Appendix J

(DLALC 2012) Wyong Intersection Upgrade - Aboriginal Cultural Heritage Site Assessment Report
Aboriginal Cultural Heritage Assessment Report

Wyong Intersection Upgrade
Report to Artefact
May 2012

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Aboriginal Cultural Assessment Heritage Report

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Source: Google Maps.
Figure 2: Map shows the approximate location of Tuggerah and Wyong, indicated by the red circle.

Source: Google Maps.
1. Introduction.

This Report has been prepared as part of an Aboriginal Heritage Assessment for Darkinjung Local Aboriginal Land Council (DLALC) and on behalf of Artefact and Roads and Maritime Services (RMS) formally the Roads and Traffic Authority (RTA).

The assessment was undertaken over one day.

The aim of the assessment is to inspect the location of the proposed Wyong Intersection Upgrade site and to identify any Aboriginal cultural heritage, places, or objects, of significance to the Aboriginal community, and for the site’s developer to meet the statutory obligations and requirements under the National Parks and Wildlife Act (1974) and the Environmental Protection Act (1979).

2. Description of the Assessment area and Development Proposal

The assessment area is situated within the boundaries of the Darkinjung Local Aboriginal Land Council. DLALC is located on the Central Coast of New South Wales, its boundaries stretch from Catherine Hill Bay to the Watagan Mountains to the North, Hawkesbury River to the South, Pacific Ocean to the east while the western boundary stretching along Judge Dowling Range from Bucketty to Spencer (Darkinjung Local Aboriginal Land Council).

The proposed development is situated within the suburb of Tuggerah near Wyong on the Central Coast NSW.

The landscape within the Tuggerah area consists of a combination of urban, industrial and commercial development within a modified flood plains environment which supports remnant vegetation communities such Alluvial Floodplain Shrub Swamp Forest. The area has been modified and disturbed by previous development such as buildings, railway line, main roads, man-made drainage channels and easements for infrastructure such as electricity lines.

The development proposed is for the upgrade of the Wyong Road Intersection which is located within the commercial and residential area of Tuggerah adjacent Westfield’s shopping centre, the Homemaker Super Centre and Tuggerah Railway Station.

The RMS objectives for the intersection upgrade is to reduce the number of crashes, reduce delays, improve safety for all road users, improve the efficiency of the bus system and provide increased infrastructure capacity (Roads and Maritime Services (RMS)).

To achieve these objectives the RMS’s preferred option will be to widen Wyong Road increasing the vehicle capacity to three lanes between approximately the roundabout between Wyong Road and Gavenlock Road and the roundabout between Wyong Road and Bryant and Reliance Drives at Tuggerah. These works will also include dual left hand lanes from Wyong Road into the Pacific Highway, dual right turn lanes from Wyong Road into the Pacific Highway, a new bridge for eastbound traffic on Wyong Road, three right turn lanes from Pacific Highway onto Wyong Road, dual left turn lanes from Pacific Highway into Wyong Road and shared pedestrian/cycle path on the eastern side of Tuggerah Straight adjacent the Tuggerah Rail Station.
Figure 3: The Diagram shows the approximate location of proposed developments indicated by the yellow area.

Source: RMS
3. Description of Impact.

The main type of impact to the area from this type of development which includes the road widening and construction of the new bridge will be a result of vegetation clearing, soil excavation and importation of fill material.

Other effects can be a result of the impact of construction infrastructure needed to upgrade the intersection and widen the road.

Potential impacts to Aboriginal sites in general include excavation and erosion which can expose and/or destroy artefacts on top of, or below the soil surface. Impacts can also include the destruction of vegetation and the surrounding landscape which can contain Aboriginal cultural heritage, material remains or cultural places. Other impacts associated with this type of project may include alteration to the water and drainage patterns in the area.

