TECHNICAL REPORT NO 11

ABORIGINAL AND NON-ABORIGINAL ARCHAEOLOGICAL AND CULTURAL HERITAGE ASSESSMENT

DOMINIC STEELE CONSULTING ARCHAEOLOGY

Aboriginal and non-Aboriginal Archaeological and Cultural Heritage Impact Assessment

REMONDIS Integrated Recycling Facility

1 Grand Avenue, Camellia, NSW

Proposed Industrial Re-development

Report to

National Environmental Consulting Services Pty Ltd on behalf of

REMONDIS Pty Ltd

Dominic Steele Consulting Archaeology

14 December 2010

EXECUTIVE SUMMARY

Introduction

This report has been prepared for *National Environmental Consulting Services* (NECS) on behalf of *REMONDIS Pty Ltd* (*REMONDIS*). It presents the results of a combined *Aboriginal and non-Aboriginal Archaeological and Cultural Heritage Impact Assessment* that has been completed to inform a proposal by *REMONDIS* for the construction and future operation of a new integrated *Alternative Waste Treatment Facility* within an approximately 4.5 ha parcel of former industrial land located at 1 Grand Avenue, Camellia, New South Wales.

REMONDIS have prepared a *Preliminary Environmental Assessment* (PEA) for the project that outlines how the proposed re-development (Development Application 010_0028) should be considered as a Major Project to which Part 3A (Section 75F) of the *Environmental Planning & Assessment Act 1979* (EP&A Act) would apply.

An *Environmental Assessment (EA)* is currently being finalised for submission to the *NSW Department of Planning* (DoP) to guide the re-development proposal. The following report addresses the Aboriginal and non-Aboriginal archaeological and cultural heritage issues that form a part of the DoP *Director-General's Requirements* (DGR's) that have been developed in support of the project application.

The objectives of this study have been to identify, in partnership with the Aboriginal community, potential Aboriginal and non-Aboriginal archaeological and cultural heritage opportunities and constraints at this stage of the planning process that can be used to direct how the future use of the land can be best achieved in a manner that will avoid adversely impacting upon the Aboriginal and European archaeological and cultural heritage values of the place.

Director General's Requirements

The DGR's Key Issues for the project (issued by the DoP on 24 April 2010 and re-issued on 5 August 2010) include the requirement for the potential Aboriginal and European impacts of the project to be evaluated through a consideration of the following heritage technical and policy documents:

Aboriginal Heritage: *'Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation* (DEC)*'*.

'NSW Heritage Manual' (NSW Heritage Office & DUAP).

Non-Aboriginal Heritage: *'The Burra Charter' (The Australian ICOMOS Charter for Places of Cultural Significance)'.*

The 1 Grand Avenue Site and its Heritage Context

Statutory and Cultural Heritage Context:

Two *Sydney Regional Environmental Plans* (SREPs) are of relevance to the 1 Grand Avenue site and the current re-development application. These are:

- SREP No 28 – Parramatta applies to the site as it is located within the 'Regional Enterprise Zone' in the Camellia Precinct under the Plan; and
- The Sydney Harbour Catchment SREP applies to the site as a portion of the property situated along the southern bank of Parramatta River is zoned *Environment Protection* according to this planning instrument. This land will remain unaffected by the proposal.

The *Section 149 Planning Certificate* (No.2009/4487) issued for the site on 28 September 2009) identifies the land to be potentially affected by the proposal as being regulated by the *Parramatta LEP 1996* (Heritage & Conservation) and the Draft 2008 LEP.

The site is listed in Schedule 5 of the 1996 LEP in respect to the proximity of the historic grave(s) of Eleanor (Elinor?) Magee and child dating to c.1793. The grave(s) is located in a reserve adjacent to the Clyde-Carlingford Railway Line to the north-west of the proposed re-development footprint, and as a result the grave location and its curtilage will not be affected by the current proposal.

The Planning Certificate also notes that in terms of Aboriginal archaeological heritage, the study area is identified to be potentially of low sensitivity due to previous disturbance and capping. However, in terms of comprising an area of potential '*Aboriginal association'*, the site does have social/historical association.

