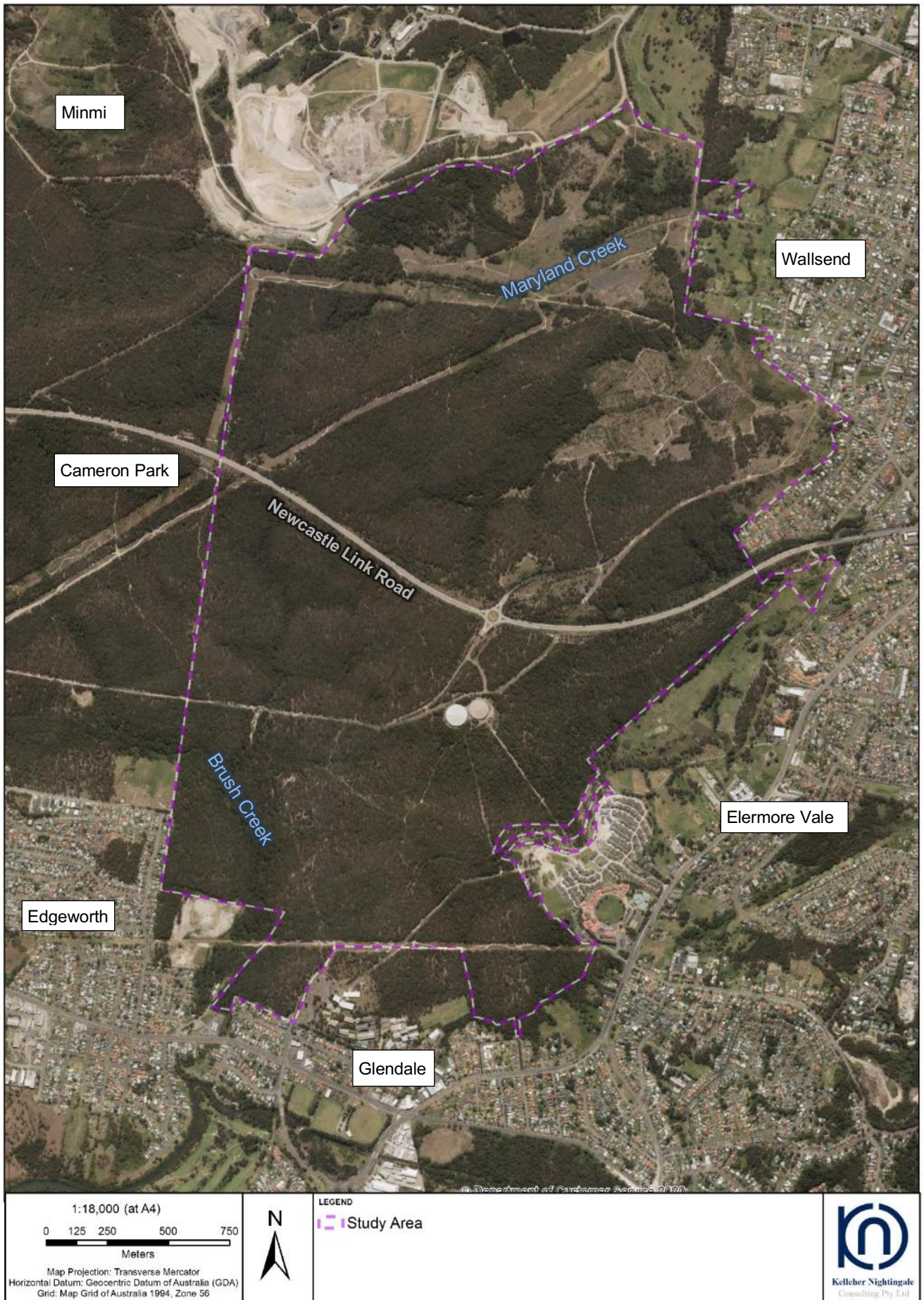


Figure 2. Detail of the study area

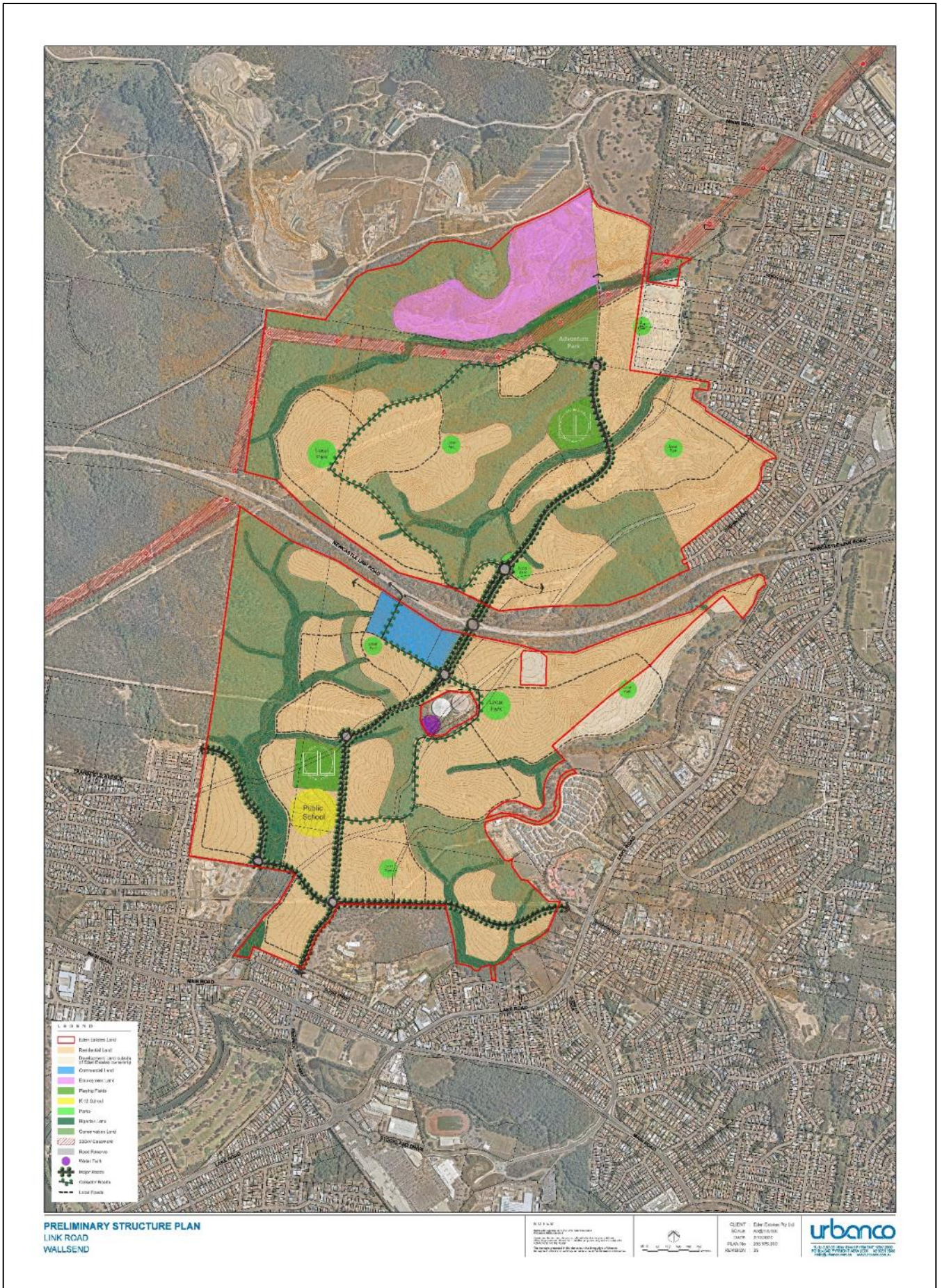


Figure 3. Wallsend rezoning – preliminary structure plan

2 Aboriginal Community Consultation

The Aboriginal heritage study was undertaken in consultation with Awabakal Local Aboriginal Land Council (LALC) whose boundaries covered the study area. Awabakal LALC was contacted at the commencement of the project to discuss the potential rezoning and heritage study and was invited to participate in site investigations. Land Council representative Pete Townsend participated in the archaeological survey and provided some initial feedback on Aboriginal cultural heritage values for the study area which has been integrated into the study findings.

Future investigations of the study area should include a full consultation process with the Aboriginal community in accordance with the *Aboriginal cultural heritage consultation requirements for proponents 2010* (OEH 2010c).

3 Landscape Context

The study area is located within the Lower Hunter Valley, a northern physiogeographic region of the Sydney Basin. The Sydney Basin is a large geological feature that stretches from Batemans Bay to Newcastle and west to Lithgow. The formation of the basin began between 300 to 250 million years ago when river deltas gradually replaced the ocean that had extended as far west as Lithgow. The study area is positioned across the boundary between two sub-bioregions of the Sydney Basin. The Wyong subregion extends to the south and comprises the coastal fall of the Sydney Basin with rolling hills and sandstone plateau outliers. Beaches, dunes and lagoons of the coastal barrier complexes are interspersed with coastal cliffs and rock platforms (National Parks and Wildlife Service (NPWS) 2003). To the north west, the Hunter subregion landscape is dominated by rolling hills, wide valleys, and the meandering Hunter River system on a wide flood plain.

The oldest, Permian layers of the Sydney Basin consist of marine, alluvial and deltaic deposits that include shales and mudstone overlain by coal measures. The underlying geology of the study area is predominantly formed from subgroups of the Newcastle Coal Measures (Hawley et al 1995), predominantly the Adamstown Subgroup (Pna) comprising massive conglomerate, sandstone, siltstone, coal and tuff. The elevated landforms in the north east of the study area are underlain by slightly older Lambton Subgroup (Pnl) geology, characterised by sandstone, siltstone, claystone, coal and tuffaceous sandstone. A small area mapped as the Boolaroo Subgroup (Pnb) extends into the western part of the study area comprising sandstone, conglomerate, siltstone, coal and tuff. Minor shales also occur within the underlying geologies. The southern portion of the study area is characterised by more recent deposits of Quaternary Alluvium (Qa) comprising gravel, sand, silt and clay deposited in association with fluvial action along Brush Creek and a small tributary of Winding Creek to the south of the study area.

Surface outcrops of raw materials occur throughout these geological units, including fine-grained siliceous materials suitable for the creation of stone tools. The Hunter River is also a source of fine-grained siliceous stone, including silcrete and mudstone (tuff), available as cobbles derived from sources all along its length (Australian Museum Business Services (AMBS) 2005). Although much of this material is now buried, suitable cobbles may have been available from conglomerate outcrops subject to weathering on former river terraces and abandoned channels. The major stone materials known to occur within the Newcastle LGA are tuff and silcrete, with minor frequencies of quartz, fossilised wood, chert, porcellanite and local volcanics (Hughes 1984), which is reflected in the composition of local archaeological assemblages. Coarser materials such as sandstone were used for grinding and shaping axes/hatchets and processing food.

Soil landscapes are closely related to the underlying geology and topography of the study area. The predominant soil type is the Killingworth erosional soil landscape which occurs on undulating to rolling hills and low hills on the Newcastle Coal Measures of the Awaba Hills region (Matthei 1995). Elevation ranges from 50–160 m, with local relief 30–100 metres and slopes from 3–20%. Soils include shallow to moderately deep Yellow Podzolic Soils, yellow Soloths, Gleyed Podzolic soils and gleyed Soloths on crests and slopes. Structured Loams, Bleached Loams and Lithosols are also present on some crests. Killingworth soils are susceptible to moderate sheet erosion in cleared areas, and topsoil has often been completely removed. Minor to moderate gully erosion occurs along unsealed tracks and in other disturbed areas, while exposed batters suffer from slumping and rill erosion. Rock outcrop also occurs. Archaeological potential for the Killingworth soil landscape is strongly dependent on topography and the extent of disturbance including erosion of A unit soils.

The steeper slopes and gullies incising the north eastern part of the study area are occupied by the colluvial Cedar Hill soil landscape, which occurs on steep upper slopes on the rolling to steep rises on siltstones and sandstones in the Awaba Hills and Sugarloaf Range. Local relief is up to 100 metres, elevation is up to 100 metres, and slopes are 15–40%. Soil materials comprise moderately deep to deep well to imperfectly drained Brown Podzolics, Yellow Podzolics and Structured loams. Extensive slumping occurs on steep unprotected batters while moderate sheet and gully erosion occurs on steep, cleared upper slopes. Tunnel erosion of the subsoil is also evident in some areas. This soil landscape also displays mass movement and water erosion hazards. Archaeologically, Cedar Hill soils are generally not conducive to the survival of Aboriginal objects in situ, but archaeological potential is increased where suitable topography has remained intact and erosion rates are low, or where these occur within rockshelters which have accumulated deposit.

The southern portion of the study area contains soils of the Warners Bay (residual) and Gateshead (erosional) soil landscapes. Warners Bay soils are present in the south west, occurring on the undulating to rolling low hills and rises on fine-grained sediments of the Newcastle Coal Measures. Local relief is 30–80 metres, slope gradients 3–20% and elevation to 80 metres. The soils comprise moderately deep to deep, imperfectly to poorly drained Gleyed Podzolic Soils, moderately well-drained Yellow Podzolic Soils and yellow Soloths, with moderately deep, poorly drained Structured Loams in drainage lines. Archaeological potential of this soil landscape is moderate, depending on topography and the extent of landscape disturbance on areas which topographically have more often been a focus of European land use compared to the steeper landforms described above.

Erosional Gateshead soils occur to the east, on the slightly more elevated rises. Soils comprised Yellow Podzolics and Soloths with some Lithosols. Red Podzolics and Soloths occur on shale parent material. Steeper slopes and shallower soils limit archaeological potential.

The study area also contains two large areas in the north and east mapped as 'Disturbed Terrain'. These areas are associated with the former Gretley Coal Mine and have been extensively and severely disturbed by previous land use. Original landforms and soils have been completely removed or disturbed to an extent that no archaeological potential for intact deposit remains. Original vegetation has been completely cleared and replaced by plantings during post-mining rehabilitation. A large section of Maryland Creek has also been altered via diversion and rehabilitation works.

Hydrology within the study area is generally characterised by headwater tributaries with two larger creeks. Maryland Creek runs south-west to north-east across the northern part of the study area, running to Ironbark Creek and the Hexham Swamp to the north-east before eventually joining the Hunter River. A smaller tributary network runs through steep gullies in the west and the rehabilitated former mine area to the east. Both Maryland Creek and some tributaries have been modified in sections. The ridgeline occupied by the Newcastle Link Road forms part of the watershed dividing the catchments of the Hunter River to the north and Lake Macquarie to the south. The south western part of the study area contains the headwaters and main drainage line of Brush Creek which runs south to its confluence with Winding Creek just south of Main Road. Headwaters to the south of the ridge spur occupied by the Hunter Water reservoir also drain to Winding Creek, while those to the east run north east to Ironbark Creek.

The study area predominantly comprises undeveloped land, formerly owned by the Newcastle Wallsend Coal Company (a subsidiary of Glencore) and the site of the Gretley Coal Mine which ceased operations in 2002. The main mining areas were miniwall operations targeting the Dudley and Young Wallsend seams in the northern and eastern part of the study area north of the Newcastle Link Road. These areas have since been rehabilitated and landscaped with various plantings. The majority of the study area is vegetated with native open forest and woodland. NSW state vegetation mapping indicates that study area is primarily Sydney Coastal Dry Sclerophyll Forest and Hunter-Macleay Dry Sclerophyll Forest, with Coastal Swamp Forest occurring in two small areas along Brush Creek. In the north, small patches of Northern Hinterland Wet Sclerophyll Forests also occur along the study area boundary, primarily on the ridgeline separating the study area from the adjacent Summerhill Landfill.

Apart from the Newcastle Link Road, a number of unsealed access tracks criss-cross the study area. These are generally not accessible to the public but are used by dirt bikes to access unformed trails within the area. A number of large, cleared infrastructure easements also cross the study area and the area hosts services including telecommunications, sewer, water and NBN as well as overhead transmission lines. Hunter Water maintains two large water tanks/reservoirs on a crest just south of Newcastle Link Road. Review of historical aerial photographs held by the University of Newcastle indicates a number of the easements and tracks have been in place for at least fifty years, and are visible in the 1966 aerial run 4N. Cleared areas with apparent earthworks activity are visible at the site of the future coal mines, to the north-east of the present-day central roundabout on the Link Road, and near the location of the future reservoirs. The study area also contains a former tramway and short private railways associated with the former coal mines which have included earthmoving along their alignments. In the present-day, surrounding land use is mixed and includes residential and seniors living to the east and south, the Summerhill Landfill to the north, and new development to the west.

4 Archaeological Context

4.1 Database search (AHIMS) and known information sources

4.1.1 AHIMS web services

The Aboriginal Heritage Information Management System (AHIMS) is a database operated by Heritage NSW, regulated under section 90Q of the *National Parks and Wildlife Act 1974*. AHIMS contains information and records related to registered Aboriginal archaeological sites (Aboriginal objects, as defined under the Act) and declared Aboriginal places (as defined under the Act) in NSW.

An initial search of AHIMS was conducted in November 2019 and updated on 25 September 2020 (Client Service ID: 538233) to identify registered (known) Aboriginal sites or declared Aboriginal places within or adjacent to the study area. Search results are attached as Appendix A.

The AHIMS Web Service database search was conducted within the following coordinates (GDA, Zone 56):

Eastings: 371537 - 375380

Northings: 6355577 - 6360432

Buffer: 0 metres (search coordinates included an extensive buffer around the study area)

The AHIMS search results showed:

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

The distribution of recorded Aboriginal sites within these coordinates is shown on Figure 4. The frequencies of site features (site 'types') within the AHIMS database search area are listed in Table 2.

Table 2. Frequency of site features from AHIMS database search

Site Context	Site Features	Frequency	(%)
Open Site	Artefact	25	80.7
	Artefact; Grinding Groove	1	3.2
	Grinding Groove	5	16.1
<i>Total</i>		<i>31</i>	<i>100</i>

Eleven AHIMS sites are registered within the study area (Figure 4). A further five sites are registered in close proximity (within 50 metres of the study area boundary). All sites are located in open contexts (i.e. not associated with rockshelter sites) and are listed open artefact sites and grinding grooves. Previously recorded sites are discussed in further detail in section 4.2.

4.1.2 Other heritage registers and databases

Other sources of information including heritage registers and lists were also searched for known Aboriginal heritage in the vicinity of the study area. These included:

- Newcastle Local Environmental Plan 2012
- Newcastle Development Control Plan 2012
- Lake Macquarie Local Environmental Plan 2014
- Lake Macquarie Development Control Plan 2014
- State Heritage Register and State Heritage Inventory
- Commonwealth Heritage List
- National Heritage List
- Register of the National Estate
- Australian Heritage Places Inventory and
- Historic Heritage Information Management System (HHIMS).

No Aboriginal archaeological sites were recorded on these databases within the study area and no other items of Aboriginal heritage significance were identified during the register search.

One item of non-Indigenous (historical) heritage is partially located within the south eastern extent of the study area, the Former West Wallsend Steam Tram Line. This item is listed in Schedule 5 of both the Newcastle LEP 2012 (Item I112) and the Lake Macquarie LEP 2014 (Item 92). This item is not relevant for Aboriginal heritage.