The Aboriginal cultural heritage most at risk from this type of works are, rock engravings, scar trees, open sites and isolated artefacts. Other forms of Aboriginal sites at risk include cultural and spiritual places. Adverse impact could include exposure of artefacts and other Aboriginal archaeology and destruction of Aboriginal places, through water runoff and soil erosion, impact from machinery or tools associated treadage and the road construction. These impacts could occur during the various phases of the project, while after completion impacts can be a result of altered runoff and natural water movement which are also a threat. The greatest impact on Aboriginal heritage places in NSW occurs in the form of soil erosion (Byrne 1997:1). Runoff and erosion can potentially cause siltation and/or exposure and destruction of Aboriginal cultural heritage sites. Indirect impacts may occur in the form of alterations to drainage and erosion patterns (Byrne 1997:2).

Trampling and treadage has had a significant impact on Aboriginal sites in NSW. The impact of treadage on open sites can result in displacement and damage to individual artefacts. Treadage can also initiate soil erosion (Byrne 1997:3) including for example by people damaging the vegetation and exposing the soil surface, workers unknowingly walking over sites, or being in the vicinity of sites that may be sensitive, sacred or mythical.

Tools and treadage associated with the project during and post construction phases have the potential to destroy or adversely alter sites if the area is not adequately protected.

Previous road works and existing structures have produced large amounts of previous disturbance within the area and therefore the potential for the survival of Aboriginal cultural heritage is low. Although potential for the survival of Aboriginal cultural heritage is low, this type of development can still impact on any potential surviving Aboriginal cultural heritage sites located within the area if not properly managed.
4. Qualifications, Relevant Experience and Community Endorsement

I have completed Certificate III Horticulture, Parks and Garden through the TAFE Open Training and Education Network (OTEN), Certificate III Conservation and Land Management, Specialising in Indigenous Land Management through the Ryde College of TAFE Ryde and have completed the Diploma in Indigenous Archaeology at the University of New England, Armidale NSW.

I have gained experience through liaison and collaborating with both Aboriginal and non-Aboriginal representative from such organisation as, State Forest NSW, NSW National Parks and Wildlife Service, NSW Office of Environment and Heritage, Central Coast Hunter Range Regional Aboriginal Co-management Committee, Greater Blue Mountains World Heritage Area Aboriginal Reference Group, Tuggerah Lakes Estuary Coastal and Floodplain Management Committee, Gosford City and Wyong Shire Councils and professionals such as Archaeologist, Anthropologist, Biologist and Environmentalist. I have worked under the guidance and management of Darkinjung Local Aboriginal Land Council and have the endorsement of the council and the local Aboriginal community.
5. Statutory Requirements and Legislation.

Aboriginal heritage and places are protected by law under Legislation. Two basic pieces of legislation concerned with Aboriginal Heritage Management are the National Parks and Wildlife Act 1974 (NPW Act) and The Environmental Planning and Assessment Act 1979 (EP&A Act).

Section 84 of the National Parks and Wildlife Act (1974) provides protection for ‘Aboriginal Places’. The act defines Aboriginal places as ‘areas of cultural significance to the Aboriginal Community’. Section 90 of this Act gives protection for all ‘Aboriginal Relics’. The act defines Aboriginal relics as ‘any material evidence of the Aboriginal occupation of New South Wales’. The Minister will gazette areas as Aboriginal places if satisfied that adequate evidence exist to show that the area was or is of special importance to the Aboriginal community.

The National Parks and Wildlife Act 1974 (NPW Act) Legislation does not structure any formal mechanisms to make sure that areas with potential to contain Aboriginal sites or places of special significance are evaluated before impact on those areas. It is the Environmental Planning and Assessment Act (EP&A Act) which carries out this function.

The Environmental Planning and Assessment Acts principal function is to consider ‘environmental impacts’ in land use and decision making. Environmental impacts include impacts on Aboriginal Heritage. There are three main sections in the EP&A Act which are applicable to Aboriginal Heritage. Part III, administer the preparation of planning instruments; Part IV relates to development evaluation process for local government (consent) authorities; and Part V which communicate to activity approvals by Government (determining) authorities.