Site Description, Contamination and Remediation

The 1 Grand Avenue site is level with approximately 95% of the proposed re-development footprint being currently covered by a mix of 'hard surfaces' of concrete and bitumen. Portions are also today grassed which cover pre-existing fills and other cap deposits introduced onto the site since 1996.

There are no buildings currently on the property, and no natural surfaces or soil profiles are presently exposed. The site is currently used for shipping container storage purposes.

The site forms a part of a larger area of land which prior to 1996 was occupied by *James Hardie Industries* (JHI) and used for the manufacture of fibrous cement and related products and chemical manufacturing. The JHI site formerly consisted mainly of warehouse buildings which have now been demolished down to slab (ground) level. These construction platform slabs remain in place today.

The site was acquired by the *Sydney Water Corporation* (SWC) in 1996. Following the demolition of the former JHI facility buildings during 1994 to 1996, large quantities of fill were introduced to level the site. Fill materials below the existing ground-level concrete and bitumen surfaces and other capping deposits sealing the site were in 1996 assumed to be impacted by asbestos and other contaminants, and were at that time identified as representing a significant risk of harm for future uses of the site as declared by the *NSW Environment Protection Authority* (EPA) in 2000. Since this time, the SWC has undertaken remediation and initiated *Safe Work Plans* to ensure buried contaminants are adequately covered with 'hardstand' to provide an effective barrier to human contact to manage and mitigate any risks associated with future on-site activities (such as maintenance and re-development) with the potential to disturb the cap or the contaminated materials beneath.

1 Grand Avenue Re-development Proposal

The proposed integrated alternative waste treatment facility will process considerable quantities of commercial and industrial waste, along with food and green-waste collected kerbside in the Metropolitan Sydney area, with the objective of the design being to maximise resource recovery and to minimise excess landfill disposal.

The proposal seeks approval for the construction of two integrated AWTF plants along with ancillary infrastructure including the creation of a weighbridge, access roads, administration offices and workshops, and parking areas.

The proposed construction will be principally created upon the surface of a raised engineered platform situated above the existing site seal with the only subsurface penetration that will occur would be during the installation of underground services. The overarching objective for the platform design is to avoid the penetration of the capping for the construction of the main buildings and structures of the proposed recycling facility once all services have been provided.

An existing 30m wide buffer zone along Parramatta River will be maintained and will remain unaffected by the proposal. A substantial area to the west of the proposed re-development footprint will not be disturbed by the current proposal. It will be reserved for possible future use.

The design of the proposal will provide an effective barrier between possible contamination and future site occupiers. All future excavations will be undertaken in accordance with a Safe Work Method Plan to ensure an adequate seal is maintained over the areas of fill known to contain contaminants and also details procedures to control any future intrusive activities that could result in exposure of buried contaminated materials on the site.

The scale of impacts associated with the proposal with the potential to affect currently buried subsurface materials below the site seal is limited. As a result, the likelihood for future construction activities to adversely impact upon potential Aboriginal and non-Aboriginal archaeological features or deposits of significance would appear to be minimal.

Aboriginal and European Archaeological & Cultural Heritage Impact Statement

Aboriginal Heritage:

The background Aboriginal archaeological and cultural heritage research, site inspection, analysis and assessment of the 1 Grand Avenue site undertaken for the current study indicate that:

- No *previously* documented Aboriginal archaeological sites or 'objects' are known to occur within the boundaries of the subject site.
- It is unclear at present whether deposits associated with the 'Parramatta Sand Sheet' either occur or survive beneath the currently sealed footprint of the property. A number of significant Aboriginal archaeological sites have been identified to occur in association with this geomorphic formation some to the study area in recent years.
- Mindful of the considerable alterations to the original pre-Contact landscape that followed the industrial development and use of the former JHI site between c.1916 to 1996, and the limited scope of subsurface impacts associated with the current re-development proposal, it is expected that any as yet undetected evidence for past Aboriginal visitation and use of the subject site that may be exposed by future works will consist of materials most likely encountered in largely disturbed recovery contexts.