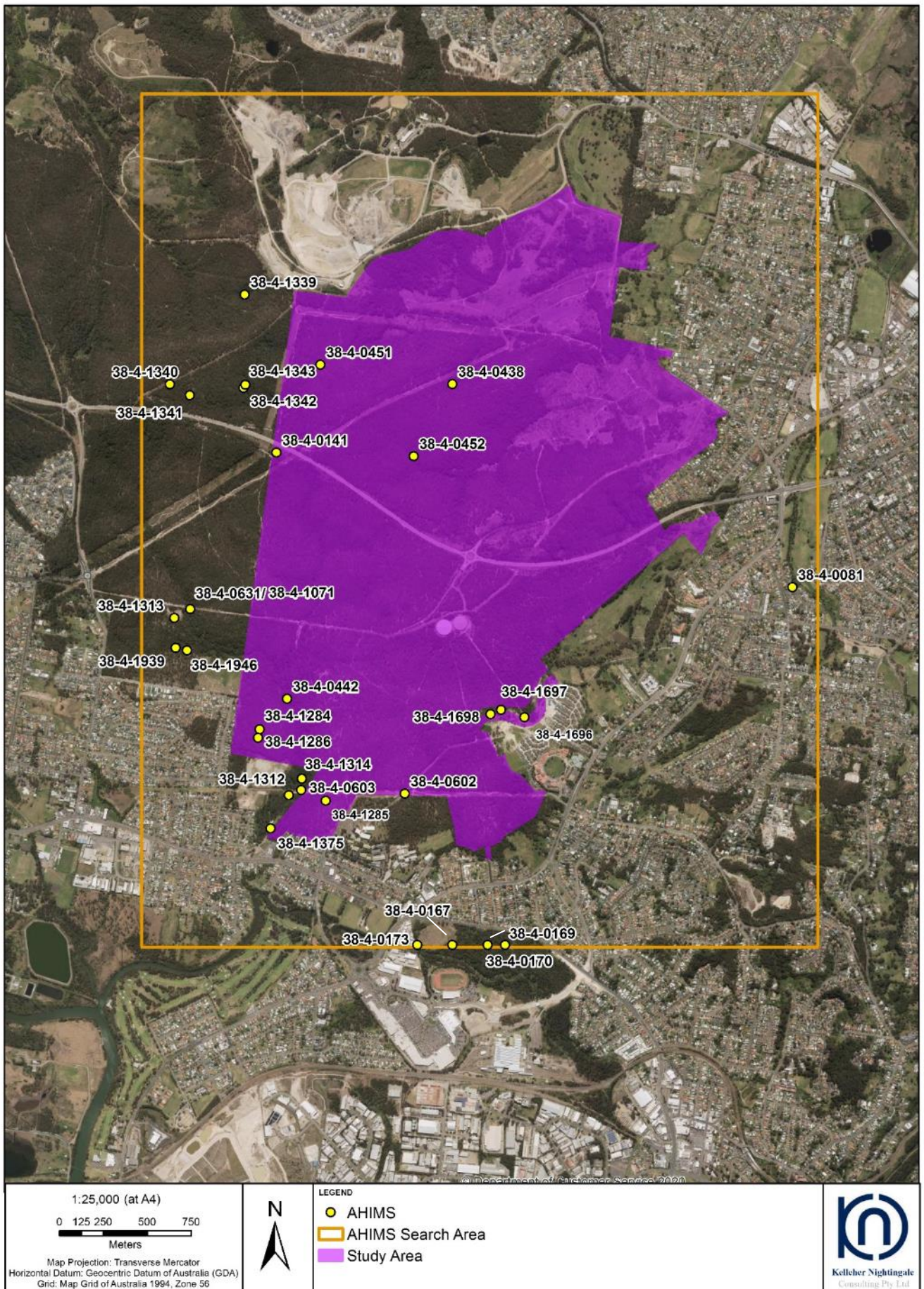


Figure 4. Previously registered Aboriginal sites (AHIMS search results)

4.2 Previously recorded Aboriginal archaeological sites

As well as determining if there are any registered (known) sites within a given area, an AHIMS search also helps to characterise local archaeology by illustrating the distribution of sites within the local landscape. Results from the AHIMS database search divide archaeological sites into two contexts – open, meaning existing in an open landscape context, and closed, meaning associated with a rock shelter.

AHIMS results indicated the predominance of open sites with artefacts (i.e. open camp sites or artefact scatters/isolated finds) around the study area. Open context grinding groove sites have also been recorded in association with the drainage lines and creeks which dissect the elevated ridge system. Grinding groove sites are related to Aboriginal people's manufacture and shaping of ground stone tools such as axes and hatchets and commonly occur on suitable abrasive rock exposures such as sandstone. One of these is also listed as associated with artefacts.

Eleven of the previously recorded sites within the AHIMS search area are located within the study area, with a further five occurring within 50 metres of the study area boundary. The distribution of recorded sites within an AHIMS search is generally considered more reflective of survey effort than the actual distribution of Aboriginal archaeological features across the landscape. Heritage assessments are more likely to have been undertaken (and hence more sites identified) in areas where development and infrastructure projects have taken place.

The presence of site types and features indicated in the AHIMS search results, and those recorded during previous archaeological investigations (see section 4.1.4) illustrate the rich archaeological resource of the wider region, with many varied manifestations of past Aboriginal people's presence and use of the environment.

4.2.1 Sites within the study area

Eleven sites are currently registered on AHIMS within the study area (Figure 4). The following summaries provide further detail on the nature and location of these sites. Examination of the site cards and records held by AHIMS indicates that a number of these are registered in incorrect locations and are not within the study area (cf. Figures 4 and 5). Updates and corrections to the AHIMS database should be made as a result of this review.

Site 38-4-0141 (Site 3) was an open artefact scatter identified just below the crest of a ridge near the western study area boundary. The site was identified during investigations for the Newcastle Link Road and comprised 32 mudstone artefacts exposed on a background of grey gravelly clay, on a disturbed vehicle track below a transmission line. The site was described as disturbed with the artefacts considered unlikely to be in situ. It appears the site registration is a duplicate of 38-4-0117; by which number it is listed in the accompanying archaeological report (Brayshaw and Donlon 1986; see section 4.3). The site card for 38-4-0117 includes an appended Section 90 'Consent to Destroy' (3880002) for the site, issued to Roads and Maritime for the purposes of road construction (i.e. Newcastle Link Road). The site has been destroyed by road construction in accordance with the Consent and is no longer extant. The AHIMS site record for 38-4-0141 should be updated accordingly.

Site 38-4-0438 (Rons find) was a grinding groove site located along an unnamed tributary of Maryland Creek, to the south of a transmission line in the northern part of the study area. Ten grooves arranged in three groups were identified on a sandstone exposure in the creek bed. The grooves were described as weathered.

Site 38-4-0442 (Brush Creek) was another grinding groove site, located on Brush Creek in the south-western part of the study area. Seven grooves were recorded on a pebbly sandstone outcrop in the creek bed, approximately 260 metres east of the end of Transfield Avenue and 60 metres south of where a track from Transfield Avenue crosses the creek. Site condition was good and it was considered that other suitable outcrops containing grinding grooves may occur elsewhere along the creek.

Site 38-4-0451 (Maryland Creek) was a grinding groove site identified on a sandstone outcrop in the bed of Maryland Creek, in the north-western part of the study area. The site comprised at least 32 grooves on a two metre wide outcrop stretching the width of the creek.

Site 38-4-0452 (Rons site; Gretley Colliery) was a grinding groove site comprising 13 grooves arranged into three small groups on a sandstone creek bed of an unnamed intermittent tributary of Maryland Creek, approximately 370 metres north of the Newcastle Link Road. The grooves were described as weathered.

Site 38-4-0602 (Brush Creek 1) was a potential stone raw material extraction site recorded on a west-facing slope approximately 285 metres north east of the TAFE campus. The site is erroneously listed on AHIMS as a grinding groove/artefact site. The site was recorded during an archaeological assessment of a large area of land south of the Newcastle Link Road (Brayshaw and Kerr 2000; see section 4.3), incorporating the majority of this portion of the current study area.

Fractured blocks of silicified tuff were noted in an area below the transmission lines, although none of the material was conclusively identified as artefactual due to extensive site disturbance and mechanical damage to the rock material by bulldozing and vehicles. One larger flake was identified and considered to be an Aboriginal artefact. It was suggested that even if the area functioned as a raw material source, material and artefacts were removed from site to be refined at campsites elsewhere in the area. The AHIMS record should be updated to correct the listed site type.

Site 38-4-1284 (RPSHSO IF1-6) was an isolated artefact identified in a disturbed context on an east-west running track to the west of the former Monier Roofing complex. The artefact comprised a single banded grey chert flake identified on an eroded track exposure, on an upper slope landform. Site condition was described as disturbed. The description on the site card indicates the AHIMS coordinate has been registered using the wrong datum. Converting the registered coordinate from AGD to GDA resolves the error and places the site where it is described on the site card recording. The site is not located within the current study area and the AHIMS record should be updated.

Site 38-4-1285 (RPSHSO IF1-4) was an isolated find of a red silcrete flake located on a vehicle track east of the former Monier Roofing complex. The artefact was identified on an eroding track approximately 100 metres north of the transmission easement, 100 metres east of the Brush Creek crossing. The description on the site card indicates the AHIMS coordinate has been registered using the wrong datum. In addition, the listed Northing on the site card is incomplete. Converting the registered coordinate from AGD to GDA and estimating a correction to the missing Northing digit based on the site location description resolves the error and places the site where it is described on the site card recording. The site is not located within the current study area and the AHIMS record should be updated.

Site 38-4-1286 (RPSHSO IF1-5) comprised an isolated find of a quartzite flake in a disturbed context. The site was identified on an eroded track to the west of the former Monier Roofing complex on an upper slope landform. The track ran north-south parallel to the western retaining wall along the Monier complex. The description on the site card indicates the AHIMS coordinate has been registered using the wrong datum. Converting the registered coordinate from AGD to GDA resolves the error and places the site where it is described on the site card recording. The site is not located within the current study area and the AHIMS record should be updated.

Site 38-4-1696 (EG_001) was a low density artefact scatter site recorded in a highly disturbed context at the rear of the Elmore Glen Retirement Village. Artefacts comprised two quartzite flakes identified on disturbed land adjacent to an access track used for service maintenance. The site was located on an eroded mid slope with evidence of rubbish and fill dumping surrounding the site. The site was assessed as displaying low archaeological potential.

Site 38-4-1698 (EG_003) comprised an isolated find of a flaked piece of quartzite in a clearing at the top of a slope to the rear of the Elmore Glen Retirement Village. Site context was heavily disturbed by clearing, dumping of fill, and an existing track which runs through the area. Glass fragments and pieces of rubbish were also found in close proximity to the broken flake. The site was also heavily affected by erosion due to water runoff. The site was assessed as displaying low archaeological potential.

4.2.2 Sites within 50 metres

A further five sites are currently registered on AHIMS within 50 metres of the study area boundary. The following summaries provide further detail on the nature and location of these sites. Examination of the site cards and records held by AHIMS indicates that a number of these are registered in incorrect locations. Updates and corrections to the AHIMS database should be made as a result of this review.

Site 38-4-0603 (Brush Creek 2) comprised an open scatter of six artefacts identified along the cleared transmission line, approximately 60 metres east of Brush Creek. The site was recorded during the same investigation as 38-4-0602. Artefacts were identified along the unsealed access track between the creek and a track junction and to the south west along a second track running towards Main Road. Artefacts comprised broken flakes of silcrete and tuff, two of which displayed retouch/usewear. The artefacts were exposed on an eroded A2 horizon and site condition was described as disturbed as a result of bulldozing along the easement, erosion and vehicle traffic. The AHIMS registration for this site places it in the correct location. The site is located outside the current study area.

Site 38-4-1312 (RPSHSO IF1-3) comprised an isolated find of a chert core located to the east of Brush Creek, approximately 250m south of the vehicle track junction under the transmission easement and immediately east of a house. The site context was highly disturbed by earthmoving and mounding of earth and rubble. The registered AHIMS coordinate for this site uses the wrong datum, placing it immediately south of the easement approximately 70 metres west of the current study area boundary. Converting the registered coordinate from AGD to GDA resolves the error and places the site where it is described on the site card recording. Examination of the site card confirms that the registration for 38-4-1312 is a duplicate of 38-4-1375, which is registered in the correct location as described on the site card. The AHIMS record for 38-4-1312 should be updated as a duplicate and moved to the correct location. The site is located outside the current study area.

Site 38-4-1314 (RPSHSO IF1-2) comprised an isolated find of a pink silcrete flake on a vehicle track. The artefact was located approximately 100 metres south of the vehicle track junction under the transmission easement, on the same south-westerly running track as 38-4-1375/38-4-1312 and 38-4-0603. The area was disturbed by erosion and water runoff with low archaeological potential. The description on the site card indicates the AHIMS coordinate has been registered using the wrong datum. Converting the registered coordinate from AGD to GDA resolves the error and places the site where it is described on the site card recording. The site is not located within the current study area. The AHIMS record should be updated.

Site 38-4-1375 (RPS IF01) was an isolated find identified along a vehicle track immediately east of a house. The site is the same as 38-4-1312 (a duplicate) but is registered in the correct location, using the GDA datum. The site record for 38-4-1312 should be updated as a duplicate and moved south-west to the same location as 38-4-1375. The site is not located within the current study area.

Site 38-4-1697 (EG_002) comprised an isolated find of a fine-grained siliceous (FGS) flake identified on a mound of imported fill in an area of disturbed bushland at the rear of the Elermore Village Retirement Village. The area was highly disturbed by earthworks, fill and erosion with outcropping bedrock visible to the north of the find spot. The surrounding natural landform was a steep slope, with shallow erosional soils. Archaeological potential was assessed as very low. The site is not located within the current study area.

4.2.3 Summary

An analysis of the records held by AHIMS indicates a number of errors within the AHIMS database, primarily due to site registrations using an incorrect datum. Based on a review of location data and subject to corrections to the database, the AHIMS records indicate that the current study area contains a total of seven extant and one destroyed previously recorded Aboriginal archaeological sites:

- 38-4-0141 (destroyed)
- 38-4-0438
- 38-4-0442
- 38-4-0451
- 38-4-0452
- 38-4-0602
- 38-4-1696
- 38-4-1698

Other AHIMS registrations which currently fall within the study area will be updated to correct the site status to destroyed or move them to the correct coordinates, as applicable. Figure 5 shows the amended AHIMS result based on these corrections. Site 38-4-0141 now shows as 'destroyed', and 38-4-1284, 38-4-1285 and 38-4-1286 Updates will be submitted to the AHIMS Registrar to rectify the errors.

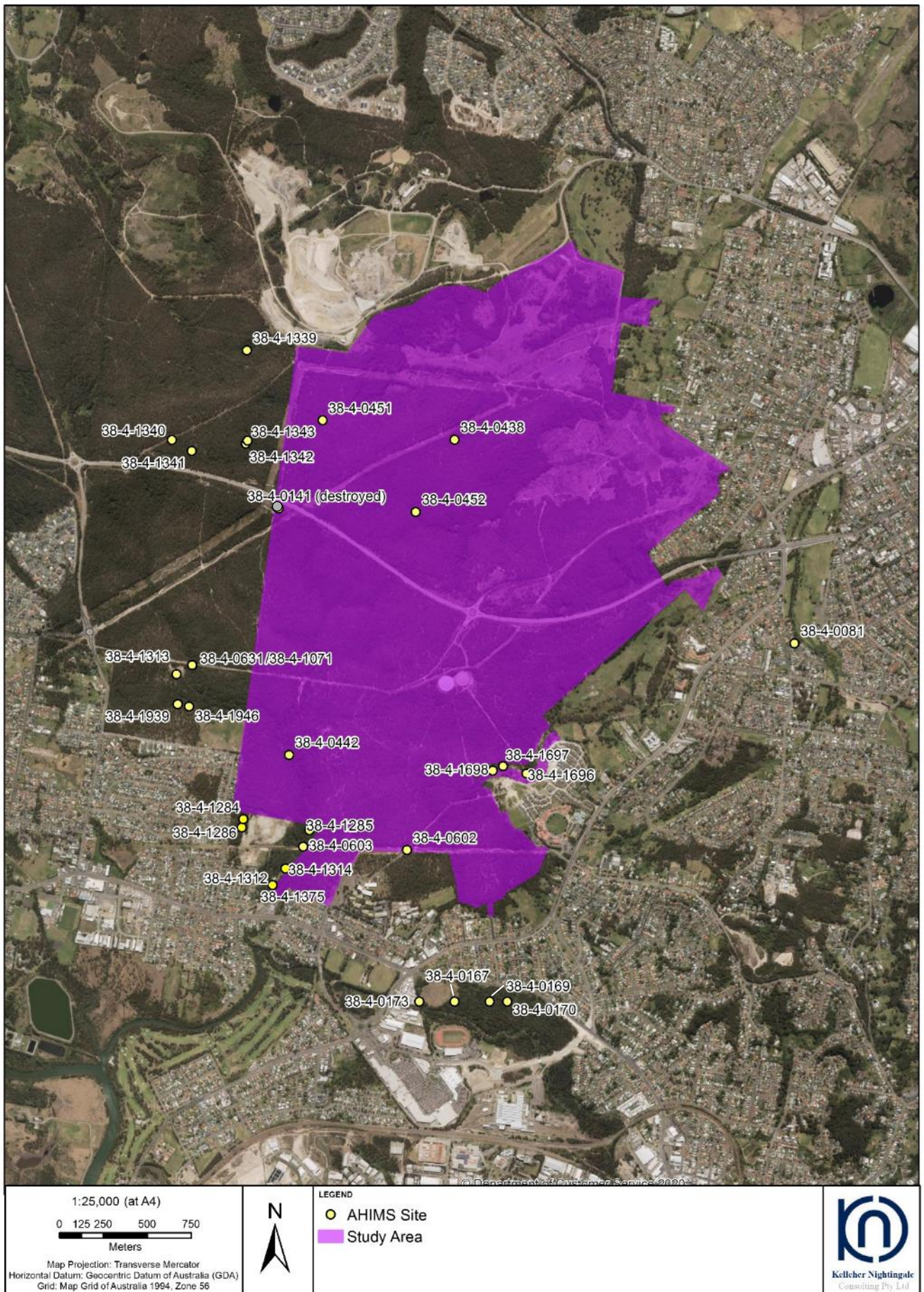


Figure 5. Previously registered AHIMS sites, as amended, showing corrected locations for 38-4-1284, -1285 and -1286 (now outside the study area)

4.3 Previous archaeological investigations

The majority of previous archaeological investigations undertaken in the area have been as part of environmental assessments prepared for proposed development and infrastructure works across the region, along with some large scale research projects. A summary of findings from relevant background material is presented below, in order to help characterise the archaeological context of the study area and develop an understanding of regional archaeological characteristics.

Newcastle Coastline

Dyall (1971) published the results of early archaeological fieldwork undertaken along the Newcastle coastline and adjacent areas to the east of the current project area. The majority of Aboriginal sites identified were open camp sites comprising stone artefacts and/or shell midden while axe-grinding groove locations were identified along creeks in sandstone south of the Hunter River. Open camp sites were generally found in close proximity to marine, estuarine and lagoon resources with large midden sites found where both ocean beach and tidal reef resources were available. The axe grinding groove sites were located on sandstone exposures along the creek beds and included AHIMS 38-4-0081 at Wallsend Park approximately 500 metres east of the current project area, and a number of grinding groove sites on tributaries running south and east to Lake Macquarie (to the south of the current study area).