Part III of the Act governs the preparation of the following three planning instruments: 1. State Environmental Planning Policies (SEPPs); 2. Regional Environmental Plans (REPs); 3. Local Environmental Plans (LEPs). These planning instruments dictate allowable uses and potential constraints on land use. When preparing planning instruments the Department of Urban Affairs and Planning have guidelines which should be followed. These guidelines list Aboriginal sites and places of significant to the Aboriginal community as values which should be assessed.

Part IV of the legislation governs the decision making process by local government authorities during a development application. Section 90 of the Act lists impacts which must be considered before development approval is granted. Under section 90 (1) 9b consideration must be given for ‘the impact of that development on the environment (whether or not the subject of an environmental impact statement)’. Section 90 (1) 9b includes Aboriginal sites and heritage.

Part V of the legislation governs the decision making process by State Government authorities for activities conducted by that agency or under authority from the agency are controlled by Part V of the EP&A Act. It is mandatory for these agencies to consider environmental impacts of proposed activities then, determine whether the level of impact is adequate to necessitate the planning of an Environmental Impact Statement (EIS). Environmental impacts include Aboriginal sites and places. The Department of Planning New South Wales has created a set of guidelines for explaining Section 112 which requires that Aboriginal Heritage is assessed as part of the process (Byrne 1997: 2-3).
There are number of amendments to the NPW Act 1974. The amendments include a number of guidelines. These guidelines can be viewed on the NSW Office of Environment and Heritage (OEH) website.

The process of due diligence under the OEH guidelines require that a proponent of a development assess impacts of the proposed activity.

Below is a brief explanation of the process from the OEH web site,

The purpose of due diligence is to identify whether Aboriginal objects are present in an area, and to determine whether a proposed activity will have impacts on Aboriginal objects. Therefore it is essential to identify and understand all the expected impacts of the proposed activity.

There are two categories of activity used for assessing impacts:
1. Activities involving no additional surface disturbance.
2. Activities causing additional surface disturbance.

For activities causing additional surface disturbance, it is necessary to determine whether an activity is proposed for:
   a) a developed area or a previously disturbed area, or
   b) an undisturbed area.

For activities in previously developed or disturbed areas, it is then necessary to determine whether the new activity will create significant additional surface disturbance. If it will, then the process for undisturbed areas will apply.

Due diligence involves taking reasonable and practicable measures to determine whether your actions will harm an Aboriginal object and if so avoiding that harm (Office of Environment and Heritage formally NSW Department of Conservation Climate Change and Water).

Note: Any works that may disturb, damage, or destroy Aboriginal cultural heritage requires an Aboriginal Heritage Impact Permit (AHIP) from OEH, this includes impacts to both registered and unknown Aboriginal sites that may require excavation or disturbance to the soil of any kind. Prosecution may result if works are carried without a relevant permit.
6. Aboriginal Cultural Heritage, Values and Significance.

Aboriginal people have inhabited Australia between 50,000 and 60,000 years, evidence for this can be found from material dated from Malakunanj and Nauwalabila rock shelter in the Northern Territory (Mulvaney & Kamminga 1999:141). Further evidence for human occupation is displayed through the skeletal remains of Mungo 3 discovered at Lake Mungo New South Wales. These remains have been dated to be between 28 000 and 32 000 years old (Morwood 2002:12). Aboriginal people’s occupation of the Central Coast shown through archaeology, Aboriginal cultural heritage, material and spiritual places provides the local Aboriginal community with a sense of connection to the land, the people and culture. These materials and places present tangible evidence of the past and should be conserved.

The first inhabitancies of the Central Coast region were members of the Darkinjung (Darginung, Darginyung), language group. Several researches and publications show tribal or language group boundaries within similar areas, but exact boundaries are unlikely. Boundaries are a European concept and there was likely a zone between language groups which was shared and utilised by neighbouring groups.