- In summary, the study area appears to be potentially of relatively low archaeological sensitivity due to previous historic (industrial) uses and disturbances with the likelihood that future works will extend to minimal depths below the current capping surfaces that seal the site with the potential to impact upon the potential Aboriginal archaeological resource.
- In terms of the site comprising an area of potential historical '*Aboriginal association',* documentary records indicate that areas in and around Camellia were the focus of post-Contact visitation and use by Aboriginal people that appears to have continued up to the mid 1830s. Whether any tangible archaeological evidence documenting this period of Aboriginal history is present and/or survive within the 1 Grand Avenue re-development footprint is currently unknown. Recognition however of the importance this area of the Camellia Peninsula may have played in the lives of the traditional Aboriginal owners is acknowledged.

Evaluation

On the basis of the above considerations, it is concluded that the 1 Grand Avenue re-development proposal is unlikely to have a *significant* adverse impact upon the Aboriginal archaeological heritage values of the place and that no *clear or obvious* Aboriginal archaeological constraints are apparent for the re-development proposal proceeding as planned subject to the implementation of the management recommendations provided below should approval be granted by the DoP.

European Heritage:

The background European archaeological and cultural heritage research, site inspection, analysis and assessment of the 1 Grand Avenue site undertaken for the current survey and assessment study reported here indicate that:

- No *previously* documented European archaeological sites, features or deposits relative to the historically recorded use and occupation of the re-development site have been identified during the course of preparing the current study.
- The 1 Grand Avenue site is listed on the Parramatta 1996 LEP in respect to the proximity of the historic grave of Eleanor Magee and child that dates to c.1793. The grave is located adjacent is situated to the north-west (outside) of the proposed re-development footprint within a reserve with restricted public access. As a result, the grave location and its curtilage will not be affected by the current re-development proposal.

- No additional areas of potential European archaeological heritage sensitivity have been identified in any other areas of the proposed re-development site during the course of the research, site inspection, and assessment program documented here.
- The potential for as yet undocumented European archaeological features or deposits of significance to be present (or survive) on the property relative to the scale of works associated with the 1 Grand Avenue re-development proposal is assessed to be low.

Evaluation

On the basis of the above considerations, it is concluded that the 1 Grand Avenue re-development proposal is unlikely to have a *significant* adverse impact upon the non-Aboriginal archaeological heritage values of the place and that no identified constraints are apparent for the re-development proposal proceeding as planned subject to the implementation of the management recommendations provided below should approval be granted by the DoP.

Management Recommendations

Basis for Management Recommendations

It is assessed that the 1 Grand Avenue re-development proposal is unlikely to have an adverse impact upon the Aboriginal and European archaeological and cultural heritage values of the place.

It is therefore concluded that there are no *significant* Aboriginal archaeological (scientific) or European heritage constraints for the proposal proceeding at this time subject to the consideration of the following conditions:

- Recognition of the legal requirements and automatic statutory protection provided to Aboriginal 'objects' and 'places' under the terms of the *National Parks and Wildlife Act* of *1974* (as amended 2010).
- Consideration of the views and advice that may be provided for the proposal by the *Deerubbin Local Aboriginal Land Council*, the *Darug Tribal Aboriginal Corporation*, the *Darug Custodian Aboriginal Corporation*, the *Darug Aboriginal Cultural Heritage Assessments,* the *Darug land Observations*, and *Yarrawalk*.
- Recognition of the protection provisions of the *NSW Heritage Act 1977* (as amended).

Management Recommendations (in Summary)

I Based on the conclusion that the *potential* for as yet undetected Aboriginal or European archaeological items of significance to occur within the subject site that may be affected by future site works is assessed to be *low*, it is recommended that there are no *obvious* or *significant* Aboriginal or non-Aboriginal archaeological and cultural heritage constraints to the proposed 1 Grand Avenue re-development proposal proceeding as planned.

II Prior to the commencement of future works on the site if approved, all planners and contractors involved should be made aware of the possibility (albeit limited) that as yet undiscovered Aboriginal archaeological materials may exist within (beneath) the footprint of the proposed RIRF activity areas. This could be undertaken through a site induction, which would notify all involved of their obligations under the *National Parks and Wildlife Act 1974*.

III Prior to the commencement of future works on the site, all planners and contractors involved should be made aware of their obligations and responsibilities under the *NSW Heritage Act 1977* (as amended).