Stone artefacts were predominantly made from chert with tuff/mudstone and quartzites also identified. Dyall identified quarry sites with small boulders of good quality chert at Nobbys, Merewether and Glenrock approximately six kilometres east of the current project area. The quarry site at Glenrock was associated with broken boulders and implements made from the lumps of chert (ibid: 159). Dyall noted that at the time of his research there were few known campsites located back from the beach or lake foreshore south of the Hunter River, suggesting occupation was more commonly focused in these areas, as well as poorer preservation of archaeological material on the steeper ground and slopes of the rolling ridgeline country.

Newcastle LGA Aboriginal Heritage Study

An Aboriginal Heritage Study of the Newcastle Local Government Area (LGA) was undertaken by AMBS in 2005. The study aimed to synthesise and evaluate existing information about Aboriginal heritage in the LGA, integrating both physical/material expressions (archaeological sites) and intangible expressions (social and cultural values) to allow the development of a framework for the strategic conservation and management of Aboriginal cultural heritage. A comprehensive background review and analysis was undertaken of environmental resources and characteristics of the LGA, the history of Aboriginal occupation and landscape modification, and distribution and composition of known archaeological sites. Involvement of local Aboriginal community stakeholders was also a crucial element of the study, and was considered fundamental in the assessment process and development of the resulting management framework for Aboriginal heritage.

Research demonstrated that resources influencing Aboriginal occupation of the region – water, stone, flora and fauna – were found throughout all areas of the LGA. Areas where a wide range of available subsistence resources or stone materials occurred, such as the Hunter estuary delta, the Hexham Swamp, the Stockton Bight, and the Black Hill Spur were found to be key locations in Aboriginal occupation of the region. Analysis of settlement history and landscape modifications found that although colonial settlement and land use ‘disturbance’ is widespread in the region, the spatial and stratigraphic impact of that settlement is not adequately understood, and that areas with terrain integrity may be found throughout ‘developed’ landscape areas, including the City Centre. Review of previously recorded sites across the LGA indicated that archaeological materials may occur in all landscape contexts within the LGA, with site densities varying between landform and environmental contexts: areas around wetlands and watercourses tended to display higher densities. Based on the desktop and background information review, AMBS developed a model of archaeological sensitivity across the LGA within defined regions based on a landscape model incorporating the distribution pattern of known sites and terrain integrity.

The Awaba Hills region, in which the project area is located, encompassed the undulating and low rolling hills in the south-western portion of the Newcastle LGA. Results of previous studies indicated that archaeological sites occurred across all landscape contexts of the area (eg. crests, drainage channels), but at a lower frequency and density than in other environmental areas, such as wetlands, wetland margins and the Stockton Bight (AMBS 2005:76). The spatial distribution of recorded sites within the region was characterised by low density sites along ridges and hillslopes with increased site complexity and density in proximity to coastal landforms. Smaller quantities of axe grinding grooves, quarries and ceremonial sites were also identified within the region and the study noted that sources of tuff/mudstone were present within the Glenrock Nature Reserve approximately seven kilometres south east of the current study area. Review of background information identified previous archaeological studies in this landscape that are also relevant for the current assessment (summarised in AMBS 2005: Table 5).

These included assessment for the West Charlestown section of the Newcastle Inner City Bypass (Effenberger 1996) comprising a survey and subsurface investigation of the ridges and drainage lines of the Awaba Hills approximately five kilometres south east of the current study area. The survey identified three low density artefact scatters; however the subsequent testing program failed to identify any additional archaeological materials in 64 test scrapes in varying landform contexts.

A study by Umwelt (2002) was also included in the review, comprising 119 hectares of lands within the Bluegum Vista Estate (now Sanctuary Estate) approximately 2.6 kilometres north of the current study area, on the opposite side of the road to the Kingfisher Park Estate discussed below. The assessment included 316m² of archaeological excavation across 20 locations on the low ridge spur fingers extending into the fringe of the Hexham Swamp. A total of 3,001 stone artefacts were recovered along with large quantities of fractured comparable lithic material (non-artefactual). The highest densities were recovered from a hillock/headland above the swamp. Stratigraphic integrity of the sites had been impacted by bioturbation, European land use and uncontrolled heating of material (bush fires). The majority of the artefacts were unmodified flake debitage of tuff and silcrete. The presence of certain diagnostic mid- to late-Holocene artefact types including backed artefacts and ground-edge axe fragments indicated the assemblage related to occupation during this time period. It was suggested that this period of occupation matched well with available environmental data suggesting that “this area may have become more attractive for occupation in the latter part of the Holocene, with a greater diversity of habitats and more reliable access to fresh water in prograding tributary creek deltas” (Umwelt 2002:3).

The AMBS study then collated the available information and developed a landscape based model of archaeological sensitivity. Assessment of the Awaba Hills landscape (which contains the current study area) indicated that some landforms have a higher archaeological sensitivity within the region. These include lower hillslope contexts above the landforms of the Lower Hunter Plain and Hexham Swamp. The northern margin of the Awaba Hills environmental area was therefore considered to be of high archaeological sensitivity, where a higher density of archaeological sites in these areas is likely to reflect the wider range of subsistence resources found in wetland margin areas. Other areas of archaeological sensitivity throughout the region include creek lines, which may include associated flats (occupation sites), sandstone exposures within creek lines (axe grinding groove sites), or any locations associated with a raw material source (quarries). Site frequency and complexity is likely to increase in proximity to coastal landforms, such as demonstrated within the Glenrock Nature Reserve (AMBS 2005:83).

Specific to the current study area, low sensitivity was ascribed to areas of former coal mining due to removal and or extreme disturbance of the natural landscape in the course of this activity. Large areas of open space such as the current study area (described as ‘open space to the west of Rankin Park’) were ascribed moderate archaeological sensitivity, on account of their lower levels of landscape disturbance and increased retention of natural landscape and associated archaeological material. They also contained a range of landforms, which could be of value to investigations into the regional archaeological landscape.

The following management principles were developed to guide recommendations for the recognition and management of Aboriginal heritage values within the LGA. These were used to develop management strategies and actions related to conservation, impact mitigation, council and community awareness, research opportunities and recommendations for the implementation process. The management principles provide a useful framework for considering Aboriginal cultural heritage within the current study area during the rezoning, planning and development process.

1. Aboriginal cultural heritage is to be recognised as a finite and valuable resource of the Newcastle LGA.
2. Aboriginal community members are pivotal in the identification, assessment, and management of Aboriginal cultural heritage, as it is primarily Aboriginal people who are in a position to determine the significance of their heritage.
3. Places of Aboriginal cultural value, spanning archaeological sites and areas of social significance, within the Newcastle LGA are to be conserved and managed to retain those cultural values. Appropriate conservation actions will vary according to the level of significance.
4. Aboriginal cultural heritage is to be considered during the development process, to provide for appropriate conservation and impact mitigation outcomes.
5. Compliance with relevant statutory controls is required, specifically the *National Parks and Wildlife Act (1974)* and the *Environmental Planning and Assessment Act (1979)*.
6. Sustainable management strategies for Aboriginal cultural heritage should be implemented, that maximises involvement of the Aboriginal community.
7. The importance of Aboriginal cultural heritage should be promoted within Council through heritage training to raise cultural awareness, and within the broader community through public interpretation programs.

Newcastle Link Road

Brayshaw and Donlon (1986) undertook archaeological assessment and survey for the then proposed Newcastle Link Road between Estelville (now Cameron Park) and Wallsend. The assessment area was closely aligned to the present-day position of the Newcastle Link Road across the centre of the current study area. The survey route was approximately 7 kilometres long, crossing vegetated ridges and valleys cut by Cocked Hat Creek and tributaries of Ironbark Creek. It was noted that the region had been extensively mined for over 100 years, resulting in the selective clearance of old growth timber for pit props and railway sleepers. Review of available background information suggested the most common site types for the area were open artefact sites and grinding grooves on suitable sandstone exposures along creekbeds. Artefact raw materials were most commonly mudstone/tuff, silcrete, chert and occasional FGS. Sites of higher artefact density occurred in proximity to Hexham Swamp and on high order creeklines, with sites along the ridgetops tending to be of low density and infrequent. This was considered to indicate occupation was more focused on the coastal plain and lake margins, with forays into the more rugged hinterland for seasonal hunting, ceremony and trade and exchange.

Three sites were identified during the archaeological survey, two open artefacts sites and one grinding groove site. The grinding grooves were identified on a sandstone exposure in the bed of a tributary of Cocked Hat Creek approximately two kilometres west of the current study area. The two artefact sites were both identified on crests of the main ridge line that is now occupied by the Newcastle Link Road. 'Site 2' was identified on a crest just east of the Minmi Road/Newcastle Link Road roundabout, and comprised 21 artefacts of indurated mudstone and silcrete in a c. 330m² area on exposures along a vehicle track of very dark grey clay with gravels and fractured shale. Disturbance was evidence from vehicle movement along the track. There was no indication of potential for subsurface deposit.

'Site 3' (AHIMS 38-4-0117/38-4-0141) was identified just below the crest of a ridge near the intersection of five vehicle tracks below a transmission line. 32 mudstone artefacts were recorded on exposures of compact grey clay with some gravel. The site was assessed as disturbed and the artefacts were not in situ. The AHIMS registration for Site 3 indicates it is within the current study area. The site was considered consistent with other findings for ridgetop sites the region, namely that it was small with a sparse distribution of objects. Sites 2 and 3 were considered reflective of transient Aboriginal use of the ridgeline as a movement corridor between the coast and the Sugarloaf Range (Brayshaw and Donlon 1986:26). It was recommended to seek a Consent to Destroy if the sites were to be impacted, with collection of surface artefacts by the Aboriginal community but no requirement for further archaeological work given the extent of disturbance and low likelihood of recovering significant archaeological information.

The survey report lists the AHIMS number associated with Site 3 as '38-4-0117' however the current AHIMS database registration lists '38-4-0141'. Review of both site cards indicates a discrepancy in registrations – database number 38-4-0117 has been assigned variously to Site 3 within the current study area, a midden site near Lake Macquarie, and an artefact site at Woodville, north of Maitland. The Consent to Destroy issued for Site 3 within the current study area for construction of the Newcastle Link Road has been appended to the 38-4-0117 registration instead of the 38-4-0141 registration. As a result, the site is listed as valid within the current study area when in reality it is no longer extant. The AHIMS site record for 38-4-0141 should be updated accordingly.

Land south of Newcastle Link Road, Elmore Vale

Brayshaw and Kerr (2000) undertook an archaeological survey and assessment of a large area of land south of the Newcastle Link Road for proposed rezoning. The assessment area covered the entirety of the current study area south of the Link Road, and extended west to Minmi Road. Assessment included a review of archaeological background, archaeological field survey, and specialist analysis of the area's geological landscape. This was considered relevant given the low visibility and dense vegetation likely to impede field survey. The aim of this part of the study was also to provide a better understanding of the area's landforms (and consequent archaeological potential) by assessing the origin and age of the land surface and the underlying sediment and rock, as well as soil types and geomorphological processes such as erosion and fluvial activity. This could then be used as part of a predictive model for assessing the potential of the various landforms to contain surface or subsurface archaeological material and its distribution, depth and likely degree of disturbance. Further analysis of a potential raw material source identified during the survey was also commissioned and included.

The landscape review identified that more than two thirds of the assessment area comprised gently to moderately steep sloping landforms with gradients of 5% to >10%. Ridge and spur crests and the lower valley of Brush Creek were often slightly flatter (<5% gradient) but no truly flat landforms were present. Watercourses comprised intermittent first and second order headwater tributaries originating in steep-sided gullies eroded into the ridge system, and the third order Brush Creek. These landscape features form part of the current Wallsend rezoning study area.

Field survey was carried out over a three day period. Limitations included poor light conditions, difficulty in accessing some areas particularly along the creeks due to dense, impenetrable vegetation, and low ground surface visibility. Despite these limitations, a sample of all identified landforms was surveyed with particular attention paid to areas of exposure along vehicle tracks, which were plentiful.

One possible raw material extraction site (Brush Creek 1; AHIMS 38-4-0602), one open artefact site (Brush Creek 2; AHIMS 38-4-0603), and two isolated finds west of the current study area were identified as a result of the survey. Previously recorded grinding groove site 38-4-0442 (Brush Creek) was also relocated and inspected. Sites 38-4-0602 and 38-4-0442 are located within the current study area.

Site 38-4-0602 was recorded as a potential stone raw material resource and possible extraction site on a west-facing hillslope below the transmission easement. Fractured blocks of silicified tuff up to 75cm long were recorded along with smaller flakes and fragments 2-3cm long. Due to the natural conchoidal fracturing of the material, positive identification of any artefacts was difficult as the area had been subject to heavy disturbance from vehicle movement and bulldozing along the easement. One larger flake was identified and considered to be an Aboriginal artefact, but had edge damage from disturbance. A specialist stone tool technologist was engaged to assess potential scientific significance. This assessment concluded that because of mechanical disturbances which have fractured the stone material, it was not possible to unambiguously establish whether or not any individual specimen was an Aboriginal artefact. The second open site (38-4-0603) was identified further to the west along the same transmission line, and comprised six artefacts eroding out of disturbed vehicle tracks near Brush Creek. Site condition was assessed as poor, and given the visible loss of topsoil in the vicinity no potential for subsurface deposit was identified. The two isolated finds (west of the current study area) were identified in similarly disturbed contexts along a transmission easement. Reinspection of previously recorded grinding groove site 38-4-0442 confirmed the location of the site and noted that although other sandstone exposures in the immediate vicinity did not contain any grooves, these were likely to occur elsewhere along the creek. Extremely thick vegetation hampered further survey of the creekline.

Given the widespread erosion and movement of topsoil on the slopes, no areas of potential for intact subsurface archaeological deposit were identified on these landforms. The small area of mapped Quaternary Alluvium along Brush Creek was not considered to display any potential for intact archaeology, as erosion and redistribution of sediment along the creekbanks and drainage margins was evident. The field survey also noted that almost all of the timber in the area had probably previously been logged as there were few old growth trees identified. Despite being 'undeveloped' some areas of extensive disturbance were present within the assessment area. These included the bulldozed transmission easements, the Hunter Water reservoir facility and associated access roads. Other roads (both formed and unformed) and tracks criss-crossed the area, including a wide track along an easement extending west from the reservoir across Brush Creek and a tributary with major bulldozing and diversion along the watercourse extending some 350 metres. Earthworks from the former tramway in the south east were also identified. Maintenance tracks along the easements revealed bare A2 or B horizon soils from widespread sheet and gully erosion.

The assessment results were considered to support an occupation model of sites in the elevated hinterland between Lake Macquarie and Hexham Swamp as representing transient land use including short term forays for hunting or other purposes such as edge ground tool maintenance and manufacture. Site 38-4-0602 was considered to display some significance as a potential raw material source, given that the only other known examples of accessible siliceous tuff material were all located along the coast. Potential for further research included taking material samples to compare to artefact assemblages from the local area, and thin section analysis to ascribe it to one of the tuff units known within the Newcastle Coal Measures. It was recommended that potential development avoid all sites if possible, particularly the grinding grooves which are in an area unlikely to be subject to development. If impact could not be avoided, further research was suggested for 38-4-0602 and Awabakal LALC also expressed interest in taking some samples of the material. A Consent to Destroy was recommended for the other artefact sites, with no further archaeological work required.

Minmi and Link Road Estate

Environmental Resources Management (ERM) (2008) undertook a combined Aboriginal and non-Aboriginal (historical) heritage impact assessment for a large area of land immediately west of the current study area, extending from the western study area boundary on both sides of the Newcastle Link Road, south of Blue Gum Hills Regional Park and north to encompass the village of Minmi. The area formed part of lands owned by Coal & Allied in the Lower Hunter Region being assessed for possible future development under the *Environmental Planning and Assessment Act 1979*. Previously recorded sites in comparable landscapes in the region included open artefact sites (both open campsites/artefact scatters and isolated finds) and grinding grooves. Open sites of higher density were more common in proximity to water sources, while those on ridges and crests tended to be sparser both in distribution and in site contents.

Further to the north, the Hexham Swamp was identified as a focus for Holocene occupation as it was a very resource-rich landscape. Aboriginal sites around the margins of the swamp are numerous and tend to display higher artefact densities. It was suggested that the Minmi and Link Road study area may have been used as a preferred transit route through the hills from the swamp margins to ceremonial areas and other sites to the west and south. It was also noted that the wider region displayed varying disturbance from post-European settlement land use, with even heavily vegetated areas having often been affected by selective logging for pit props to use in mining.

The archaeological survey identified six new sites, comprising one grinding groove site in exposed sandstone bedrock along a creek, three low density surface scatters and two isolated finds. The artefact sites were identified in an area of sloping bushland below a prominent ridge crest, west of the current study area to the north of the Newcastle Link Road (refer Figure 5, AHIMS 38-4-1340-1343). Ground surface visibility tended to be low, limited to eroded exposures along vehicle and pedestrian tracks and along the various service easements crossing the area. A sample of all landforms within the assessment area was subject to survey, with particular attention paid to watercourses, mature trees, and areas displaying higher archaeological exposure/visibility.

Cultural values identified in consultation with Aboriginal stakeholders included significant walking tracks through the area that connected different parts of the landscape, and a complex of significant ceremonial sites to the south west of Minmi township, west of the Pacific Motorway. Values identified in proximity of the current study area primarily relate to movement routes using the ridgelines, including the ridge now occupied by the Newcastle Link Road, and the larger waterways including Brush Creek and Maryland Creek.

An assessment of archaeological potential was undertaken based on landform, with the assessment area divided into zones of low, moderate and high potential to yield further sites. Zones of low potential were those with steeper slopes, located at a greater distance from a water source, no clear landscape focus which would encourage visitation, and away from the identified Aboriginal walking routes. Moderate potential zones were areas in which comparable landforms had been shown to contain low to moderate density artefacts elsewhere in the region, with a landscape focus which would encourage occasional visitation (lower order water source, travel route etc.). Zones of high potential comprised areas where repeat visitation would be expected based on environmental factors (higher order creeks, significant ridgelines) and where comparable regional landforms were known to consistently display sites.

Summerhill Landfill

An archaeological survey was undertaken of the then proposed Summerhill Landfill/Waste Disposal site to the north of the current study area (Dean-Jones 1989a). The 350 hectare assessment area included the former Wallsend Borehole 1 and 2 Collieries and was primarily developed land. The area comprised steeply dissected ridgelines, spurs and slopes approximately 2 kilometres south of Hexham Swamp, across the steeper and more elevated sections of a spur leading north into the wetlands. No archaeological sites were identified, attributed to low visibility due to sedimentation and runoff from overburden stockpiles along creeklines. Ground surface visibility was low.

The potential for unrecorded large artefact scatter sites within the assessment area was considered to be low due to landform context, with these considered more likely to occur on the spurs bordering the wetlands rather than the steeper, higher ridge country to the south. Some potential raw material sources including pale grey-cream tuffs and silicified tuffs with good flaking qualities were noted, exposed in redistributed overburden and deep rills, however the original context of these raw materials was uncertain and it was unknown whether they would have been available at the surface for Aboriginal people to use. No artefacts or quarrying activity was evident.