Stone artefacts in the Upper Mangrove Creek area of the Central Coast have been dated between 10,000 to 15,000 years old (Attenbrow 2002: 153). These provide some reliable evidence of Aboriginal people’s occupation of the region. Upper Mangrove Creek is situated approximately 14 km from the Australian Walkabout Wildlife Park Calga.

European exploration of the Central Coast area began soon after the arrival of the First Fleet in 1788. Settlement of the Hawkesbury River began about 1794 and in 1820 the area between the Hawkesbury and the Hunter Rivers become available for settlement (Brisbane Water National Park Plan of Management 1992:19).

Evidence for Aboriginal habitation, includes middens, which consist of shell, bone, charcoal, tools and sometimes burials. A midden is likely to contain only a selection of shell fish species available in the local environment. It may contain a high proportion of individuals of an edible size, stone artefact, charcoal from camp fires, pumice, coral, faunal bone and human burials (Byrne 1997:5). Shell middens are also important scientifically they can be dated, they provide precious information about Aboriginal use of the environment and changes in behaviour over time. Other evidence includes, fish traps and stone arrangements, deposits in sandstone shelters, including artefact, charcoal, shell and bone remains, rock engravings and pigment art. Additional forms of Aboriginal cultural evidence can consist of abraded channels, grooves and grinding stones, axe grinding grooves, scared and carved trees, water holes, quarry sites, open sites or camp sites, stone artefact scatters, graves, earth mound, walking trails along trading routes, mythological and ceremonial sites. In some cases landscape modification can provide evidence of Aboriginal people’s occupation.

The landscape surrounding an Aboriginal place or site can be seen in a spiritual sense and is very important to Aboriginal people. The landscape can be an extension of a site, or the landforms and features within the landscape can be the site. Aboriginal sites can also be connected through sight lines to other sites or places of signifcants. These features are all part of the cultural landscape.

Some sites are associated with site lines and tracks, their purpose and associated stories connect these site with others site across Darkinjung country and should not
be viewed in isolation of each other. Considering this, changing the context of an Aboriginal site by landscape degradation compromises the spiritual and cultural connection that Aboriginal people have to the land and or the site. In many cases landscape destruction can be considered, destruction of an Aboriginal site and the Darkinjung cultural landscape.

Recent research of certain areas of the Central Coast has revealed an intricate network of Aboriginal cultural heritage sites, connected by Aboriginal walking trails and routes which have been utilised over hundreds and in some cases thousands of years, these tracks where utilised to access seasonal resources, carry out trade, teaching and ceremonies. These sites are connected and form part of a complex Aboriginal cultural landscape. The significance of many of these sites and the significance of the connection they have to each other and the landscape has been highlighted as very important for Aboriginal people both culturally and spiritually.

The Darkinjung people were fishers, hunters and gatherer of plants and animals of the land, rivers, estuaries and sea. These places including the hills, valleys, creeks, wetlands, lakes and coastline provided food, medicines, and raw material for tools, weapons, shelter and decoration. These environments and landforms also provided the basis for spiritual and cultural life and are of value and significance to the local Aboriginal community. Certain environments can be considered to have a higher Aboriginal cultural heritage potential because of their ecology and landform and the associated flora, fauna and other resources needed for everyday life. The proposed development site lies in an area with a high Aboriginal cultural heritage value. This is because of the surrounding, mountains, lakes, creeks, coastline and associated woodland and wetland habitats. These environments and ecological zones provided the local Aboriginal population with many food and other natural resources.

Therefore considering the long Aboriginal occupation of Australia and the Central Coast it could be predicted that most areas, particularly those with minimal disturbance have the potential to produced Aboriginal cultural heritage material or places.