IV In the (largely) unexpected circumstance that any Aboriginal or European objects are unearthed as a result of future works, it is recommended that activities should temporarily cease within the immediate vicinity of the find locality, be relocated to other areas of the site, and the *NSW Department of Environment and Climate Change and Water* (DECCW) and the *NSW Heritage Branch* be contacted to advise on the appropriate course of action to allow the identified item(s) in a timely fashion to be recorded/conserved to ensure works schedules are maintained and balanced with statutory heritage requirements.

Report Contents

1.0 Introduction

1.1 Background

REMONDIS Pty Ltd (*REMONDIS*) is seeking approval for the proposed construction and future operation of a new integrated *Alternative Waste Treatment Facility* (AWTF) to be known as the *REMONDIS Integrated Recycling Facility* (RIRF) consisting of a commercial and industrial waste processing plant facility and an organic waste composting facility within an approximately 4.5 ha parcel of former industrial land located at 1 Grand Avenue, Camellia, New South Wales.

REMONDIS have prepared a *Preliminary Environmental Assessment* (PEA) for the project that outlines how the proposed re-development (Development Application 010_0028) as described and illustrated below should be considered as a Major Project to which Part 3A (Section 75F) of the *Environmental Planning & Assessment Act 1979* (EP&A Act) would apply.

Comprising Part Lot 1 in DP 226202, Lot 1 in DP 579735, and Part Lot 2 in DP 579735, the proposed RIRF site is located within the *Parramatta City* LGA and is situated a short distance to the north of the *Rosehill Gardens Racecourse* as illustrated in **Figure 1.1**. Access to the site is through a signalised intersection on James Ruse Drive and via an overpass crossing the Clyde-Carlingford Railway Line that is provided by a no-through road leading to Camellia Railway Station, car-parking area, and a local goods spur line that are adjacent to the entry gate to the property.

As indicated in **Figure 1.2**,[1] the 1 Grand Avenue site is broadly rectangular in shape and is bounded by vacant land adjacent to the Clyde-Carlingford Railway Line to the west, a local goods rail line to the south, industrial facilities to the east, and Parramatta River to the north. The current condition and configuration of the site (described and illustrated in further detail below) is shown in a recent aerial photograph presented here as **Figure 1.3**.

This report has been prepared for *National Environmental Consultancy Services* (NECS) on behalf of *REMONDIS.* It presents the results of a combined *Aboriginal and non-Aboriginal Archaeological and Cultural Heritage Impact Assessment* that has been completed to inform a Concept Plan (CP) and an Environmental Assessment (EA) that are currently being finalised for submission to the *NSW Department of Planning* (DoP) and *Parramatta City Council* (Council) for the re-development proposal.

[1] Figures 1.1 and 1.2 have been drawn from the PEA prepared by (NECS) on behalf of REMONDIS in December 2009.

The following sections of this document address the Aboriginal and non-Aboriginal archaeological and cultural heritage issues that form a part of the DoP *Director-General's Requirements* (DGR's) that have been developed to guide the CP and EA in support of the project application.

The objectives of this study have been to identify, in partnership with the Aboriginal community, potential Aboriginal and non-Aboriginal (hereafter 'European') archaeological and cultural heritage opportunities and constraints at this stage of the planning process that can be purposively used by all stakeholders to direct how the proposed re-development of the land can be best achieved in a manner that will avoid adversely impacting upon the Aboriginal and European archaeological and cultural heritage values of the place.

1.2 Director General's Requirements

The DGR's Key Issues for the project (issued by the DoP on 24 April 2010 and re-issued on 5 August 2010) include the requirement for the potential Aboriginal and European impacts of the project to be evaluated through a consideration of the following heritage technical and policy documents:

Aboriginal Heritage:	*'Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation* (DEC)*'*.[2]
	'NSW Heritage Manual' (NSW Heritage Office & DUAP).
Non-Aboriginal Heritage:	*'The Burra Charter' (The Australian ICOMOS Charter for Places of Cultural Significance)'*.[3]

1.3 The 1 Grand Avenue Site and its Heritage Context

1.3.1 Statutory and Cultural Heritage Context

Two *Sydney Regional Environmental Plans* (SREPs) are of relevance to the 1 Grand Avenue site and the current re-development application. These are:

[2] This document is now superseded by the NSW Department of Environment, Climate Change and Water's 'Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010. Part 6 National Parks and Wildlife Act 1974 (April 2010)'

[3] The Burra Charter has been adopted by Australia ICOMOS which establishes the nationally accepted principles for the conservation of places of cultural significance.