Kingfisher Park Estate, Fletcher

Umwelt (2007) undertook heritage assessment and the development of an Aboriginal Heritage Management Plan for the Kingfisher Park Estate development at Fletcher, approximately 1.7 kilometres north of the current study area. The assessment area comprised lands west of Wentworth Creek and south of the Highland County Estate, off Minmi Road. It was established that the area and surrounding country to the south and west of Hexham Swamp links the Hunter River and estuary to the Sugarloaf Range, and represented a diverse cross-section of the lower Hunter landscape. Consultation with the Awabakal LALC emphasised that archaeological sites and natural features of significance should be considered as part of one overall cultural landscape, intricately linked and incorporating various elements of day-to-day, spiritual and ceremonial life.

The Aboriginal cultural heritage background review identified the current study area as forming part of this wider Awabakal cultural landscape, specifically tied to Country associated with the Pambalong/Bambalong people who lived south of the Hunter River extending from around Hexham Swamp up into the foothills of the Sugarloaf Range and more rugged ridge country.

Mapping of this wider cultural landscape included the current study area and highlighted that sandstone outcrops along the creeklines were in widespread use for preparing and maintaining edge-ground tools, as well as the short, steep and rocky creeks leading down from the range country to the estuarine tributaries of northern Lake Macquarie. The ridge systems were also identified as key movement pathways between different resource zones and between the hinterland and highly significant ceremonial areas of the Sugarloaf Range and the coast. It was noted that in many areas of elevated ridge country the creek valleys were deeply incised with steep side slopes, and only a few ridges provided relatively easy access from the coastal lowlands to the hinterland and beyond (Umwelt 2007:7).

Previous assessments of the Kingfisher Park Estate were reviewed, including previous archaeological surveys by ERM (2004) and AMBS (1999), and an updated field assessment was undertaken with the Awabakal LALC. Archaeological sites identified included an 80 metre series of grinding grooves located on sandstone outcrops along the bed of a tributary of Wentworth Creek, two low density surface scatters and an isolated find. Artefact comprised flakes and flaked pieces of silcrete and mudstone exposed due to erosion or clearing.

It was considered that this low density distribution was typical of the elevated ridge and spur landscape south of the Hunter River. The Aboriginal Heritage Management Plan recommended conservation of the grinding groove site within a Public Reserve of bushland along the creek corridor, a Section 90 Consent to Destroy for other sites with collection of surface artefacts by the Awabakal LALC, sympathetic ongoing environmental management of the bushland, and interpretation materials including an information brochure to be issued to new residents.

Glendale

Dean-Jones (1989b) conducted an archaeological constraints assessment, including a field survey, of 90 hectares of land along Winding Creek at Glendale approximately 700 metres south of the current project area. The field survey identified nine Aboriginal archaeological sites comprising eight artefact scatters and one culturally modified tree. The majority of the artefact sites were identified along the northern side of Winding Creek on the floodplain and adjacent low terrace. One artefact scatter consisted of a concentration of 53 artefacts made up of predominantly tuff/mudstone flakes, flaked pieces and cores. The remaining seven sites had less than 10 pieces of flaked stone each. Artefact raw materials included mudstone/tuff, chert, silcrete and claystone and artefact types were predominantly flakes and flaked pieces. The modified tree was a large stringybark/mahogany with a single bark removal scar 167cm high measuring 53cm across at its widest point. The tree was located 80 metres from the southern side of Winding Creek, east of the railway workshop oval.

Environmental Resources Management (ERM) undertook further work on the 33.5 hectare Glendale Land Release Area in 2007 (ERM 2007). The assessment area was located immediately south of Main Road and incorporated a section of Winding Creek. Review of archaeological background information indicated the north Lake Macquarie and Glendale area most commonly contained stone artefact sites. Axe grinding grooves were also found in this area, in sandstone beds occurring naturally in the creeks. Further to the south, estuarine middens comprising mostly cockle shells with some oyster and whelk were found in many parts of the Lake Macquarie foreshore but were not known to occur as far away as the assessment area. In general it was considered that Aboriginal occupation of the area may have been more focused or frequent closer to the major resource zones along the lower reaches of Brush Creek and foreshores of Lake Macquarie.

Archaeological survey of the area was undertaken as part of the assessment. Survey coverage was limited by dense vegetation cover with ground surface visibility generally restricted to areas of erosion along tracks, creek banks and occasional areas of exposure. It was noted that despite the thick vegetation, clearance of some original old-growth forest almost certainly took place in the 18th century, reducing the possibility of modified trees. No new sites were identified but three of the five of Dean-Jones' sites present within the Land Release Area were relocated, with additional artefacts recorded. Artefact raw materials included mudstone/tuff and chert with smaller quantities of silcrete. Reduction types included flakes, flaked pieces and broken flakes.

The sites were in generally poor condition due to ongoing disturbance and erosion, with artefacts resting on exposed B horizon clays. All five of the previously recorded sites within the Land Release Area occurred within 75 metres of Winding Creek and it was considered that landforms along the creek were likely to contain subsurface archaeological material, with a zone extending 100 metres to the north subsequently identified as being archaeologically sensitive. Further investigation including test/salvage excavation was recommended if the area could not be avoided by the development.

Newcastle Inner City Bypass – Rankin Park to Jesmond

KNC undertook Aboriginal heritage assessment on behalf of Transport for NSW (formerly Roads and Maritime Services) for the fifth section of the Newcastle Inner City Bypass project for a four lane divided road between Lookout Road, New Lambton Heights and Newcastle Road, Jesmond. The overall assessment included an archaeological assessment and survey report (KNC 2017a) and preparation of an Aboriginal Cultural Heritage Assessment Report (CHAR) (KNC 2017b). The project area was located across an elevated ridge system of bushland around John Hunter Hospital approximately 3.8 kilometres east of the current study area and included similar landforms, underlying geology and soil landscapes.

Review of background information and regional context indicated that archaeological sites in the area were predominantly artefact scatters that are spatially more frequent and contain higher densities of stone artefacts in close proximity to marine, estuarine and fresh water resources, with lower density sites occurring along ridges and hillslopes. The location of grinding groove and quarry sites was determined by the local geology, with grinding grooves occurring on exposed sandstone outcrops bordering creek lines while sources of artefact raw material required exposed outcrops of suitable stone at ground level.

Two Aboriginal archaeological sites and two areas of potential archaeological deposit (PAD) were identified during the survey, with a further two sites identified in close proximity. The sites comprised low density surface scatters of tuff/mudstone, silcrete and greywacke and were identified on a low crest and on a raised flat overlooking a creek junction. The two PADs were located on elevated crests on the main watershed ridgeline where disturbance appeared low with intact soil profiles.

The archaeological evidence indicated that the ridgeline was probably not a focus for intensive Aboriginal occupation as it did not exhibit substantial resources. As stated by Aboriginal representatives during the survey, the area is likely to have functioned as a transport route between the various major resource areas in the region. Within this context, the Aboriginal archaeological sites identified within the project area were likely to represent regular (transitory) events characterised archaeologically by isolated discard events, or single focus campsites. A program of archaeological test excavation was recommended for two sites assessed as displaying moderate archaeological significance, and the two PAD areas.

Archaeological testing was subsequently undertaken during preparation of the CHAR (KNC 2017b). The PAD areas were both found to contain a single artefact however soil profiles indicated ongoing aggrading/deflationary processes associated with exfoliation and cycling of the underlying bedrock, meaning that while subsurface deposits existed at the sites, the soil profile precluded the preservation of the archaeological objects in situ. The expected archaeological activities for the ridge sites based on regional context (maintenance, transit, short term camps) suggested a low artefact frequency; combining this with the fluctuating soil matrix indicated a low potential to retrieve additional archaeological information. The two artefact scatter sites were also found to contain subsurface deposit but with varying levels of disturbance. The site on the low crest overlooking the creek junction displayed relatively intact soils which had been capped by deposits from the adjoining slope, preserving archaeological material. The other site was found to be severely disturbed. Archaeological salvage was recommended for the site overlooking the creek junction as it displayed moderate archaeological significance and the potential to inform further on Aboriginal landscape use.

5 Regional Character

Previous archaeological investigations have provided data on site distribution, site typology and lithic raw material use that aid in assessing the archaeological character of the region. Site frequency and density can be related to key landscape factors including distance to water, landform, slope gradient, soil landscape and proximity to environmental resources. Additionally, historical land use practices and disturbance must be taken into account. Archaeological sites identified by previous archaeological investigations demonstrate that the region was utilised for a diverse range of activities by past Aboriginal people.

Archaeological sites in the region of the current study area are predominantly open context sites (i.e. not associated with rock shelters). This is likely both a reflection of survey effort (investigations and surveys have more often concentrated on lower elevation areas where rockshelters would not be expected to occur) and underlying geology. While the Newcastle Coal Measures do contain sandstones, suitable topography and geomorphic processes are required to expose and weather these into overhangs or boulders suitable for closed context habitation or art sites. The steeper slopes and infrequent clifflines of the Awaba Hills region may contain shelters but these are likely to be rare and located only in less accessible areas not already subject to survey. In contrast, sandstone outcrops suitable for the creation of axe grinding grooves are a frequent occurrence within the numerous creeklines which cross the study area and surrounding region, and grinding groove sites are commonly recorded.

Regarding open context artefact sites, artefact density and intensity of occupation is generally higher in proximity to resource-rich zones such as the Hexham Swamp, around Lake Macquarie, and along the coastal strip. Midden sites containing artefacts, faunal remains and shell are also common in these areas. Middens would not be expected to occur in the current study area based on the distance from suitable resource zones. Within the Awaba Hills region, artefact sites along the elevated ridgelines, crests and spurs tend to be of lower density, and isolated finds or low density artefact scatters exposed by the eroding landscape are the most frequent site type.

The study area is located within a landscape with varying levels of natural and human disturbance. The construction of roads, utilities and structures in addition to historic mining, clearance of native vegetation, earthmoving and natural process such as erosion disturb both surface and subsurface deposits and remove old growth trees. Aboriginal objects are unlikely to survive in situ within these contexts. Conversely, ground surface visibility is often increased by these processes, leading to increased identification of surface artefacts in areas of disturbance.

Previous assessments within the study area have not identified any specific areas of potential for intact subsurface deposit, and identified sites tend to be located in disturbed contexts. Higher potential would be expected on low-gradient landforms in proximity to higher order creeklines such as Brush Creek or Maryland Creek, however flatter areas of ground are more likely to have been disturbed by modern land use. Previous assessments have also indicated the likelihood of unrecorded grinding groove sites higher up the creeklines in areas that are generally inaccessible due to thick vegetation.

5.1 Site predictions

Based on information from previous archaeological investigations, landscape context and regional character, site predictions for the project area include the following:

- Open artefact scatters / isolated finds. Surface artefacts are likely to be visible in areas of high surface visibility and exposure. As with previous studies in the area, surface disturbance may assist the identification of artefactual material, but makes the presence of intact sub surface archaeological deposit less likely.
- Intact archaeological sites are more likely to be identified in areas that have been subject to less intensive disturbance. Within the study area, areas of high disturbance associated with former mining, transport and utilities infrastructure display low to no potential for intact archaeology. Steep to precipitous slopes and attendant soil erosion and movement has also likely limited archaeological potential in the more elevated, rugged areas of the ridge system. Predicted archaeological potential on crests is increased by previous identification of sites on these landforms, but may be limited by disturbance.
- Artefact raw materials are likely to consist of tuff/mudstone, silcrete, chert and volcanics. The site types most likely to be encountered are low density open context artefact scatters and isolated artefacts.
- Grinding grooves. Grinding groove sites may occur on suitable outcrops of sandstone bedrock with access to flowing or standing water.
- Shelter sites (art and/or occupation): Shelter sites are considered unlikely, but may occur where suitable overhangs have formed in exposures of underlying sandstone. Art may occur at these sites where suitable surfaces are present within the shelter. Occupation deposits may occur where sediment has accumulated.

- Culturally Modified Trees. The project area retains large areas of native vegetation and any old growth trees that may be present have the potential to display scars of Aboriginal origin. The potential for modified trees is considered low to moderate, based on historic selective logging of the area for pit props and rail sleepers.
- Identification of archaeological sites is likely to be affected by differential visibility of the ground surface, but successful assessment of areas of PAD or archaeological potential can be made based on landform and other environmental factors such as erosion, aspect, distance to water and relationship to other identified sites.

6 Visual Inspection

6.1 Sampling strategy

The aim of the visual inspection was to conduct a pedestrian field visit to assess the study area and to record any Aboriginal archaeological sites or areas with the potential to contain Aboriginal objects. Given the early stage of the rezoning proposal and subsequent potential development planning, the field inspection was designed specifically to aid in identifying Aboriginal heritage opportunities and constraints early in the project. This approach allows for a more integrated and effective management approach to Aboriginal cultural heritage values in the rezoning and future development of the site. Pedestrian effort focused on the more elevated parts of the ridge system, where preliminary assessment has indicated that most residential development would be enabled by the proposed rezoning, and along the creeklines which have been repeatedly identified as archaeologically sensitive and contain known sites.

The majority of the study area was accessed using existing unsealed roads, tracks and trails and then inspected on foot. Particular attention was paid to areas where the landscape and archaeological background review indicated higher potential for Aboriginal archaeological sites, namely lower-gradient landforms along the larger creeklines, sandstone exposures, and crests on the more elevated parts of the ridge system. Where possible, creek channels were inspected for grinding grooves however thick to impenetrable vegetation precluded a full coverage inspection of these areas, particularly in the steeper upper parts of the catchments. Steep to precipitous slopes off the main ridgelines and spurs also hampered the survey effort.

Based on the archaeological background, landscape context and regional character, it was anticipated that overall surface visibility would be low except in areas of disturbance, particularly along tracks and the numerous service easements which cross the study area. Previous investigations have identified sites in these areas, albeit disturbed, and the higher level of archaeological visibility and exposure in these locations allowed for a more comprehensive assessment. The frequency and varied orientation and path of the numerous tracks allowed for a sample of all landforms to be inspected.

On the slopes and crests, field assessment focused on these areas of surface exposure, where there was a greater chance of identifying artefactual material. The generally poor visibility of the remainder of the study area led to an increased focus on landform and topography. Larger mature and old growth trees were also closely examined for evidence of cultural modification.

Assessment of archaeological sensitivity was also carried out, focusing on a combination of factors such as landform, topography, gradient, erosion, aspect, distance to water and relation to identified Aboriginal sites. The level of soil disturbance was also assessed, as this has the potential to impact upon any subsurface archaeology that may be present. This broader scale landscape-level assessment assists the planning process by identifying which areas are likely to require more detailed impact and significance assessment, identifying at an early stage potential outcomes for conservation, and encouraging development design and planning which recognises and is sensitive to Aboriginal heritage values. It also recognises that Aboriginal cultural values are not necessarily tied to archaeological values and encompass the whole landscape.

6.2 Field methods

The study area was traversed on foot using existing tracks for access. The inspection team consisted of Mark Rawson (Senior Archaeologist, KNC) and Pete Townsend (Sites Officer, Awabakal LALC). Survey was undertaken in late September - early October.

The inspection team were equipped with high resolution aerial photography and topographic maps showing the study area boundary. A non-differential GPS receiver was used for spatial recordings. All GPS recordings were made using the Geocentric Datum of Australia (GDA) coordinate system. Detailed notes on the condition of the study area were compiled by the inspection team including an assessment of surface visibility, vegetation coverage, modern disturbance and current land use. A full photographic record of field conditions and archaeological findings was compiled. Detailed recordings of identified Aboriginal archaeological sites will be used to register the sites on the AHIMS database.

6.3 Results

The visual inspection area comprises undulating country with steep slopes, and deep creek gullies. Most of the study area is covered by open forest and woodland native vegetation. Some portions have been disturbed from previous coal mining operations and feature artificial landscapes rehabilitated with native vegetation. There are also cleared strips made for overhead transmission line easements. Vehicle access was via locked gates on the Newcastle Link Road, and at power easements, and then a network of internal 4WD and trailbike tracks. Vehicle tracks are not maintained and were in very poor condition. Illegal dumping was evident with large amounts of rubbish and numerous burnt out cars.

The Newcastle Link Road (A15) follows a ridge crest, running east-west through the middle of the study area. To facilitate the inspection, the study area was divided into two parts, to the north and south of the road. Land to the south of the A15 was inspected first. It includes steep slopes running off the ridge to the south, interspersed with deep first order drainage gullies. Within this half of the study area is a cleared east-west transmission easement, with a locked 4WD access road running to a hillcrest and two large water reservoirs. Off this crest were a few 4WD tracks radiating out to the south, including Blue Metal Road which runs towards the suburb of Glendale. Another track runs down to the rear of Elmore Glen Retirement Village and Macquarie College.

The main watercourse is Brush Creek, a second to third order stream, which runs to the south near the western boundary of the study area. This creek emanates off the main ridgeline, and its waters eventually run to Lake Macquarie. Near the eastern boundary are other first order tributaries which run south to Winding Creek. While topography was generally steep in this part of the study area, there were some areas of level ground found on crests, and on both sides of Brush Creek, with potential for subsurface archaeological deposit. There are also exposures of sandstone bedrock on this creek with high potential for axe grinding grooves. Areas of low potential/sensitivity included disturbed service easements, areas of bull-dozing/earthworks, the badly eroded access tracks and areas formerly disturbed by construction including the A15.



Plate 1. View to south-west. This cleared easement and 4wd track was used to access the western boundary of the study area and elevated land immediately south of the A15 (at left). In far distance is roundabout at the intersection of Minmi Road and Northlakes Drive.



Plate 2. View to west. Newcastle Link Road (A15) follows a ridge crest, and runs through the centre of the study area from east to west. Road corridor is highly disturbed.

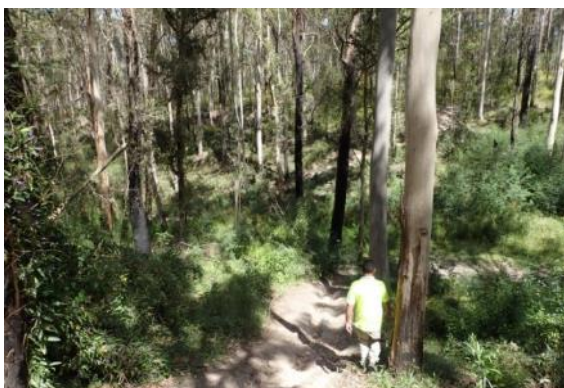


Plate 3. View to south. Headwater gullies with steep slopes are typical of land immediately south of the Link Road near the western boundary of the study area. Tributaries of Brush Creek.



Plate 4. View to north-west. Tributary of Brush Creek near western boundary. Sandstone exposures had potential for axe grinding grooves.



Plate 5. View to south-west. Western boundary of study area. Typical open forest on western side of Brush Creek. Landforms include moderate slopes running down to level benches above the creek.



Plate 6. View to west. South east corner of study area. Taken from entrance into Macquarie College off Lake Road. Easement ends at Brushworth Drive and Neilson Street, the western boundary of study area. Rolling ridgelines and steep slopes.



Plate 7. View to north-west. Southern boundary of study area. Looking along vehicle track back up to water reservoirs. Moderate to steep slopes with evidence of erosion.



Plate 8. View to east from near water reservoirs, just south of A15. Land here is elevated and actively eroding. Bushland of Angophora costata and Ironbark with recent bushfire damage. Soils are shallow and gravelly with claystone exposed in erosion scours and ironstone concretions. Low potential for sub surface archaeological deposit.