Aboriginal sites are connected to each other within the landscape, a number of places and sites hold spiritual and cultural importance to the local Aboriginal community through their physical link to ancestors and the past. This connection attaches the community to land, traditions and strengthens bonds within the Aboriginal community. Safe guards need to be put in place to protect the spiritual and environmental integrity of a site and the cultural landscape. These Aboriginal materials, places and landscapes have value and significance to the local Aboriginal community and need to be protected.
7. The Site

The proposed development is situated in the area of Tuggerah on the Central Coast of NSW. The assessment site is located approximately 3 km south from Wyong and covers an area of between approximately 700m long and 300m wide between Tuggerah Straight to the north and Pacific Highway in the south, the roundabout between Wyong Road and Gavenlock Road in the west and the roundabout between Wyong Road and Bryant and Reliance Drives to the east.

The assessment site is surrounded by various hills, ranges, valleys, creeks, wetlands and coast line. As shown previously these types of environments and the resources they provided to local Aboriginal people, was very important.

The area surrounding Tuggerah is the location of a number of recorded Aboriginal sites, and lies within an area which is rich in Aboriginal cultural heritage.

The DLALC assets management system incorporating the Office of Environment and Heritage (OEH) Aboriginal Heritage Management Systems (AHIMS) Register has identified a number of these registered Aboriginal sites within Tuggerah region.

The closest site recorded to the proposed development and located to the north-east and outside the impact zone is Site 45-3-3381- Potential Archaeological Deposit (PAD). This site was test excavated by Kayandel Archaeological Services in 2009 and due to lack of evidence produced from the excavation it was recommended that the site card be amended to a non-site.

Table 1 on page 15 shows a list of some of the nearest registered sites on the AHIMS database within the region.

The assessment site is considered to have potential for Aboriginal sites or artefacts which may be concealed by thick vegetation or be covered by leaf litter and silt. The areas of the site with a higher potential for Aboriginal cultural heritage include places where there has been minimal disturbance or areas with intact soil and vegetation.

Parts of the assessment site with a lower potential for Aboriginal cultural heritage sites include disturbed areas such as along the, roads, paths, easements, modified drainage lines and around buildings. In the past activities in these areas could have negatively impacted on, or destroyed a number of Aboriginal cultural heritage sites.
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<th>Site Name</th>
<th>AHIMS Number</th>
<th>Site Type/Contents</th>
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<tr>
<td>Non Site</td>
<td>45-3-3381</td>
<td>PAD</td>
</tr>
<tr>
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<td>45-3-0816</td>
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<tr>
<td>WP4</td>
<td>45-3-3184</td>
<td>Artefact</td>
</tr>
</tbody>
</table>

Table 1: Shows a number of Aboriginal sites located within the area of Tuggerah according to the AHIMS Database.

Source: DLALC Asset Governor incorporating AHIMS Database.
7.1 Site Topography and Vegetation

The topography and vegetation of the development site is influenced by a flood plains environment which includes Tuggerah and Mardi Creeks. Tuggerah Creek convergence with Mardi Creek before it flows into the Wyong River and nearby Tuggerah Lake.

The Tuggerah Lakes Reserve lies to the east of the development area and according to the Tuggerah Lakes Reserve Draft Plan of Management the original vegetation within the Reserve is described as Alluvial Floodplain Shrub Swamp Forest, which included such species as Swamp Mahogany (Eucalyptus robusta), Rough Bark Apple (Angophora floribunda) and Melaleuca spp (Tuggerah Lakes Reserve Draft Plan of Management 2007: 9).

Through land clearing and development the original vegetation of the area has been significantly reduced to only remnant native species. The remnant species include Sydney Blue Gum (Eucalyptus saligna), Lilly Pilly (Acmena smithii), Notelaea longifolia, Veiny Wilkiea (Wilkiea huegeliana), Cheese Tree (Glochidion ferdinandi), Cabbage Tree Palm (Livistona australis), Swamp Oak (Casuarina glauca), Bracken (Pteridium esculentum) and Paperbarks, such as the Broad-leaved Paperbark (Melaleuca quinquenervia), Prickly-leaved Tea-tree (Melaleuca styphelioides) and Biconvex Paperbark (Melaleuca biconvexa).