- SREP No 28 – Parramatta; and
- SREP (Sydney Harbour Catchment).

The 2009 SREP No 28 applies to the site as it is located within the 'Regional Enterprise Zone' in the Camellia Precinct under the Plan which is further defined as *'a zone suitable for a variety of industrial and heavy industrial activities serving the Greater Metropolitan Area'.'*

The portion of the site situated along the southern bank of Parramatta River (comprising a 30m strip extending from the edge of the river in a southern direction towards the centre of the proposed RIRF site footprint) is zoned *Environment Protection* according to the *Sydney Harbour Catchment SREP*. This portion of land will remain unaffected by the current RRIF re-development proposal.

The *Planning Certificate* issued for the site (28 September 2009) under Section 149 of the EP&A Act (No 2009/4887) identifies the land to be potentially affected by the proposal as being regulated by the *Parramatta LEP 1996* (Heritage & Conservation) and the Draft 2008 LEP. The objectives of these LEP documents relative to cultural heritage matters are in summary as follows:

- To conserve the environmental heritage of the *City of Parramatta*.
- To retain the cultural significance of the *City of Parramatta*.
- To conserve existing significant fabric, setting, relics and views associated with the heritage significance of heritage items and heritage conservation areas.
- To ensure that any development does not adversely affect the heritage significance of heritage items and heritage conservation areas and their settings.
- To ensure that known or potential archaeological sites and places of significance are conserved.
- To ensure that the heritage conservation areas throughout the *City of Parramatta* retain their significance.

As reviewed in **Sections 2.0** and **3.0** of this report, the 1 Grand Avenue site is listed in Schedule 1 of the 1996 LEP (Schedule 5 – Environmental Heritage) in respect to the proximity of the historic grave(s) of Eleanor (Elinor?) Magee/Mcgee and child dating to c.1793. The grave(s) is located adjacent to the Clyde-Carlingford Railway Line and is situated in a reserve to the north-west of the

proposed RIRF re-development footprint, and as a result the grave location and its curtilage will not be affected by the current proposal.

The *Section 149 Planning Certificate* (No.2009/4487) issued for the site on 28/09/2009 also notes that in terms of Aboriginal archaeological heritage, the study area is identified to be potentially of low sensitivity due to previous disturbance and capping. However, in terms of comprising an area of potential '*Aboriginal association'*, the site does have social/historical association as discussed in **Section 3.0** of this report.

In correspondence (dated 8/04/10) provided to the DoP to inform the DGR's, the *Department of Environment, Climate Change and Water* (DECCW) includes the following advice regarding potential impacts on Aboriginal cultural heritage values:

> *'DECCW acknowledges that the site is highly disturbed and therefore the presence of Aboriginal cultural heritage artefacts is unlikely. Nonetheless, the EA should if applicable:*
>
> - *Address and document the information requirements set out in the draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation involving surveys and consultation with the Aboriginal community;*
> - *Identify the nature and extent of impacts on Aboriginal cultural heritage values across the project area;*
> - *Describe the actions that will be taken to avoid or mitigate impacts or compensate to prevent unavoidable impacts of the project on Aboriginal heritage values. This should include an assessment of the effectiveness and reliability of the measures and any residual impacts after these measures are implemented; and*
> - *Demonstrate that effective community consultation with Aboriginal communities has been undertaken in determining and assessing impacts, developing options and making final recommendations'.*

1.3.2 Site Description, Contamination and Recent Remediation

The 1 Grand Avenue site is broadly level with approximately 95% of the proposed RIRF footprint being currently covered by a mix of 'hard surfaces' of concrete and bitumen. Portions of the site are also today grassed which cover pre-existing fills and other cap deposits introduced onto the site since 1996. There are no buildings currently on the property.