Land to the north of the A15 comprises slopes and headwater gullies off the main ridge inclined to the north. This part of the study area has been relatively more disturbed than the southern half. It includes artificial landscapes from former coal mining operations, now revegetated. Drainage is to the north-east. It includes two watercourses, one of them Maryland Creek, which emanates off the main ridge as headwaters. These watercourses eventually run to Ironbark Creek and the Hexham Swamp wetlands. The northern part of the study area also includes several areas of very steep (>30%) to precipitous slopes with some vertical faces, these generally zig-zag to the north through the centre of the study area to the west of the former mining operations and intersect some of the sideslopes above Maryland Creek. These display low potential for subsurface deposit but may contain grinding grooves or scarred trees or potentially rockshelters.

There are a number of previously registered Aboriginal sites within the study area, notwithstanding existing errors in the AHIMS database. These include axe grinding grooves, open artefact scatters, and isolated artefacts. Most grinding grooves have been found on creek lines where sandstone bedrock is exposed, but these could potentially be found off creeks wherever suitable sandstone outcrops occur. There is good potential for more grinding groove sites to be found in the study area. There is potential in some parts of the study area for sub-surface archaeological deposit (PAD) to occur. Further detailed archaeological survey would be required, particularly on level landforms overlooking creeks. Even after previous mining, logging, and bushfire disturbance, there is still low to moderate potential for modified trees to occur. These would be living mature native trees more than 150 years old, or dead mature trees.

Site types mentioned above are considered by the local Awabakal people as not just isolated, but components of a much broader Aboriginal cultural landscape (Pete Townsend, Awabakal LALC, pers.comm, 30/09/20). They are considered to be linked to other cultural places in the Newcastle area, including Mount Sugarloaf, an important place within the range of hills 10 kilometres to the west of the study area. Further assessment of Aboriginal cultural values will be required as part of the development planning process.



Plate 9. View to north-east along vehicle track that leads down from A15 towards areas of intensive coal mining activities. Showing typical exposures along track.



Plate 10. View to south-west. Disturbed terrain. Mound in former coal mining area. Tributary of Maryland Creek at right. The creek has been modified.



Plate 11. View to north. Western boundary of study area. Cleared easement along boundary. Crossing Maryland Creek in a gully in mid distance



Plate 12. View to north-east. Artefacts were found on this elevated ground above the confluence of Maryland Creek (left) with one of its tributaries (right).



Plate 13. View to east. Cleared transmission easement after it deviates to the east. Looking down to gully of Maryland Creek.



Plate 14. View to south-east. Disturbed terrain. Former coal mining land. Artificial landscape of former cuts and mounds now revegetated. Within valley of Maryland Creek.



Plate 15. View to south-west along cleared easement which runs up to a ridge in far distance. In distance is a deep gully with closed forest, a tributary of Maryland Creek. Axe grinding grooves were previously recorded in this gully. Slopes are very steep.

6.3.1 Newly identified Aboriginal archaeological sites

The visual inspection resulted in the identification of eight previously unrecorded Aboriginal archaeological sites and five areas of PAD. Sites included artefact scatters, isolated finds, and two modified trees. The PAD areas were identified at locations considered to display high potential for Aboriginal objects to be present based on their landform context, relationship to known archaeological sites and apparent low levels of disturbance. Sites and PADs were named according to landscape and site features, prefaced with 'Wallsend Rezoning' (WR) for the current project. Identified site and PAD locations are discussed below and shown in Figure 6.

Wallsend Rezoning Brush Creek AFT 1

Silcrete artefacts were found on the eastern side of Brush Creek in the south western part of the study area. Exposure was a cleared area at the junction of five vehicle tracks. The tracks are sheet eroded and there was good ground surface visibility. The first artefact was found on one track, 2 metres wide by >50 metres long, next to a stringybark tree. Landform is a broad open area of gentle lower slopes which incline to the west towards Brush Creek, with level benches. The distance to Brush Creek from the findspot is c.200 metres. Visibility at the first findspot was 30%, limited by leaf litter and ironstone gravels. Soils comprise a pale grey A unit over yellow clay subsoils. Underlying sandstone bedrock was exposed in gully erosion on nearby vehicle tracks.

Off the track exposures visibility was zero, with ground surfaces covered with a grassy understorey. Vegetation is open woodland dominated by Stringybark, Bloodwood and Angophora. There were stumps from previous logging in the area. There was some previous disturbance from bushfires, and there is a network of interconnecting vehicle and trailbike tracks. Potential for sub-surface deposit was considered moderate to high off exposures, to the north, west, south and east. The assessed site area based on landform extends across the broad area of gentle slopes and level ground, on the eastern side of Brush Creek between two tributary drainage lines.

Table 3. Artefacts recorded at WR Brush Creek AFT 1

Artefact type	Raw material	Length mm	Width mm	Thickness mm	Comments
Proximal Flake Fragment	Silcrete	20	31	9	Grey pink, glossy, large clasts, plain platform, <30% cobble cortex
Flake	Silcrete	51	40	8	Orange yellow, dull, scarred platform, feather termination



Plate 16. View to south-east. One artefact was found at range pole in foreground. A second was found in front of vehicle in distance.



Plate 17. Two silcrete artefacts found on vehicle track on eastern side of Brush Creek. Ventral surface.



Plate 18. View to west. Typical open country upslope of the artefact scatter, east of Brush Creek. There were numerous track exposures which require further inspection.

Wallsend Rezoning Brush Creek AFT 2

Four artefacts were found on a vehicle track exposure, on a wide area of gentle lower slopes and flats which are elevated above the eastern side of Brush Creek in the south western part of the study area. Access was via Neilson Street and then a locked gate on a cleared transmission easement. The artefacts were 300 metres north of the transmission easement, and 150 metres east of Brush Creek. Exposure dimensions were >100 metres by 10 metres wide. Visibility was 30-50%, limited by pebble gravels and some leaf litter. Tracks are casually used by trailbikes and mountain bikes. Soils are pale grey over yellow clay subsoils and appeared substantially intact away from the tracks. Vegetation is open woodland including Angophora and Bloodwood, with ground cover of *Themeda australis*. Two artefacts were found within a 1m² area on a small vegetated 'island' between two tracks. Two more artefacts were found 8 metres further north, on the western edges of one track.

The assessed site area based on landform extends across the broad area of gentle slopes and level ground, on the eastern side of Brush Creek. The site is separated from Brush Creek AFT 1 by an intermittent drainage line to the north.

Table 4. Artefacts recorded at WR Brush Creek AFT 2

Artefact type	Raw material	Length mm	Width mm	Thickness mm	Comments
Flake	Silcrete	16	20	4	Orange pink, dull, focal platform, step termination
Distal Flake Fragment	Silcrete	19	23	7	Red brown, distal of split flake (Left), hinge termination.
Flake	Silicified tuff	9	21	7	Red brown, >70% white cortex, plain platform.
Flake	Silicified tuff	36	23	20	Red brown, thick flake, large Hertzian cone, off corner rotated core, blocky



Plate 19. View to north-east. Two artefacts were found at range pole, and two more 8 metres to the north near vehicle. Brush Creek is c.150 metres to left of photo.



Plate 20. View to east. Soil profile on side of track showing pale grey A unit over yellow subsoil.



Plate 21. Artefacts found at WR Brush Creek AFT 2. Ventral surface.

Wallsend Rezoning Brush Creek AFT 3

A silcrete artefact was found on a vehicle track exposure. Landform is a wide benched area of very gently sloping ground on the western side of Brush Creek, a permanent watercourse in the south western part of the study area. Distance to the creek from the artefact findspot is c. 130 metres, to the east. This location was accessed via a locked gate at the eastern end of Transfield Avenue, Edgeworth, just east of its intersection with Neilson Street.

Artefacts were identified in the same topographic context as previously recorded AHIMS sites 38-4-1284 and 38-4-1286 to the south (outside of the current study area). To the east is a registered axe grinding groove site (38-4-0442), comprising seven grooves on Brush Creek. Vegetation is open forest dominated by Angophora with ground cover of blady grass. There has been illegal dumping of rubbish to the north, and a burnt out dumped car to the south at the intersection of two tracks. The site area extends north of the artefact findspot across the gentle benched slopes overlooking the creek. The site is located opposite to WR Brush Creek AFT 1 and 2 and occupies a similar landform on the other side of the main creek channel.

Table 5. Sample artefact recorded at WR Brush Creek AFT 3

Artefact type	Raw material	Length mm	Width mm	Thickness mm	Comments
Flake	Silcrete	25	30	15	Red, ridged platform, plunging termination, dorsal potlid scars, thick flake off rotated core.



Plate 22. View to south. Artefact found on track at range pole. Brush Creek to left of photo.



Plate 23. Artefact found vehicle track exposure on western side of Brush Creek. Ventral surface.

Wallsend Rezoning Maryland Creek AFT 1

At least six artefacts were found on a narrow trailbike track exposure on the southern side of Maryland Creek. This is on an elevated and mostly level landform, overlooking the confluence of Maryland Creek and an unnamed tributary. The first artefact, a silicified tuff core, was found just above the creek, 15 metres from the current channel. One tuff artefact was found 6 metres to the south, and a cluster of artefacts was found another 6 metres up the track. Landform is a terrace or bench of elevated level ground, at the base of slopes in a steep sided creek gully. The landform is also level and elevated on the eastern side of the tributary.

Dimensions of the track exposure were 30 metres long by 60cm wide. Visibility was c.35%, limited by leaf litter and some ironstone gravels. Vegetation is open forest dominated by Grey Gum, Spotted Gum, and Stringybark. Ground cover was Lomandra, native grasses, and creepers such as Devils Twine. Site extent includes similar elevated level ground on the opposite side of the tributary creek to the east of the confluence. There is considered high potential for subsurface deposit on the landform where the artefacts were found, especially to the south and west of the creek confluence, and on the opposite eastern side of the tributary creek.

Table 6. Artefacts recorded at WR Maryland Creek AFT 1

Artefact type	Raw material	Length mm	Width mm	Thickness mm	Comments
Core	Silicified tuff	34	27	25	Grey with pink mottles. Asymmetric alternating. 2 platforms. 8 negative scars. Some parallel. Longest scar 28mm.
Medial Flake Fragment	Silicified tuff	32	25	8	Grey, clear bulb, smooth
Proximal Flake Fragment	Silicified tuff	23	19	8	Grey, focal platform.
Proximal Flake Fragment	Silicified tuff	167	11	Grey, focal platform.	
Proximal Flake Fragment	Silcrete	20	20	5	Dark red brown, >70% smooth cobble cortex
Angular Fragment	Silcrete	10	10	7	Red, small blocky frag.



Plate 24. View to north-east. A silicified tuff core was found at range pole, on elevated ground just above Maryland Creek

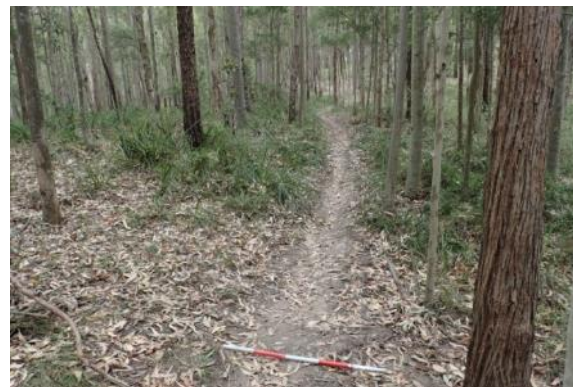


Plate 25. View back to south. More artefacts were found up to 12 metres from range pole.



Plate 26. Artefacts found on southern side of Maryland Creek, overlooking confluence with a tributary watercourse.

Wallsend Rezoning Link Rd North AFT 1

A flake fragment of chert was found on a large area of level ground on the crest of a ridge. This is north-east of another crest which was considered to have PAD. The artefact was found at the junction of two tracks. Visibility was 40%, limited by leaf litter and fresh dust from trailbikes. Vegetation is open forest dominated by Spotted Gum, Ironbark, and some Grey Gum. Nearest watercourses include a 1st order tributary in a deep gully 300 metres to the east which contains previously recorded grinding groove site 38-4-0438, and Maryland Creek 300 metres to the north.

Ground surface visibility off the tracks was zero, due to a cover of Lomandra and native grasses. The findspot is c.30 metres west of two wooden power poles within a 30 metre wide cleared transmission easement. This easement has a rough 4WD track which was the vehicle access to the site. Disturbance to the crest includes tree clearing for the adjacent easement, previous logging, illegal rubbish dumping, and trailbike activity. Level ground on the crest is quite extensive and continues to the north-east. There is considered to be moderate to high potential for further low density sub-surface deposit in less disturbed parts of the crest, to the north, north-east, and south-west of the findspot (WR PAD 5). Site extent for WR Link Rd North AFT 1 includes the immediate area of level ground around the artefact findspot.

Table 7. Artefact recorded at WR Link Rd North AFT 1

Artefact type	Raw material	Length mm	Width mm	Thickness mm	Comments
Proximal Flake Fragment	Chert	20	27	7	Dark grey black, banded. Faceted platform.



Plate 27. View to north-west. Chert artefact was found on ridge crest, at this track junction.

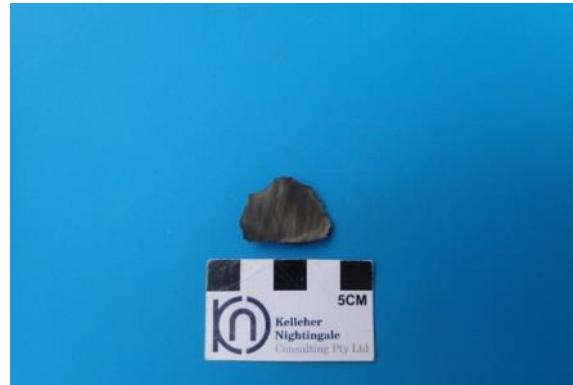


Plate 28. Proximal fragment found on ridge crest. Ventral surface.



Plate 29. View to south-west along cleared power easement which follows a ridgeline. The artefact was found on a side track into bushland, to right of photo.

Wallsend Rezoning Link Rd North AFT 2

An isolated artefact of silcrete was found on a bend in a vehicle track, 250 metres north of a locked gate at a roundabout on the Newcastle Link Road. Landform is the north flanks of a ridge crest, sloping to the north and west. Exposure dimensions were >25 metres by 5 metres wide. Nearest watercourses are the headwaters of two northerly flowing 1st order tributaries, one 100m to the north, another 200 metres to the west. Visibility was c.30%, limited by both natural and introduced top-dressed gravels.

The track is on the northern edge of a large clearing associated with former coal mining activities. The clearing is covered in weed grasses. Soils on an embankment next to the track were pale whitish grey; with ironstone fragments up to 5cm. Vegetation off the track to the north is open forest of Ironbark, Grey Gum, and Spotted Gum, with ground cover of *Themeda australis* grasses, and *Acacia* regrowth. There is low potential for associated deposit in the surrounding area. Bushland to the north and west is limited by steep slopes leading into the drainage gully. The cleared crest to the south has no potential due to the nature and extent of previous disturbance. The site is disturbed and assessed extent is limited to the object findspot.

Table 8. Artefact recorded at WR Link Rd North AFT 2

Artefact type	Raw material	Length mm	Width mm	Thickness mm	Comments
Distal Flake Fragment	Silcrete	39	22	32	Yellow red, <30% cortex, plunging termination



Plate 30. View to west. Artefact was found on track at range pole. Cleared area to left, bushland to right.



Plate 31. Artefact recorded at WR Link Rd North AFT 2. Ventral surface.

Wallsend Rezoning Brush Creek TRE 1

A large living Spotted Gum (*Corymbia maculata*) was identified with an elongate oval shaped cavity on its north side. Features of the scar are consistent with Aboriginal cultural modification. The cavity is filled with decaying wood from a termite nest and is in poor condition. Dimensions of the cavity are 200cm long by 35cm wide. Regrowth thickness is 25cm. The bottom of the cavity is 50cm above ground level.

Landform is a moderate to steeply sloping spur slope off the southern side of the ridgeline occupied by the Newcastle Link Road. Slopes run down to the south-east into a gully towards the confluence of two 1st order tributaries of Brush Creek. The tree is also a habitat tree for King Parrots and has been tagged with the number "149" to the right of the scar cavity. Trunk width half way up the cavity is 100cm. Tree height is estimated as >25 metres. The tree is in an open forest of Spotted Gum, Grey Gum, and Ironbark. Understorey is a monoculture of yellow flower pea shrubs, possibly *Dillwynia* sp. The tree is clearly older than surrounding trees, being larger in girth and height.



Plate 32. View to east. Steep spur slopes off ridge. Tree at right.



Plate 33. View to south. Modified tree. Note cavity filled by termite nest.

Wallsend Rezoning Maryland Creek TRE 1

An elongate oval scar was found on a living Spotted Gum, on moderate mid slopes off a ridgeline in the north eastern corner of the study area north of the Newcastle Link Road. Slopes run down to the south east, to a 1st order tributary, and Maryland Creek. Access was via a locked gate on Newcastle Link Road, and then a 4wd track along a cleared power easement.

The scar is consistent with Aboriginal cultural modification, possibly for a shield or coolamon given its shape and size. Scar condition is poor. There is a central woody strip still intact, but most has been eaten by termites. There were eucalypt leaves packed into the cavity, possibly a possum nest. The scar faces almost due north. Scar length is 80cm and mid width is 17cm. Regrowth thickness is 13cm. The base of the scar is 30cm above ground level. The tree is estimated as c.30 metres tall. Surrounding vegetation is open forest of Spotted Gum and Ironbarks.



Plate 34. View to south. Scar cavity on northern side of Spotted Gum. In distance is deep gully of a tributary of Maryland Creek.



Plate 35. View to west. Side view showing extent of regrowth. In background is cleared easement and 4wd access track.



Plate 36. View to south showing detail of bark removal scar and regrowth.

6.3.2 Potential archaeological deposits

Five PADs were also identified during the visual inspection. These occurred on a range of landforms and were defined as areas displaying high potential for archaeological deposit based on landscape context and relationship to identified sites but where archaeological visibility was not sufficient to identify artefacts during the site visit, despite close inspection. PAD areas are described below and shown in Figure 6.

Wallsend Rezoning PAD 1

This comprised an area of PAD located on a gentle gradient, benched lower slope along the eastern side of Brush Creek in the south western part of the study area. The PAD was identified on a landform to the north of artefact sites WR Brush Creek AFT 1 and 2, and forms part of a series of benched slopes overlooking the creek and extending north along the watercourse. It is separated from WR Brush Creek AFT 1 by a drainage channel. The PAD is situated between the confluences of two such drainage lines with Brush Creek. The PAD area excludes a strip of high disturbance along a service easement which runs east-west through the centre of the PAD. Given the confirmed presence of artefacts at similar landforms in the immediate vicinity, the area was designated as PAD.



Plate 37. View to north over level ground. High potential for archaeological deposit. Brush Creek to left.

Wallsend Rezoning PAD 2

This PAD was identified slightly higher up the catchment, on a benched slope/flat below a spur crest running down to a tributary of Brush Creek. The PAD is located on the western side of the creek above a large bend in the watercourse, in a comparable landform to WR Brush Creek AFT 1-3 and WR PAD 1. Ground surface visibility was low during the visual inspection and no artefacts were identified. Areas to the north along the creek channel are steeply sloping but the portion of the landform occupied by the PAD displays a relatively gentle to flat gradient and the area would have been suitable for use as an Aboriginal campsite. Drainage confluences are located to the north and east along the creekline. Given the confirmed presence of artefacts at similar landforms in the immediate vicinity, the area was designated as PAD.