The area is also subject to Council and Urban plantings. These mainly consist of native, introduced, and weed species of plants. Species observed within the proposed development area are Norfolk Island pine (Araucaria heterophylla), Box Brush (Lophostemon confertus), Gymea Lilly (Doryanthes excelsa), Wild Tobacco (Solanum mauritianum), Camphor Laurel (Cinnamomum camphora), Lantana (Lantana camara) and Privet (Ligustrum spp).

Many of the native plant and faunal species found within the area are considered a valuable food and material resource for the local Aboriginal inhabitants. Examples of those resource plants found on the site are, Cabbage Tree Palm (Livistona australis), the growing tip was eaten either uncooked or roasted. Mat Rush (Lomandra longifolia), which is used for string and food (Stewart & Percival 1997:33-35), Bracken (Pteridium esculentum) also used for food and medicine (Stewart & Percival 1997:44). Many of the Paper barks (Melaleuca spp), Tea Trees (Leptospermum spp), Bottlebrush (Callistemon spp), Wattles (Acacia spp), Grevillia spp and Mountain Devils (Lambertia formosa), provide food, medicinal and other resources through the nectar from flowers, leaves and bark (Robinson 1991:55).

Flowering plant also provide Aboriginal people with seasonal indicators, when to move to a new area to obtain a particular food source or when certain marine of faunal species may be available, for example when Sydney Golden Wattle (Acacia longifolia) comes into flower it indicate to fish for Mullet (Stewart & Percival 1997:8).

Many of the Gum Tree species (Eucalyptus, Angophora, Corymbia spp etc) provide resource from various parts of the plant. The resources include string, tools, weapons, shelter, canoes, food, medicinal and spiritual uses.
8. Assessment Methodology.

Prior to any Aboriginal site survey, assessment or monitoring carried out in the field, a desk top analysis of the area is carried out. This involves consulting the relevant topographical, council and survey maps, and the DLALC Asset Governor incorporating, OEH Aboriginal Heritage Information Management System (AHIMS) Data.

It should be noted in regards to the AHIMS database that many Aboriginal sites listed on the data base often are not situated within the location as shown on maps referring to the AHIMS information. Therefore it can be difficult to relocate the precise position of many registered Aboriginal sites due to some of the following reasons:

- Registered sites were recorded before the introduction of GPS units.
- In the past many registered Aboriginal sites were recorded on a topographical map with a scale of 1:25000. The co-ordinates were acquired by cross references to easting and northing figures located along the side of the map. The site was then marked as a point on the map and as a result of this, the co-ordinates could be up to 1 millimetre off, on the map, which then results in the sites location recorded as an error of up to 250 metres on the ground.
- Sites were frequently recorded in different datum for example: Some site where recorded in AGD which has now change to GDA 94 therefore the site could be out by as much as 200 metres on the ground.
- Human error, locations of Aboriginal sites may have been incorrectly recorded.
- Inability to visually relocate sites due to thick bush, vegetation, leaf litter, silt and other debris, and hazardous or inaccessible topography.

Having considered the above points, it should also be noted that sites recorded more recently are often situated in the correct location given.

The main strategy used to assess the area was to first consult the relevant maps and DLALC Asset Governor incorporating AHIMS database and information as shown above, then secondly to visually inspect the area and soil surface.

The assessment and inspection of the proposed Wyong Intersection Upgrade for Aboriginal cultural heritage sites and places within Tuggerah area was conducted on the 2\textsuperscript{nd} May 2012. Involved in the assessment of the site was Sharon Hodgetts representing Darkinjung Local Aboriginal Land Council, also in attendance was Sandra Wallace Senior Archaeologist and Adel Anderson assistant Archaeologist from Artefact.

The aim was to physically walk over the assessment sites in the areas of the proposed intersection upgrade and to also inspect the surrounding area for any Aboriginal cultural heritage.

The inspection of the proposed development site was required so that any Aboriginal cultural heritage material or sites located within the area could be assessed, protected and properly managed.

Day One.
Weather conditions: fine and sunny.