A small portion of the land to the west of the 1 Grand Avenue site is also subject to 1:20 or 1:100 year flood level threats given its relatively low-lying topography.[4]

The subject site forms part of a larger area of land fringing Parramatta River which prior to 1996 was occupied by *James Hardie Industries* (JHI) and used for the manufacture of fibrous cement and related products and chemical manufacturing. [5] The JHI site formerly consisted mainly of warehouse buildings which have now been demolished down to slab (ground) level. These construction platform slabs remain in place today.

The site was acquired by the *Sydney Water Corporation* (SWC) in 1996. Following the demolition of the former JHI facility buildings during 1994 to 1996, large quantities of fill were introduced in places to level various parts of the former JHI site. Fill materials below the existing ground-level concrete and bitumen surfaces and other capping deposits sealing the site were in 1996 assumed to be impacted by asbestos and other contaminants, and were at that time identified as representing a significant risk of harm for future uses of the site as declared by the *NSW Environment Protection Authority* (EPA) in 2000 as defined under Sections 7, Section 9 (1), and Section 15 (1) of the *Contaminated Land Management Act 1997* (CLM Act).

A *Voluntary Remediation Agreement* (VRA No 26012) was subsequently entered into between the SWC and the EPA under Section 26 of the CLM Act. During the period 2000-2001, the SWC undertook remediation and initiated a *Safe Work Plans* (SWP) plan for the VRA to ensure buried contaminants were adequately covered with 'hardstand' to provide an effective barrier to human contact to manage and mitigate any risks associated with future on-site activities (such as maintenance and redevelopment) with the potential to disturb the cap or the contaminated materials beneath it. The following actions were implemented (and continue to be maintained) during this period:

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[4] These potentially flooded areas as mapped as part of the PEA December 2009 Redmondis and NECS report are illustrated and discussed in Sections 2.0 and 3.0 of this report.

[5] The former JHI site occupied an area of approximately 13.8 ha that has since been divided into two parcels of land located on the eastern and western sides of the Clyde-Carlingford Railway Line. The proposed RIRF re-development footprint incorporates parts of portion of the original JHI site. The lands to the west of the rail line fall outside the parameters of the current study.

- The establishment of a drainage easement near the Clyde-Carlingford Railway Line with the recognition that a SWP is required to be followed in the event of the need to undertake any excavation to maintain this service feature or in response to a service failure.
- The placement of warning signs prohibiting un-authorised excavations and advising of the presence of buried hazardous material across the JHI site.
- The undertaking of regular inspections to monitor the condition of the surface cap sealing the potentially contaminated materials below.
- Regular monitoring of groundwater (undertaken in 2001, 2002 and 2003). This confirmed that no significant levels of groundwater contaminants above natural background levels were migrating from the JHI site. The EPA subsequently determined that no further groundwater monitoring was required.
- A *Contamination Management Plan* (CMP) was developed in 2000 for the JHI site.
- A *Site Management Plan* (SMP - EPA 2004) was developed in 2004 and replaced the former CMP to provide ongoing management of the contamination issues on the JHI site ('*SMP - Eastern Portion of the Former James Hardie Site, Grand Avenue, Camellia, March, 2004*).
- After the completion of the demolition works of the former JHI warehouse and operational facilities, capping, and groundwater monitoring programs, the EPA re-assessed its '*significant risk of harm*' determination under the CLM Act in the light of the works undertaken by the SWC as part of the VRA.
- The EPA as a result determined (14 May 2003) that the VRA had been satisfactorily completed and that contamination no longer presented a significant risk of harm to human health or the environment. In accordance with a Section 26 (5) of the CLM Act, the EPA subsequently determined that the terms of the VRA had been carried out satisfactorily.
- The former JHI site is today subject to two Public Positive Covenants under Section 29 of the CLM Act and Section 88E of the *Conveyancing Act 1919*. These were registered by the EPA in July 2004. The terms of these covenants require the site owner(s) to maintain remediation actions of the property in line with the terms of the existing SMP.

- Specifically, ongoing management of the of the existing soft and hard surface coverings and the Parramatta River boundary must be achieved by regular maintenance inspections which are to be reported by the owner(s) to the EPA on an annual basis.

A *Contamination Summary Report* (CSR) has recently been prepared to guide the current RIRF re-development proposal (Consulting Earth Sciences July 2010). It provides an overview of the environmental condition of the site and has been prepared with the understanding that the proposed construction of the recycling facility will be largely created upon the surface of a raised engineered platform above the existing site seal with the only subsurface penetration to occur during the installation of future underground services as described and illustrated below.