Plate 38. View to south showing landform. Tributary of Brush Creek at left.



Plate 39. View to north. Tributary of Brush Creek at right. Low visibility.

Wallsend Rezoning PAD 3

This comprised an area of PAD located on a small, prominent conical crest landform to the south of the Hunter Water reservoirs south of the Newcastle Link Road. The landform forms a local high point above the lower reaches of the portion of Brush Creek running through the study area and provides good views to the west over the creek valley and toward the Sugarloaf Range. A small ridge runs off the crest to the south east and is included in the PAD area. Previously recorded AHIMS sites 38-4-1697 and 38-4-1698 were identified on the disturbed slopes below this ridgeline to the south east. Two westerly running spurs from the conical crest lead directly to the creekside landforms occupied by WR Brush Creek AFT 1 and 2. Given its landform context, apparent good depth of soil and low levels of visible disturbance the area was designated as PAD.



Plate 40. View to west from small crest.



Plate 41. View to north showing change in slope gradient off crest.

Wallsend Rezoning PAD 4

This PAD was identified in the north western corner of the study area on a level to gently sloping landform above Maryland Creek. The PAD occupies the lower slope below and to the south east of WR Maryland Creek TRE 1 and is also located in proximity to previously recorded grinding groove site AHIMS 38-4-0451. It occupies a comparable landform to WR Maryland Creek AFT 1, c. 200 metres to the south. Disturbance levels were assessed as low and the area appeared to retain a good depth of soil. Potential for archaeological material is considered to be high based on landform context and relationship to other sites.



Plate 42. View downslope to the south east from near WR Maryland Creek TRE 1 towards gentle lower slope landform at right. PAD.

Wallsend Rezoning PAD 5

This comprised a large area of PAD located across a crest/saddle system on a north-easterly running spur north of the Newcastle Link Road in the western part of the study area. A cleared transmission easement runs through the PAD area, which encompasses two crests on the ridgeline connected by a saddle. The northern crest contains identified archaeological site WR Link Rd North AFT 1. During recording of this site there was considered to be moderate to high potential for further low density sub-surface deposit in less disturbed parts of the crest, to the north, north-east, and south-west of the findspot and this area has been designated as PAD. Relatively large parts of the crests are level to gently inclined and are more likely to have retained deposit than steeper areas more prone to erosion however exposures were infrequent during the visual inspection and no artefacts were identified. The crests look out to the north-west and west, towards a deep gully formed by Maryland Creek, which is c.300 metres downslope. Very steep slopes border the landform to the north, east and south-east, forming a well-defined, elevated area.



Plate 43. View to north-east. Crest landform. Zero visibility



Plate 44. View to north. Western flanks of crest had exposure along a trailbike track

6.4 Summary

The visual inspection resulted in the identification of eight previously unrecorded Aboriginal archaeological sites and five PADs within the study area. Sites included artefact scatters, isolated finds, and two modified trees. The archaeological sites were registered on the AHIMS database following the survey. The PAD areas were identified at locations considered to display high potential for Aboriginal objects to be present based on their landform context, relationship to known archaeological sites and apparent low levels of disturbance. Comment from Awabakal LALC representative Pete Townsend highlighted that all sites should be considered as forming part of the larger cultural landscape and not treated in isolation.

Identified sites and PAD areas were consistent with the predictions for the study area developed following background review. Within the wider region, level, elevated areas in proximity to watercourses and elevated ridge landforms have repeatedly been identified as archaeologically sensitive locations. Comparable landforms within the study area were found to contain sites and PADs. The presence of two modified trees and numerous previously recorded grinding grooves further contributes to an understanding and appreciation of the range of activities and Aboriginal land use practices that the study area supported.

The sloping nature of large parts of the study area's topography has influenced archaeological potential, as large areas exhibited gradients too steep to enable the accumulation of archaeological objects. Additionally, large parts of the study area have been previously disturbed by coal mining activities and construction and maintenance of services and transport and utilities easements. These areas were considered to display low to no potential to contain any intact deposits.

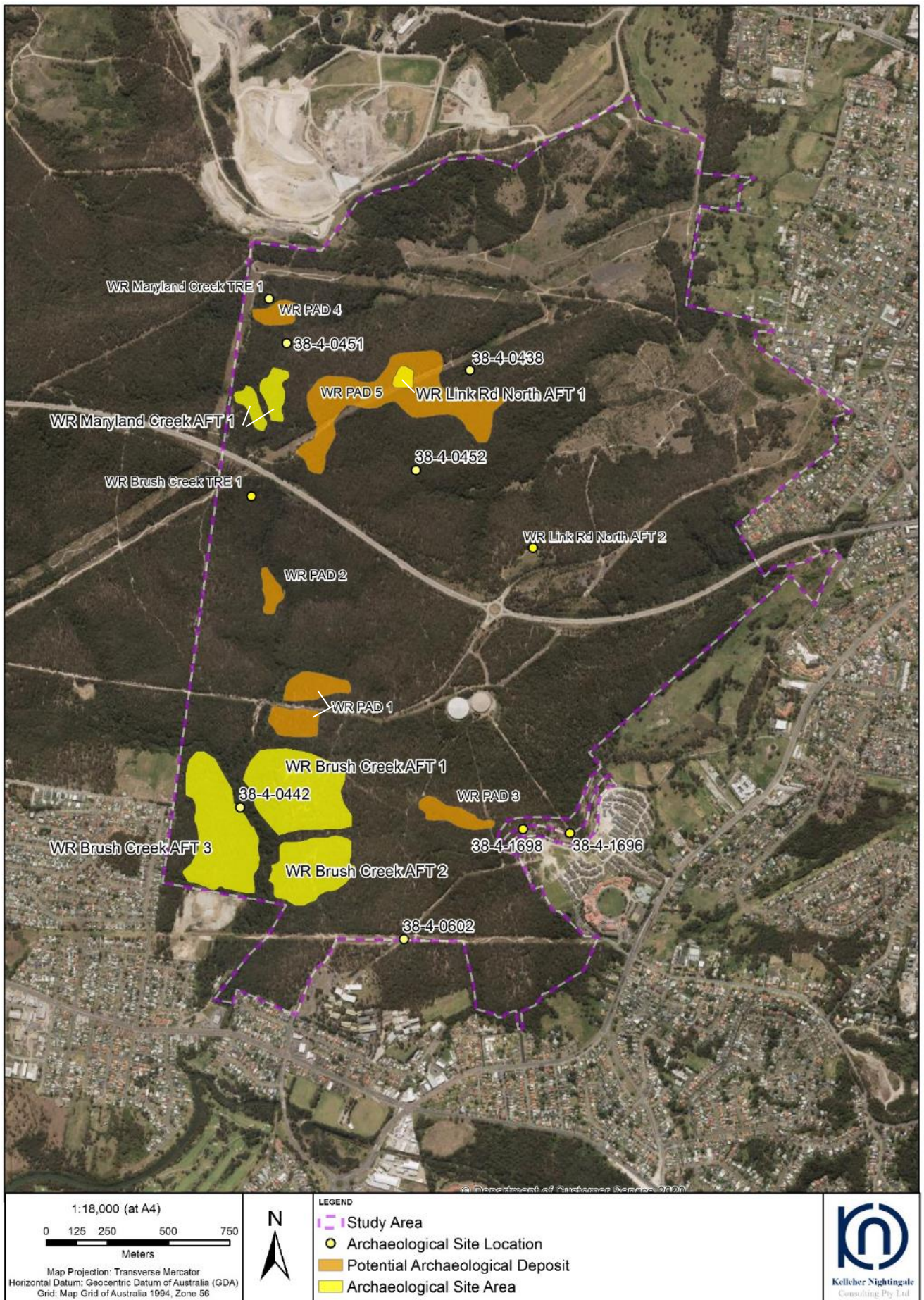


Figure 6. Identified Aboriginal archaeological sites within the study area – AHIMS and visual inspection results

7 Assessment of Archaeological Sensitivity

Combining data from the review of landscape context, archaeological background information, database searches and the results of the visual inspection allows for an assessment of the archaeological sensitivity of the study area to be made. Development of a broad-scale model of archaeological sensitivity early in the planning process is highly beneficial for Aboriginal heritage management as it can be used to guide future investigations. It can be integrated with archaeological site data and Aboriginal cultural values to identify areas for priority conservation or those requiring specific assessment as part of future development studies. It can also be used during development of the masterplan to ensure Aboriginal heritage values are considered and established early during the planning process.

Based on available data, three levels of sensitivity have been assigned to the Wallsend Rezoning study area. The model can be refined by future investigations, Aboriginal community consultation and more detailed field studies as development planning progresses. Archaeological sensitivity of the study area is characterised below and shown in Figure 7.

High Archaeological Sensitivity

Areas mapped as 'high archaeological sensitivity' (shown as pink on Figure 7) are those which contain known Aboriginal archaeological sites and PADs or have moderate-high assessed potential for further sites to occur based on the established local and regional archaeological context. Examples include the low gradient landforms along Brush Creek in the south western portion of the study area, well-defined and elevated ridge crests with low disturbance on both sides of the Newcastle Link Road, and low gradient landforms along Maryland Creek in the north eastern corner of the study area. Localised disturbances exist but are generally small in scale. Creeklines in the study area have also been assessed as displaying high sensitivity due to the presence of outcropping sandstone suitable for the creation of grinding grooves as well as the confirmed occurrence of this site type. These areas will require further investigation and targeted archaeological survey. High sensitivity areas should be considered for future conservation zones.

Moderate Archaeological Sensitivity

Areas mapped as 'moderate archaeological sensitivity' (shown as no colour on Figure 7) encompass the majority of the study area. They contain landforms where Aboriginal sites may occur but with a lesser likelihood than high sensitivity areas. They may be considered to display low to moderate archaeological potential. These areas have not been subject to the same gross landscape disturbance as low sensitivity areas but may have localised disturbances resulting from modern land use (unformed tracks, rubbish dumping) or steeper slopes where increased erosion of topsoils has reduced the potential for buried deposits. Steep slopes are unlikely to contain intact open artefact sites, but may host modified trees or potentially rockshelter sites if suitable sandstone outcrops exist along the cliffines. These areas would require further investigation, archaeological survey and impact assessment depending on the masterplan and projected development layout.

Low Archaeological Sensitivity

Areas mapped as 'low archaeological sensitivity' (shown as teal on Figure 7) comprise those where landscape disturbance has removed or severely limited archaeological potential. Within the study area, a range of land uses have previously impacted the land and reduced the likelihood of archaeological sites. Examples include the areas formerly subject to surface disturbance as part of coal mining activities, bulldozed service and infrastructure easements, areas affected by road and track construction and utilities, areas formerly subject to earthworks and clearing, and modified areas along the creeklines. These display low to no potential for intact Aboriginal archaeological sites, although isolated artefacts may occur anywhere in this landscape they are highly unlikely to be in situ. It should be noted that Aboriginal cultural values for these areas are not necessarily tied to physical factors such as the presence of archaeological sites, and an area of low or no archaeological sensitivity may still be of high cultural value. Further assessment of Aboriginal cultural values and consultation with Aboriginal stakeholders is required as part of future assessments for the development.

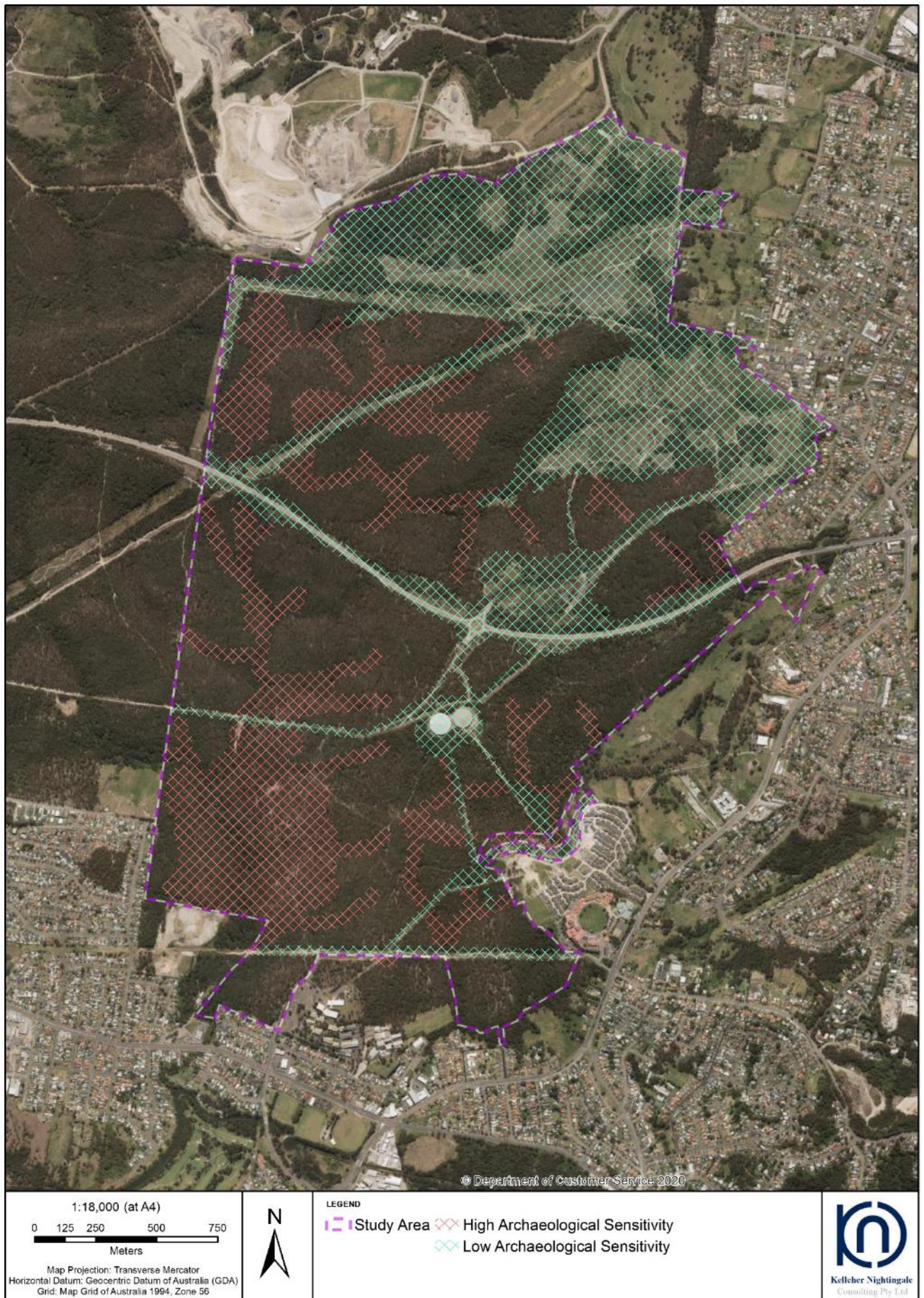


Figure 7. Assessed archaeological sensitivity within the study area (moderate sensitivity shown no colour)

8 Discussion

The Wallsend Rezoning Aboriginal heritage study has established that the study area contains Aboriginal archaeological sites and heritage values which need to be considered as part of the overall development planning process. The study area displays a range of archaeological sensitivity from low to high. Consideration of Aboriginal heritage early in the planning process allows for better management of identified heritage values including potential conservation outcomes and sensitive development planning which recognises and seeks to preserve these values.

Based on database searches, review of previous investigations and the results of the visual inspection, the study area contains 15 extant Aboriginal archaeological sites and five locations of PAD (Table 9). Errors on the AHIMS database have been corrected in the course of this study and future detailed investigations can now be undertaken with greater confidence. The identification of previously unknown sites in the study area, even in areas which have been previously assessed, supports the conclusion that Aboriginal archaeological features likely occur throughout the study area in a variety of landscape contexts. The archaeological sensitivity model presents a baseline assessment of where these are most likely to occur and can be used to guide development planning accordingly. Further detailed assessment will be required during the development process to ensure these are considered and managed appropriately.

Additional assessment should also include a consultation process with Aboriginal stakeholders and an assessment of the Aboriginal cultural values of the identified sites and wider study area. Previous investigations have repeatedly identified the elevated ridge system as forming part of key travel networks between the coast and hinterland, with spatial and spiritual links to the Sugarloaf Range. Aboriginal walking tracks in the vicinity of the study area have also been identified of high cultural value. Initial consultation with the Awabakal LALC has underscored that all archaeological and cultural features exist as part of a unified Aboriginal cultural landscape and should be considered in this context. These Aboriginal heritage values cannot be understood in isolation as there is a complex network of physical, social, cultural and spiritual links between them. The contemporary Aboriginal community retains a strong attachment to this cultural landscape and their participation and involvement in the ongoing assessment process is vital in building a more complete understanding of the Aboriginal cultural heritage resource.

Table 9. Identified Aboriginal archaeological features of the study area

AHIMS number	Name	Type/Feature	Landscape Context
38-4-0438	Rons find;	Grinding Groove	In creekbed of Maryland Creek tributary
38-4-0442	Brush Creek	Grinding Groove	In creekbed of Brush Creek
38-4-0451	Maryland Creek;	Grinding Groove	In creekbed of Maryland Creek
38-4-0452	Rons site; Gretley Colliery;	Grinding Groove	In creekbed of Maryland Creek tributary
38-4-0602	BRUSH CREEK 1	Potential Raw Material Source	Highly disturbed upper slope along transmission easement
38-4-1696	EG_001	Artefact	Highly disturbed midslope
38-4-1698	EG_003	Artefact	Highly disturbed upper slope
38-4-2063	WR Brush Creek AFT 1	Artefact	Gentle gradient landform east of Brush Creek
38-4-2064	WR Brush Creek AFT 2	Artefact	Gentle gradient landform east of Brush Creek
38-4-2065	WR Brush Creek AFT 3	Artefact	Gentle gradient landform west of Brush Creek
38-4-2056	WR Brush Creek TRE 1	Modified Tree	Moderate to steep slope off ridge spur
38-4-2066	WR Link Rd North AFT 1	Artefact	Level area on elevated and well-defined ridge crest
38-4-2067	WR Link Rd North AFT 2	Artefact	Slope adjoining highly disturbed ridge crest
38-4-2058	WR Maryland Creek AFT 1	Artefact	Elevated landform above Maryland Creek/tributary confluence
38-4-2057	WR Maryland Creek TRE 1	Modified Tree	Moderate midslope overlooking Maryland Creek
N/A	WR PAD 1	Potential Archaeological Deposit	Gentle gradient landform east of Brush Creek
N/A	WR PAD 2	Potential Archaeological Deposit	Gentle gradient landform west of Brush Creek tributary
N/A	WR PAD 3	Potential Archaeological Deposit	Level area on small, prominent ridge crest
N/A	WR PAD 4	Potential Archaeological Deposit	Gentle gradient landform west of Maryland Creek
N/A	WR PAD 5	Potential Archaeological Deposit	Well-defined, elevated crest/saddle on large ridge spur

9 Indicative Structure Plan

An indicative structure plan has been prepared for the study area to assist with the planning and design process of a development masterplan. The indicative structure plan provides a broad overview of anticipated future land uses within study area based on early stage assessment of its development potential.