**Transects**
Six (6) transects were walked within the proposed Wyong Intersection Upgrade area.

Transect one starts from Tuggerah Straight on the western side of the Tuggerah Rail Station located at GPS 0352910 6313517 and heads south along a dirt track on the eastern side of Tuggerah Straight. The transect then proceeds through an underpass under Wyong Road onto the southern side of Wyong Road.

The ground visibility was good along this transect. The area has been highly disturbed and modified through the construction of the road and adjacent rail way line.

The vegetation is mainly weeds and introduced plantings.

Transect two proceeds from the underpass to the southern side of Wyong Road. The transect heads east following a pedestrian/cycle path along Wyong Road and over the railway line. The transect then crosses Wyong Road near the roundabout between Wyong Road, Bryant and Reliance Drives.

The ground visibility was limited along this transect. The area has been highly disturbed and modified through the construction of the road and paths.

The vegetation is mainly weeds and introduced plantings.

Transect three starts from the northern side of Wyong Road near the roundabout between Wyong Road, Bryant and Reliance Drives. The transect proceed in a western direction, until it reaches Tuggerah Creek and the rail line where the transect then then turns south following the path under, and to the south of Wyong Road.

The ground visibility was limited along this transect. The area has been highly disturbed and modified through the construction of the road, paths and landscaping.

The vegetation is mainly weeds and introduced landscape plantings.
Transect four begins from the southern side of Wyong Road then proceeds east along the pedestrian/cycle path. When nearing the roundabout between Wyong Road, Bryant and Reliance Drives this transect then turn back to the west and follows Transect two to the intersection of Transect one and two.

The ground visibility was limited along this transect. The area has been highly disturbed and modified through the construction of the road, paths and landscaping.

The vegetation is mainly weeds and introduced landscape plantings.

Transect five begins at the intersection of Transect one and two near the Wyong Road pedestrian/cycle path underpass. The transect proceeds in a south-western direction to the Pacific Highway. Approximately 70m past Tambilan Street the transect crosses to the northern side of the Pacific Highway. From the northern side of the highway the transect travels back in a north-easterly direction to the roundabout intersection with Wyong Road. From the intersection the transect travels in a north-westerly direction past the Gavenlock and Wyong Road roundabout. The transect proceeds further north to the pedestrian bridge to gain access to the northern side of Wyong Road.

The ground visibility was limited along this transect. The area has been highly disturbed and modified through the construction of the road and paths.

The vegetation is mainly weeds, some native species and introduced plantings.

Transect six starts at the end of Transect five on the northern side of Wyong Road. The transect then heads in a south-easterly direction along Wyong Road until pedestrian access is restricted. The transect then turns north, then south-easterly while inspecting the area between Anzac Parade and Wyong Road. The transect continues up to Tuggerah Straight where the transect ends.

The ground visibility was limited along this transect. The area has been highly disturbed and modified through the construction of the road, drainage channel and council landscaping.

The vegetation is mainly weeds, some native vegetation and introduced landscape plantings.

The landscape and soil within all six (6) transect has been subjected to previous and ongoing disturbance.

No obvious Aboriginal cultural heritage sites where observed within any of the six (6) transects.
Figure 4: Map shows the approximate location of the proposed development sites.

The transects are indicated by the coloured line 1, 2, 3, 4, 5, 6

Source: Garmin Map source and Google earth.

Figure 5: Photograph shows part of Transect one, Tuggerah Straight facing south towards the Wyong Road intersection.

Figure 6: Photograph shows part of Transect one facing south and part of the railway line to the left of the photograph.
Figure 7: Photograph shows part Transect one, facing south along the path.

Figure 8: Photograph shows part of Transect one and the path underpass under Wyong Road.
Figure 9: Photograph shows a part of Transect two, facing south-east from the underpass.

Figure 10: Photograph shows Wyong Road from Transect two facing east towards the bridge over the railway line.
Figure 11: Photograph shows Wyong Road facing west from Transect two.