The implications of the findings of the CSR relative to the heritage management conclusions and recommendations that are presented in following sections of this report are outlined where relevant.

1.4 The 1 Grand Avenue Re-Development Proposal

The proposed integrated alternative waste treatment facility at 1 Grand Avenue will be able to process up to 100,000 Tonnes per Annum (tpa) of Commercial and Industrial (C&I) waste and 50,000 tpa of food and green-waste collected kerbside in the Metropolitan Sydney area with the objective of the design being to maximise resource recovery and to minimise excess landfill disposal.

The proposal seeks approval for the construction of two integrated AWTF plants along with ancillary infrastructure including the creation of a weighbridge, access roads, administration offices and workshops, and parking areas as follows:

- C&I Resource Recovery Facility (CIRRF); and a
- Source Separated Organic Resource Recovery Facility (SSORRF).

The proposed CIRRF would utilise a combination of mechanical separation and front end sorting using both automated and manual processes together with tunnel composting. The proposed facility would recover recyclable materials from the commercial and industrial waste stream, convert the putrescible waste into a biologically stable product which would be further refined in order to maximise recovery and minimise the volume that needs to be land-filled.

The SSORRF would process materials for the production of high grade organic fertilisers and compost products for marketing and future sale. The pre-treatment process system would remove contamination from the material prior to the tunnel composting service as described below.

The proposed layout of the 1 Grand Avenue RIRF is illustrated in **Figure 1.4**. An area to the west of the proposed re-development footprint ('hatched') will not be affected and will be reserved for future use as indicated in this figure. A proposed 30m wide Environmental Protection Zone situated along Parramatta River is also illustrated in this plan. The proposed storm water and sediment control plans that have been designed to support the project application are provided by **Figures 1.5** and **1.6**. Envisaged site construction elevations and sections applicable to the proposed RIRF development footprint are shown in **Figure 1.7**.[6]

The proposed RIRF re-development will consist of the following key elements that have implications for the current heritage assessment report.

Current Site Levels and Potential Re-development Subsurface Impacts

The existing concrete and hardstand capping surfaces covering the 1 Grand Avenue site are at approximately 5.3m Australian Height Datum (AHD). These form the base for the lowest structures that are associated with the RIRF re-development proposal being the humidifier pit.[7]

This establishes the Finished Floor Levels (FFLs) for the integrated structures such as the bio-filter basement (see below) at 6.1m AHD, the tunnel rear (at 7.0m AHD), and the main building floor level at 7.2m AHD. The main building concrete apron falls off in order to connect between the main building FFL and the circular road (6.3m AHD). The fall accommodates for a controlled storm-water drainage and collection and desired minimal falls for operation requirements (heavy vehicular traffic).

Engineered Construction Platform

Preliminary estimates to build the platform are between 45,000 and 50,000 m3 or 90,000 to 100,000 tonnes of imported clean fill. The platform will be sealed through heavy-duty concrete pavement on a compacted sub-base. Roads (perimeter road etc.) and car parking areas will be built using road base material complying with RTA standards.

The overarching objective for the platform design is to avoid the penetration of the capping for the construction of the main buildings and structures of the RIRF once all services have been provided.

[6] Plans prepared for Redmondis by Algory Zappa & Associates Pty Ltd 2010.

[7] Consulting Earth Sciences (CES) July 2010.

Main Buildings

The proposed main building complex will include the entire green waste delivery and pre treatment facilities complete with all equipment, compost tunnels and hallway. The entire facility would be fully enclosed, air ventilated, and constructed of steel portal-framed materials.

Tunnels

The composting tunnels are proposed to be of tight sealed concrete structures of a special concrete mix to resist high temperature range, corrosive atmosphere and aggressive leachate. The tunnel floor would be an aeration slab poured onto a working slab, both of which would be constructed with reinforced concrete. Custom design trenches will be cast into the slab in arrays over the length of the tunnel and connect to the ductwork via pipes poured into the slab. The tunnel roof will integrate air ventilation and sprinkler systems.