The Wallsend Rezoning Aboriginal heritage study has established that the study area contains Aboriginal archaeological sites and heritage values which need to be considered as part of the overall development planning process. Based on database searches, review of previous investigations and the results of the visual inspection, the study area contains 15 extant Aboriginal archaeological sites and five locations of PAD. The location of the sites/PADs in relation to the indicative structure plan for the proposal is shown in Figure 8 (next page). Figure 9 shows the areas of low, moderate and high archaeological sensitivity in relation to the indicative structure plan.

The indicative structure plan indicates that the majority of identified sites and PADs may be impacted to some degree by development. Table 10 lists the identified sites/PADs and projected future land uses based on the draft plan. A number of sites and areas of high archaeological sensitivity are located within areas indicated as Conservation/Riparian Land. This suggests some level of conservation will be possible within the overall development. Other are at least partially located within areas indicated for residential, infrastructure or leisure land uses and some level of impact to these sites/areas is likely.

The act and process of rezoning does not affect or impact Aboriginal objects in and of itself, however it enables subsequent development and land use that may potentially impact on objects, archaeological sites, and areas of Aboriginal cultural heritage value. More detailed impact assessment would be therefore be required following development of a draft masterplan and prior to any development occurring.

Table 10. Identified Aboriginal archaeological features and indicative structure plan

AHIMS number	Name	Type/Feature	Land Uses
38-4-0438	Rons find;	Grinding Groove	Conservation Land
38-4-0442	Brush Creek	Grinding Groove	Riparian Land
38-4-0451	Maryland Creek;	Grinding Groove	Riparian Land
38-4-0452	Rons site; Gretley Colliery;	Grinding Groove	Riparian Land
38-4-0602	BRUSH CREEK 1	Potential Raw Material Source	Major Road
38-4-1696	EG_001	Artefact	Conservation Land
38-4-1698	EG_003	Artefact	Conservation Land
38-4-2063	WR Brush Creek AFT 1	Artefact	Residential Land; Major Road; Local Road; Playing Fields; Public School
38-4-2064	WR Brush Creek AFT 2	Artefact	Residential Land; Major Road; Local Road; Playing Fields; Public School
38-4-2065	WR Brush Creek AFT 3	Artefact	Residential Land; Major Road; Local Road; Riparian Corridor
38-4-2056	WR Brush Creek TRE 1	Modified Tree	Conservation Land
38-4-2066	WR Link Rd North AFT 1	Artefact	Residential Land
38-4-2067	WR Link Rd North AFT 2	Artefact	Major Road
38-4-2058	WR Maryland Creek AFT 1	Artefact	Residential Land; Local Road; Riparian Corridor; Conservation Land
38-4-2057	WR Maryland Creek TRE 1	Modified Tree	Conservation Land
N/A	WR PAD 1	Potential Archaeological Deposit	Residential Land; Local Road; Riparian Corridor
N/A	WR PAD 2	Potential Archaeological Deposit	Conservation Land; Riparian Corridor
N/A	WR PAD 3	Potential Archaeological Deposit	Residential Land; Collector Road; Conservation Land
N/A	WR PAD 4	Potential Archaeological Deposit	Conservation Land
N/A	WR PAD 5	Potential Archaeological Deposit	Residential Land; Local Road; Collector Road; Local Park

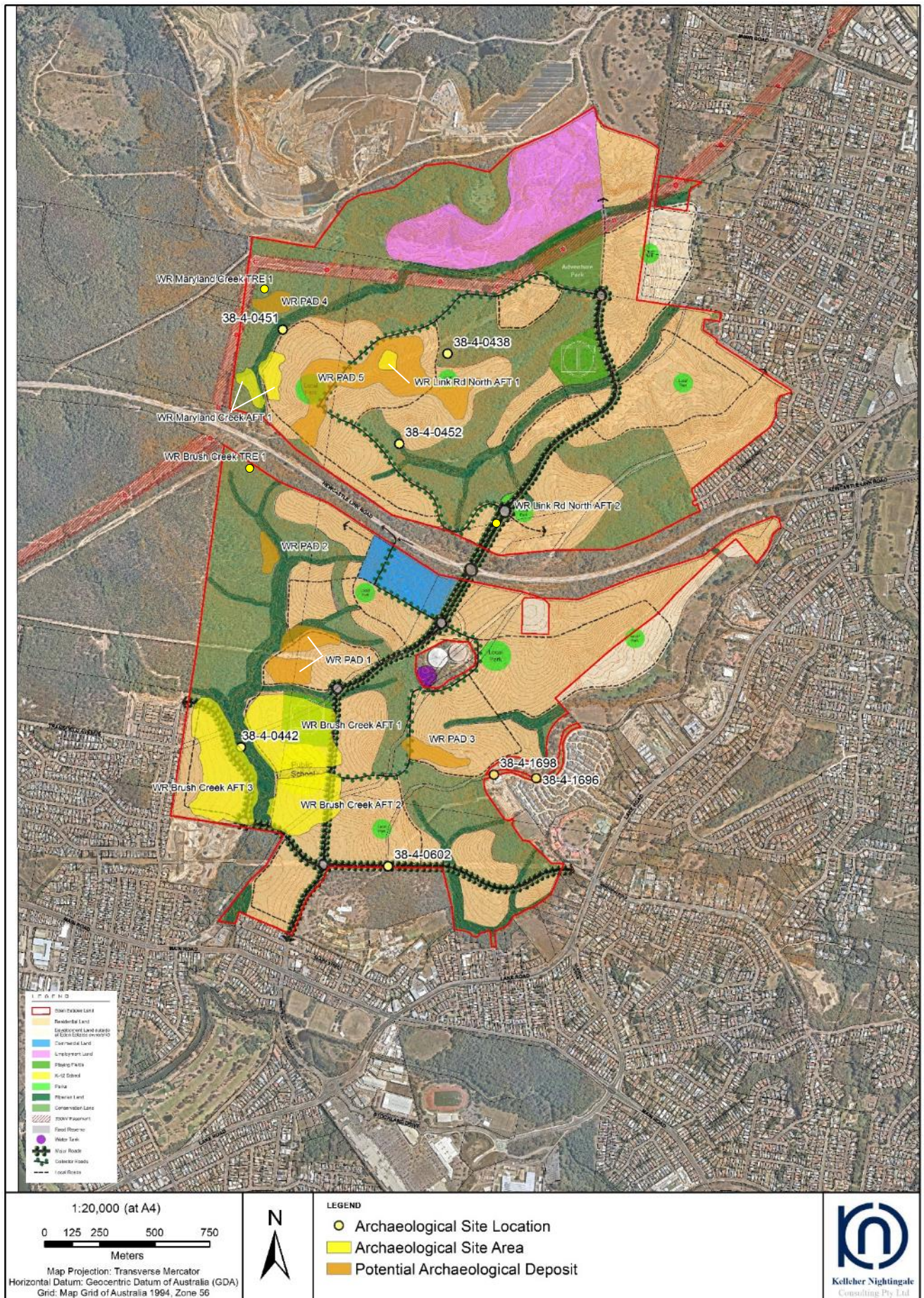


Figure 8. Indicative structure plan and identified archaeological sites/PADs

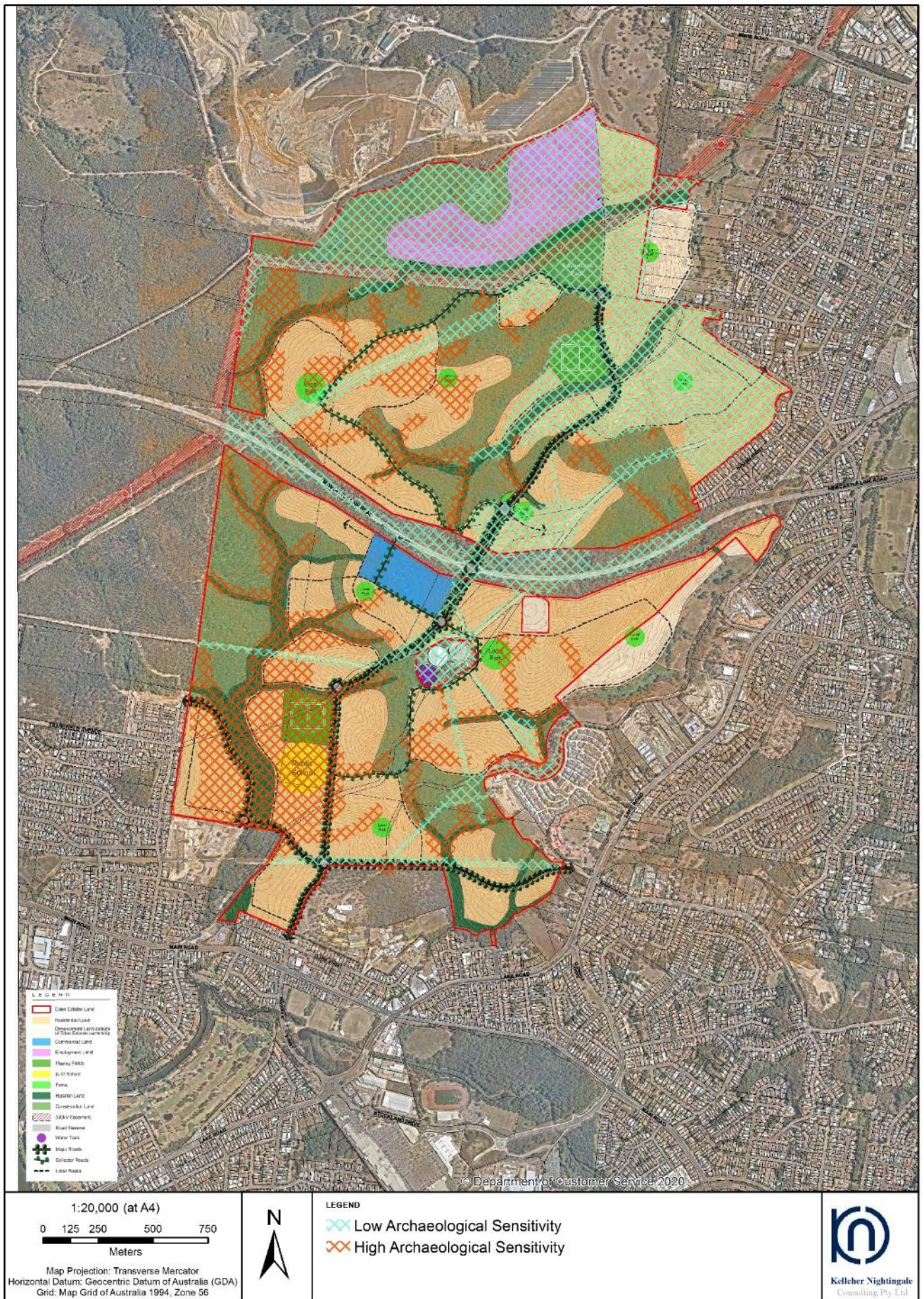


Figure 9. Indicative structure plan and areas of archaeological sensitivity (moderate sensitivity shown no colour)

10 Legislative Considerations

The *National Parks and Wildlife Act 1974* is the primary statutory control dealing with Aboriginal heritage in New South Wales. Items of Aboriginal heritage (Aboriginal objects) or declared Aboriginal places are protected and regulated under the Act.

An “Aboriginal object” is defined under the Act as “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”. As such, Aboriginal objects are confined to physical evidence and are commonly referred to as Aboriginal sites.

Aboriginal objects are protected under section 86 of the Act. It is an offence to harm or desecrate an Aboriginal object, either knowingly [section 86 (1)] or unknowingly [section 86 (2)].

There are offences and penalties relating to harm to, or desecration of, an Aboriginal object or declared Aboriginal place. Harm includes to destroy, deface, damage or move. Penalties are tiered according to offences, which include:

- a person must not harm or desecrate an Aboriginal object that the person knows is an Aboriginal object;
- a person must not harm or desecrate an Aboriginal object (strict liability offence);
- a person must not harm or desecrate an Aboriginal place (strict liability offence);
- failure to notify Office of Environment and Heritage [now Heritage NSW] of the location of an Aboriginal object (existing offence and penalty); and
- contravention of any condition of an Aboriginal Heritage Impact Permit.

Under section 87 (1) it is a defence if “(a) the harm or desecration concerned was authorised by an Aboriginal heritage impact permit, and (b) the conditions to which that Aboriginal heritage impact permit was subject were not contravened”.

Section 87 (2) of the Act provides a defence against prosecution under section 86 (2) if “the defendant exercised due diligence to determine whether the act or omission constituting the alleged offence would harm an Aboriginal object and reasonably determined that no Aboriginal object would be harmed”.

Under section 90 (1) of the Act “the Director-General may issue an Aboriginal heritage impact permit”. The regulation of Aboriginal heritage impact permits is provided in Part 6 Division 2 of the Act, including regulations relating to consultation (section 90N).

An Aboriginal heritage impact permit (AHIP) issued under section 90 (1) of the Act is required for any activity which will harm an Aboriginal object or declared Aboriginal place.

11 Management Strategies and Policies

As discussed in the preceding chapter, the primary statutory control dealing with Aboriginal heritage in New South Wales is the *National Parks and Wildlife Act 1974* (NPW Act). The *Environmental Planning & Assessment Act 1979* may also direct the Aboriginal heritage impact assessment and approval process for certain development or infrastructure that is determined to be State Significant. For the proposed rezoning and eventual potential development of the current study area, the NPW Act is the appropriate statutory control.

In addition to statutory obligations under the NPW Act, a number of existing management strategies, principles and policies for Aboriginal cultural heritage have been developed for both the Newcastle and Lake Macquarie LGAs. These provide a useful framework for considering Aboriginal cultural heritage within the current study area during the rezoning, planning and development process. This chapter presents an overview of these documents and relevant sections that may inform Aboriginal heritage management within the Wallsend Rezoning area as development planning progresses.

Newcastle Local Government Area Aboriginal Heritage Study (AMBS 2005)

The following management principles were developed during the Aboriginal Heritage Study to guide recommendations for the recognition and management of Aboriginal heritage values within the Newcastle LGA. These were used to develop management strategies and actions related to conservation, impact mitigation, council and community awareness, research opportunities and recommendations for the implementation process. The management principles provide a useful framework for considering Aboriginal cultural heritage during the rezoning, planning and development process:

1. Aboriginal cultural heritage is to be recognised as a finite and valuable resource of the Newcastle LGA.
2. Aboriginal community members are pivotal in the identification, assessment, and management of Aboriginal cultural heritage, as it is primarily Aboriginal people who are in a position to determine the significance of their heritage.
3. Places of Aboriginal cultural value, spanning archaeological sites and areas of social significance, within the Newcastle LGA are to be conserved and managed to retain those cultural values. Appropriate conservation actions will vary according to the level of significance.
4. Aboriginal cultural heritage is to be considered during the development process, to provide for appropriate conservation and impact mitigation outcomes.
5. Compliance with relevant statutory controls is required, specifically the *National Parks and Wildlife Act (1974)* and the *Environmental Planning and Assessment Act (1979)*.
6. Sustainable management strategies for Aboriginal cultural heritage should be implemented, that maximises involvement of the Aboriginal community.
7. The importance of Aboriginal cultural heritage should be promoted within Council through heritage training to raise cultural awareness, and within the broader community through public interpretation programs.

City of Newcastle Heritage Policy (2013)

The purpose of the Heritage Policy is to provide a clear statement of commitment by The City of Newcastle to the principles of heritage conservation. The Heritage Policy was developed to guide the identification, preservation, conservation, celebration and promotion of the City's rich cultural heritage, based on the principles of the Burra Charter and best practice.

Four key strategies were identified along with a number of commitments within each strategy. Commitments specifically relevant to Aboriginal heritage in the current assessment context are reproduced below:

Knowing our heritage

- Key commitments included recognising, documenting and presenting the indigenous heritage of the City, consulting with the Aboriginal community, and ensuring the diversity of the City's heritage is represented in heritage listings, including Aboriginal cultural heritage and cultural landscapes

Protecting our heritage

- Key commitments included ensuring that sites and places of Aboriginal cultural significance are statutorily protected, and maintaining an effective development assessment service to ensure heritage is given appropriate consideration in the development assessment process

Supporting our heritage

- Key commitments included building capacity to achieve positive heritage outcomes, and encouraging innovation in the business sector, art and creative communities to enable the interpretation of heritage items

Promoting our heritage

- Key commitments included working with the Aboriginal community to raise awareness of the indigenous history, sites, languages and cultures of the Newcastle LGA and encouraging, sharing and promoting the value of heritage items and places to the environmental, social and economic wellbeing of the LGA

City of Newcastle Aboriginal Heritage Management Strategy 2018-2021

This strategy summarises previous work completed by City of Newcastle to understand Aboriginal peoples' association with the land around Newcastle; the current legislative framework around management of Aboriginal sites; current initiatives underway across City of Newcastle to raise awareness and celebrate Aboriginal culture and strategies to ensure ongoing management of that culture.

As stated, the key aims and objectives of the Strategy are:

1. To enhance the community's knowledge of and regard for Aboriginal cultural heritage items and places
2. To protect the City's Aboriginal heritage places for the benefit of everyone
3. To protect the integrity of heritage places by ensuring consistent and sympathetic treatments of cultural heritage artefacts and places
4. To invest in the care and promotion of Newcastle's Aboriginal heritage places

The Strategy identifies that the key priority in the assessment of Aboriginal cultural heritage should be to identify all practicable measures to "avoid harm and conserve the significant Aboriginal objects and declared Aboriginal places, along with their cultural heritage values". The Strategy acknowledges that a planning proposal (such as the rezoning proposed for the current study area) does not necessarily involve direct impacts to Aboriginal cultural heritage (and therefore it is not possible to assess that the proposal will involve harm) but may provide a framework whereby activities that may result in harm to Aboriginal objects may be proposed (e.g. residential or other development).

The Strategy identifies that an assessment prepared to support a planning proposal should identify whether Aboriginal cultural heritage values are known or likely to occur within the subject area and should include the following:

- The results of a search of the AHIMS database
- An evaluation of whether the area subject to the planning proposal contains areas of Aboriginal cultural sensitivity (noting the outcomes of the archaeological sensitivity mapping undertaken as part of this strategy)
- The completion of a site inspection to identify any Aboriginal objects that may be present within the area and to further assess the archaeological potential of the area based on factors including levels of disturbance and types of landforms present.
- Consultation with Aboriginal parties. NSW OEH specify that this consultation should be undertaken in accordance with *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*
- Provision of recommendations for future management of Aboriginal cultural heritage within the area subject to the planning proposal including any mechanisms for conservation of Aboriginal heritage and any requirements for additional assessment or archaeological investigation, potentially including obtaining AHIPs if required.

Preparation of the current document for the proposed Wallsend Rezoning addresses these requirements and is consistent with the objectives of the Strategy.

Draft Newcastle Heritage Strategy 2020-2030

The draft Heritage Strategy is a strategic framework to guide City of Newcastle's (CN) approach to the management of heritage in the Newcastle local government area over the next ten years. It is drawn from its parent document the Newcastle 2030 Community Strategic Plan 2018-2028 and the Newcastle Heritage Policy 2013.

The Heritage Strategy identifies the mission statement for heritage at CN, sets out the context, identifies the core themes and the objectives and outcomes of these themes. An Action Plan formulated to achieve the outcomes and objectives for each core theme is included. The core themes were drawn from the City of Newcastle Heritage Policy 2013: Knowing our heritage, protecting our heritage, supporting our heritage and promoting our heritage. Strategic directions for Aboriginal cultural heritage were drawn from the Aboriginal Heritage Management Strategy and the management principles developed during the Newcastle LGA Aboriginal Heritage Study as discussed above.