Figure 12: Photograph shows part of Transect two and the vegetation below Wyong Road.
Figure 13: Photograph shows part of Transect two facing west on the southern side of Wyong Road near the Super Centre.

Figure 14: Photograph shows part of Transect two facing west. Wyong Road is above and Tuggerah Creek and the railway line are below the bridge.
Figure 15: Photograph shows part of Transect two facing north-west towards the railway line and Tuggerah creek.

Figure 16: Photograph shows part of Transect two facing south and the path under Wyong Road adjacent Tuggerah Creek and the Railway line.
Figure 17: Photograph shows part of Transect three facing east on the southern side of Wyong Road.

Figure 18: Photograph shows part of Transect three facing east.
Figure 19: Photograph shows part of Transect four facing north towards Wyong Road

Figure 20: Photograph shows part of Transect four facing west towards the roundabout between Gavenlock Road and Wyong Road.
Figure 21: Photograph shows the Wyong Road Intersection Upgrade site facing east from Transect five
Figure 22: Photograph shows part of Transect six facing east and adjacent Anzac Road.

Figure 23: Photograph shows part of Transect six facing south and the area between Anzac Road and Wyong Road.
Figure 24: Photograph shows part of Transect six facing east from behind MacDonal’s.

Figure 25: Photograph shows part of Transect six facing south from Tuggerah Straight.
11. Fieldwork Results.

No Aboriginal cultural heritage sites or places were found or observed on the proposed Wyong Road Intersection upgrade site.
12. Recommendations.

The majority of the proposed Wyong Intersection Upgrade site has been highly disturbed and modified in the past due to the construction of road, the railway, easements, paths, modified water course, urban and commercial development.

Disturbed and modified areas of the assessment area have a low possibility to contain objects or sites of Aboriginal cultural heritage, while areas of higher Aboriginal cultural heritage potential are those areas with minimal disturbance. Considering the number of sites within the region there is a possibility for objects or sites of Aboriginal Cultural Heritage to be within the assessment area. All have Aboriginal cultural heritage value.

Therefore recommended is that for the proposed development, employee’s, contractors and personnel should receive basic training in the recognition of Aboriginal cultural heritage sites and material and have an awareness of the important of such material and places to both the Aboriginal and non indigenous community.

When any soil, vegetation clearing or leaf litter removal activities are conducted workers should be observant and keep a look out for rock engravings, surface shell, bone, rocks or any other Aboriginal cultural heritage material.

If any Aboriginal cultural heritage sites or material is found, work should cease immediately in that area and the Office of Environment and Heritage (OEH) and Darkinjung LALC be immediately notified. Work should only recommence when an appropriate and approved management strategy has been agreed to by OEH and Darkinjung LALC.

RMS or Contractor must give notice to Darkinjung LALC 30 days prior to any commencement of construction work and to engage a Darkinjung LALC Sites Officer to monitor any earthworks or excavations. This is due to the possibility of uncovering Aboriginal objects/items of significance whilst earthmoving/excavation takes place.
Overview of recommendation

1. Development employees, contractors and personnel should receive basic training in the recognition of Aboriginal cultural heritage material and sites.

2. When any soil, vegetation clearing or leaf litter removal activities are conducted workers should be observant and keep a look out for rock engravings, surface shell, bone, rocks or any other Aboriginal cultural heritage material.

3. If Aboriginal cultural heritage sites or material is discovered, work should cease, the area should then be avoided and the Office of Environment and Heritage (OEH) and Darkinjung Local Aboriginal Land Council be immediately notified.

4. RMS or Contractor must give notice to Darkinjung LALC 30 days prior to any commencement of construction work and to engage a Darkinjung LALC Sites Officer to monitor any earthworks or excavations. This is due to the possibility of uncovering Aboriginal objects/items of significance whilst earthmoving/excavation takes place.
References


Office of Environment and Heritage (OEH), Aboriginal Heritage Information Management System (AHIMS).


Acknowledgments

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