Lake Macquarie Aboriginal Heritage Management Strategy (2011)

This Strategy was developed to guide activities within the Lake Macquarie that influence or affect the City's Aboriginal cultural heritage values. The Strategy was prepared in consultation with a working group comprising representatives of the local Aboriginal community and Council staff, with input from the Office of Environment and Heritage. The Strategy aims to achieve the sustainable management of the LGA's Aboriginal cultural heritage values. It uses a cultural landscape approach that links archaeological evidence and ecological attributes of the landscape to Aboriginal cultural and spiritual beliefs and practices. The Strategy considers the natural/scientific values of archaeological sites, the Aboriginal cultural values of places, stories, traditional knowledge and resources and the continuing contribution of Aboriginal heritage to the diversity and richness of the LGA's culture.

The Strategy uses the concept of Sensitive Aboriginal Cultural Landscapes. These more sensitive landscapes are defined and mapped from known archaeological evidence; the predicted extent of archaeologically significant areas; places associated with records of traditional Awabakal stories and practices; places that conserve important traditional resources; and places that are important in the shared history of the City since European settlement. The Strategy notes that particular attention to Aboriginal cultural heritage values is required in sensitive landscapes when undertaking strategic planning and development assessment processes. The current Wallsend Rezoning study area does not intersect any known Sensitive Aboriginal Cultural Landscapes as identified on the LEP.

The Strategy also identifies the principles of ecologically sustainable development (ESD) as a key consideration for the management of Aboriginal heritage. In particular, the Precautionary Principle and the Principle of Intergenerational Equity are identified as critical to the sustainable management of Aboriginal cultural heritage resources within the LGA.

Detailed Aboriginal heritage impact assessment is not a feature of the current broad scale rezoning study given that no specific impacts are proposed at this stage, but would be required for all identified Aboriginal heritage values within the study area as part of ongoing development planning. Consideration of these ESD principles will be incorporated into future impact assessments.

12 Conclusions and Recommendations

The Wallsend Rezoning Aboriginal heritage study has established that the study area contains Aboriginal archaeological sites and heritage values which need to be considered as part of the overall development planning process. The study area displays a range of assessed archaeological sensitivity from low to high. Consideration of Aboriginal heritage early in the planning process allows for better management of identified heritage values including potential conservation outcomes and sensitive development planning which recognises and seeks to preserve these values. This approach is consistent with existing management strategies and policies for the Newcastle and Lake Macquarie LGAs.

The archaeological sensitivity model presents a baseline assessment of where Aboriginal heritage values are known or considered most likely to occur based on a detailed understanding of environmental factors, local and regional archaeological context and site distribution, and the results of a visual inspection of the study area. Along with known site locations, the model may be used to guide the consideration of Aboriginal heritage in developing the masterplan. Further detailed assessment will be required during the development process to establish the nature and extent of any proposed impacts and develop specific and appropriate management and mitigation strategies in consultation with the Aboriginal community.

Key recommendations are presented below.

- The location of Aboriginal archaeological sites and areas of sensitivity should be considered during further development of the masterplan. Best practice is to avoid impacting on Aboriginal cultural heritage where possible.
- The indicative structure plan indicates that while some of the identified Aboriginal cultural heritage features and values are located in areas to be reserved as conservation/open space, eventual residential development is likely to have some level of impact.
- If impact avoidance is not possible, further investigation will be required. This may include further archaeological assessment including field survey or archaeological test excavation. Further assessment should be conducted in accordance with Heritage NSW requirements and guidelines including:
 - *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (OEH 2010a)
 - *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (OEH 2010b)
 - *Aboriginal cultural heritage consultation requirements for proponents 2010* (OEH 2010c)
- It is recommended that lands not physically inspected as part of the Aboriginal heritage study are subject to visual inspection if subsequent development planning indicates that they may be impacted by the proposed activity. More detailed recommendations may be formulated at that time, if required, based on the results of the inspection and the confirmation of whether they contain Aboriginal archaeological sites.
- If further investigation and detailed impact assessment indicates that Aboriginal objects will be harmed by proposed development subsequent to rezoning, an AHIP will be required from Heritage NSW. An Aboriginal Cultural Heritage Assessment Report (CHAR) will be required to support the AHIP application. The CHAR and AHIP application should be prepared in accordance with Heritage NSW requirements including:
 - *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (OEH 2011a).
 - *Aboriginal cultural heritage consultation requirements for proponents 2010* (OEH 2010c)
 - *Applying for an Aboriginal Heritage Impact Permit: Guide for applicants* (OEH 2011b).
- As part of further assessment, an Aboriginal cultural heritage significance assessment should be undertaken in accordance with best practice guidelines and the criteria and principles of the Burra Charter (Australia ICOMOS 2013). This includes consideration of archaeological/scientific, historical, social/cultural, aesthetic and spiritual values.
- Further consultation with the Aboriginal community is required. The participation and involvement of Aboriginal stakeholders in the assessment process is vital in building a more complete understanding of the Aboriginal cultural landscape and heritage resource. Further consultation should be undertaken in accordance with the *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW 2010).

References

- Australia ICOMOS (2013). *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance 2013*. Australia ICOMOS Incorporated. Burwood, Victoria.
- Australian Museum Business Services (AMBS), 2005. Aboriginal Heritage Study: Newcastle Local Government Area. Report prepared for Newcastle City Council.
- AMBS, 1999. An archaeological assessment of land proposed for residential development at Fletcher, NSW. Draft report prepared for Carman Surveyors.
- Brayshaw, H. and R. Kerr, 2000. Land at Link Road Elmore Vale, west of Newcastle. Archaeological survey for Aboriginal sites. Report prepared for Mirvac Homes.
- Brayshaw, H. and D. Donlon, 1986. Archaeological survey – F3 Freeway proposed Link Road, Estelville to Wallsend, NSW. Report to the Department of Main Roads through Sinclair Knight & Partners Pty Ltd.
- Dean-Jones, P. 1989a. Report of an archaeological survey, Summerhill waste disposal site, near Minmi NSW. Report to Camp Scott Furphy Pty Ltd.
- Dean-Jones, P., 1989b. Report of an Archaeological Survey at Glendale, NSW. Report prepared for Planning Workshop.
- Dyall, L.K., 1971. Aboriginal Occupation of the Newcastle Coastline. *Hunter Natural History*, vol. 3, no. 3, pp. 154-168.
- Effenberger, S. 1996. Aboriginal Assessment and Survey Spatial Sampling, West Charlestown Bypass. In AMBS 2005.
- Environmental Resources Management Australia (ERM), 2008. Lower Hunter estates development heritage impact assessment, Minmi-Link Road estate. Report to Catylis and Coal & Allied.
- ERM, 2007. Glendale land release: Aboriginal heritage assessment. Report to RailCorp.
- ERM, 2004. Fletcher Aboriginal archaeological assessment, land zoned 2(a) residential. Report to Kingston Properties.
- Hawley S., R. Glen and C. Baker, 1995. *Newcastle Coalfield Regional Geology 1:100 000, 1st edition*. Geological Survey of New South Wales, Sydney
- Hawley S., and J. Brunton. 1996. Notes to accompany the 1:100,000 Newcastle Coalfield Regional Geology Map. Geological Survey of New South Wales, Sydney.
- Hughes, P. 1984. NSW National Parks and Wildlife Service Hunter Valley Region Archaeology Project Stage 1: An Overview of the Archaeology of the Hunter Valley: its Environmental Setting and the Impact of Development. Volume 1. Unpublished report by Anutech Pty Ltd to NSW NPWS.
- Kelleher Nightingale Consulting Pty Ltd (KNC), 2017a. Newcastle Inner City Bypass – Rankin Park to Jesmond, Aboriginal Archaeological Survey Report - Stage 2 PACHCI. Report prepared for Roads and Maritime Services
- KNC, 2017b. Newcastle Inner City Bypass – Rankin Park to Jesmond, Aboriginal Cultural Heritage Assessment Report - Stage 3 PACHCI. Report prepared for Roads and Maritime Services.
- Matthei L.E., 1995, *Soil Landscapes of the Newcastle 1:100,000 Sheet* map and report, NSW Department of Land and Water Conservation, Sydney.
- National Parks and Wildlife Service (NPWS), 2003. *The Bioregions of New South Wales: Their Biodiversity, Conservation and History*. National Parks and Wildlife Service NSW, Hurstville NSW.
- Office of Environment and Heritage (OEH), 2011a. *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW*. Office of Environment and Heritage, Department of Premier and Cabinet, Sydney.
- OEH, 2011b. *Applying for an Aboriginal Heritage Impact Permit: Guide for applicants*. Office of Environment and Heritage, Department of Premier and Cabinet, Sydney.
- OEH, 2010a. *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales*. Department of Environment, Climate Change and Water, Sydney.

OEH, 2010b. *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales: Part 6 National Parks and Wildlife Act 1974*. Department of Environment, Climate Change and Water NSW, Sydney.

OEH, 2010c. *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010: Part 6 National Parks and Wildlife Act 1974*. Office of Environment and Heritage, Department of Premier and Cabinet, Sydney.

Umwelt, 2007. *Aboriginal Heritage Management Plan, Kingfisher Park Estate, Fletcher NSW*. Report to Kingston Fletcher Pty Ltd.

Umwelt. 2002. *Excavation and Management of Cultural Heritage values in the Bluegum Vista Estate, Minmi Road*. Prepared for Landcom.

Additional Local Government Reference Documents:

City of Newcastle Aboriginal Heritage Management Strategy 2018-2021. City of Newcastle, NSW.

Lake Macquarie Aboriginal Heritage Management Strategy :Sustainable Management of Aboriginal Cultural Heritage in the Lake Macquarie Local Government Area (2011). Prepared by Umwelt on behalf of Lake Macquarie City Council, NSW.

Newcastle Heritage Strategy 2020-2030 (draft). City of Newcastle, NSW.

Newcastle Heritage Policy (2013). City of Newcastle, NSW.

Appendix A AHIMS Extensive Search Results



AHIMS Web Services (AWS) Extensive search - Site list report

Your Ref/PO Number : 2012 Wallsend update CM
Client Service ID : 538233

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
38-4-0442	Brush Creek	AGD	56	372260	6356800	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	1333,97766,97 822,98458,984 59,102164
	<u>Contact</u>									
	<u>Recorders</u>			Warren Bluff,R Miller						
	<u>Permits</u>									
38-4-0451	Maryland Creek;	AGD	56	372450	6358700	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	1333,102164
	<u>Contact</u>									
	<u>Recorders</u>			Warren Bluff,R Miller						
	<u>Permits</u>									
38-4-0452	Rons site;Gretley Collieru;	AGD	56	372980	6358180	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	1333
	<u>Contact</u>									
	<u>Recorders</u>			Warren Bluff						
	<u>Permits</u>									
38-4-0631	IF2/Glendale	AGD	56	371710	6357310	Open site	Valid	Artefact : -		97766
	<u>Contact</u>									
	<u>Recorders</u>			Helen Brayshaw					4624	
	<u>Permits</u>									
38-4-1284	RPSHSO IF1-6	AGD	56	372104	6356626	Open site	Valid	Artefact : 1		
	<u>Contact</u>									
	<u>Recorders</u>			RPS Australia East Pty Ltd - Hamilton,Ms.Laraine Nelson						
	<u>Permits</u>									
38-4-1285	RPSHSO IF1-4	AGD	56	372480	6356220	Open site	Valid	Artefact : -		
	<u>Contact</u>									
	<u>Recorders</u>			RPS Australia East Pty Ltd - Hamilton,Ms.Laraine Nelson						
	<u>Permits</u>									
38-4-1286	RPSHSO IF1-5	AGD	56	372095	6356578	Open site	Valid	Artefact : -		
	<u>Contact</u>									
	<u>Recorders</u>			RPS Australia East Pty Ltd - Hamilton,Ms.Laraine Nelson						
	<u>Permits</u>									
38-4-1312	RPSHSO IF1-3	AGD	56	372271	6356251	Open site	Valid	Artefact : -		
	<u>Contact</u>									
	<u>Recorders</u>			RPS Australia East Pty Ltd - Hamilton,Ms.Laraine Nelson						
	<u>Permits</u>									
38-4-1313	RPSHSO A1-1	GDA	56	371724	6357448	Open site	Valid	Artefact : 20		
	<u>Contact</u>									
	<u>Recorders</u>			MCH - McCardle Cultural Heritage Pty Ltd,Ms.Penny McCardle,RPS Australia East Pty Ltd					4624	
	<u>Permits</u>									
38-4-1314	RPSHSO IF1-2	AGD	56	372344	6356345	Open site	Valid	Artefact : 1		
	<u>Contact</u>									
	<u>Recorders</u>			RPS Australia East Pty Ltd - Hamilton,Ms.Laraine Nelson						
	<u>Permits</u>									
38-4-1339	MLR 2	GDA	56	372124	6359288	Open site	Destroyed	Artefact : 12		
	<u>Contact</u>									
	<u>Recorders</u>			Ms.Penny McCardle,Doctor.Tim Owen,ERM Australia Pty Ltd- Sydney CBD						
	<u>Permits</u>									
38-4-1340	MLR3	GDA	56	371698	6358778	Open site	Destroyed	Artefact : 3		
	<u>Contact</u>									
	<u>Recorders</u>			Ms.Penny McCardle,Doctor.Tim Owen,ERM Australia Pty Ltd- Sydney CBD						
	<u>Permits</u>									
38-4-1375	RPS IF01	GDA	56	372271	6356251	Open site	Valid	Artefact : -		
	<u>Contact</u>									
	<u>Recorders</u>			RPS Australia East Pty Ltd - Hamilton,Mrs.Tessa Boer-Mah						
	<u>Permits</u>									
38-4-1341	MLR 4	GDA	56	371811	6358716	Open site	Destroyed	Artefact : 1		
	<u>Contact</u>									
	<u>Recorders</u>			Ms.Penny McCardle,Doctor.Tim Owen,ERM Australia Pty Ltd- Sydney CBD						
	<u>Permits</u>									
38-4-1342	MLR 5	GDA	56	372118	6358758	Open site	Destroyed	Artefact : 4		
	<u>Contact</u>									
	<u>Recorders</u>			Ms.Penny McCardle,Doctor.Tim Owen,ERM Australia Pty Ltd- Sydney CBD						
	<u>Permits</u>									
38-4-1343	MLR 6	GDA	56	372128	6358775	Open site	Destroyed	Artefact : 1		
	<u>Contact</u>									
	<u>Recorders</u>			Ms.Penny McCardle,Doctor.Tim Owen,ERM Australia Pty Ltd- Sydney CBD						
	<u>Permits</u>									

Report generated by AHIMS Web Service on 25/09/2020 for Matthew Kelleher for the following area at Datum :GDA, Zone : 56, Eastings : 371537 - 375380, Northings : 6355577 - 6360432 with a Buffer of 0 meters. Additional Info : Archaeological assessment. Number of Aboriginal sites and Aboriginal objects found is 31
This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.



AHIMS Web Services (AWS) Extensive search - Site list report

Your Ref/PO Number : 2012 Wallsend update CM
Client Service ID : 538233

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
38-4-1071	Duplicate of #38-4-0631	GDA	56	371814	6357500	Open site	Valid	Artefact :-		97766,97822
	<u>Contact</u>	<u>Recorders</u>	Helen Brayshaw,Mary Dallas Consulting Archaeologists (MDCA),Ms.Tamika Gowar <u>Permits</u> 4624							
38-4-1939	E-IF-2	GDA	56	371731	6357278	Open site	Valid	Artefact :-		
	<u>Contact</u>	<u>Recorders</u>	Mary Dallas Consulting Archaeologists (MDCA),Ms.Tamika Goward <u>Permits</u> 4624							
38-4-1946	Edgeworth-IF-1	GDA	56	371796	6357265	Open site	Valid	Artefact :-		
	<u>Contact</u>	<u>Recorders</u>	Mary Dallas Consulting Archaeologists (MDCA),Ms.Tamika Goward <u>Permits</u> 4624							
38-4-0141	Site 3;	AGD	56	372200	6358200	Open site	Valid	Artefact :-	Open Camp Site	1221
	<u>Contact</u>	<u>Recorders</u>	Denise Donlon <u>Permits</u>							
38-4-0167	Winding Creek (Glendale);	AGD	56	373200	6355400	Open site	Valid	Artefact :-	Open Camp Site	1672,98458,98459
	<u>Contact</u>	<u>Recorders</u>	Pam Dean-Jones <u>Permits</u>							
38-4-0169	Winding Creek Glendale Site 2	AGD	56	373400	6355400	Open site	Valid	Artefact :-	Open Camp Site	1672,98458,98459
	<u>Contact</u>	<u>Recorders</u>	Pam Dean-Jones <u>Permits</u>							
38-4-0170	Winding Creek Glendale Site 3;	AGD	56	373500	6355400	Open site	Valid	Artefact :-	Open Camp Site	1672,98458,98459
	<u>Contact</u>	<u>Recorders</u>	Pam Dean-Jones <u>Permits</u>							
38-4-0173	Winding Ck Glendale Site 8;	AGD	56	373000	6355400	Open site	Valid	Artefact :-	Open Camp Site	1672,98458,98459
	<u>Contact</u>	<u>Recorders</u>	Pam Dean-Jones <u>Permits</u> 924							
38-4-0081	Wallsend;	AGD	56	375133	6357434	Open site	Valid	Grinding Groove :-	Axe Grinding Groove	98458,98459
	<u>Contact</u>	<u>Recorders</u>	Len Dyall <u>Permits</u>							
38-4-0438	Rons find;	AGD	56	373200	6358590	Open site	Valid	Grinding Groove :-	Axe Grinding Groove	1333,102164
	<u>Contact</u>	<u>Recorders</u>	R Miller <u>Permits</u>							
38-4-0602	BRUSH CREEK 1	AGD	56	372930	6356260	Open site	Valid	Grinding Groove :-, Artefact :-		97766,97822
	<u>Contact</u>	<u>Recorders</u>	Helen Brayshaw <u>Permits</u>							
38-4-0603	BRUSH CREEK 2	AGD	56	372340	6356280	Open site	Valid	Artefact :-		97766,97822
	<u>Contact</u>	<u>Recorders</u>	Helen Brayshaw <u>Permits</u>							
38-4-1696	EG_001	GDA	56	373714	6356884	Open site	Valid	Artefact :-		
	<u>Contact</u>	<u>Recorders</u>	Ms.Taryn Gooley <u>Permits</u>							
38-4-1697	EG_002	GDA	56	373581	6356926	Open site	Valid	Artefact :-		
	<u>Contact</u>	<u>Recorders</u>	Ms.Taryn Gooley <u>Permits</u>							
38-4-1698	EG_003	GDA	56	373522	6356901	Open site	Valid	Artefact :-		
	<u>Contact</u>	<u>Recorders</u>	Ms.Taryn Gooley <u>Permits</u>							

Report generated by AHIMS Web Service on 25/09/2020 for Matthew Kelleher for the following area at Datum :GDA, Zone : 56, Eastings : 371537 - 375380, Northings : 6355577 - 6360432 with a Buffer of 0 meters. Additional Info : Archaeological assessment. Number of Aboriginal sites and Aboriginal objects found is 31
This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.