Biofilter

The proposed biofilter would be a concrete structure for the filter basement with either a perforated concrete or hardwood grate on a support frame over the basement over the biofilter area. The concrete basement will fall towards the connected humidifier chamber via an air distribution inlet channel. The humidifier and connection would be of reinforced concrete with manhole access.

Access Road

The access road would provide trucks with direct access to the proposed development from Grand Avenue. There would be a secondary road that links from Grand Avenue to the Office Building. The dual road system would separate the traffic for Waste Collection Trucks from staff or private cars.

Weighbridge & Car Park

The development would include a weighbridge on the access road to enable recording of container and truck volumes and numbers. An administration and staff amenities building would be located to the northwest corner of the main building, with a car parking area provided.

Summary

The proposed construction will be principally created upon the surface of a raised engineered platform situated above the existing site seal with the only subsurface penetration that will occur would be

during the installation of underground services and features such as the composting tunnels and a biofilter.

A 30m wide Environmental Protection Zone will be maintained along the southern bank of the Parramatta River and will remain unaffected by the proposal. A considerable area to the west of the proposed RIRF footprint will not be re-developed according to the current proposal will be reserved for possible future use.

The proposal will provide an effective barrier between possible contamination and future site occupiers/users and the potential during the proposed construction of the RIRF to breach the seal and disturb the underlying contaminated fill materials.

All excavation operations will be undertaken in accordance with the SMP that has been prepared to support the re-development proposal. The objectives of the SMP are to:

- Ensure an adequate seal is maintained over the areas of fill known to contain asbestos waste to ensure physical isolation of the waste from casual human contact, restrict infiltration of rainwater and prevent erosion or movement of the waste; and
- To provide a detailed site management plan which addresses all human health and environmental issues related to the ongoing presence of contaminated soils at the site. In particular, procedures that will control any future intrusive activities that could result in exposure to, or disturbance of, the buried contaminated waste on site.

1.5 Statutory Context and Controls

1.5.1 Statutory Protection for Aboriginal Cultural Heritage

Two principal pieces of legislation provide automatic statutory protection for Aboriginal heritage and the requirements for its management in New South Wales: These are:

- The *National Parks and Wildlife Act* (1974 as amended); and
- The *Environmental Planning and Assessment Act* (1979 as amended).

The principal implications of these statutory controls (specifically the NPW Act) within the context of the current Aboriginal archaeological and cultural heritage assessment component of the project are outlined below.

National Parks and Wildlife Act (1974)

The *National Parks and Wildlife Service* (NPWS) is the principal government agency with responsibility for the protection and management of Aboriginal archaeological sites and cultural heritage values. It now comprises an administrative branch of the *Department of Environment, Climate Change and Water* (DECCW).

The *National Parks and Wildlife Act 1974* (NPW Act) has recently been amended. However, a number of changes that form a part of the *National Parks and Wildlife Amendment Act 2010* are not yet in force and are expected to come into effect in October 2010 as summarised below.

- The NPW Act provides statutory protection for all Aboriginal 'Sites' or 'Objects' (consisting of any material evidence of the indigenous occupation of NSW) under Section 90 of the Act, and for 'Aboriginal Places' (areas of cultural significance to the Aboriginal community) under Section 84 of the Act.
- Section 5 of the Act defines an 'Aboriginal Object' as: '*any deposit, object or material evidence (not being a handicraft for sale) relating to Indigenous and non-European habitation of the area that comprises New South Wales, being habitation both prior to and concurrent with the occupation of that area by persons of European extraction, and includes Aboriginal remains*'.
- Prior to recent amendments to the Act (see below), Section 90 of the Act stated that it was an offence to knowingly destroy, deface, damage or desecrate, or cause or permit the destruction, defacement, damage or desecration of, an Aboriginal object or Aboriginal place, without prior written consent from the Director-General of the NPWS.
- The 2010 Amendment Act amends the Aboriginal heritage provisions of the NPW Act to create a system of strict liability whereby anyone who damages or destroys an Aboriginal object or Aboriginal place is automatically guilty of an offence. However, a system of due diligence is being created if a development proponent demonstrates that they have exercised appropriate diligence in investigating the likelihood of Aboriginal heritage being impacted upon by any given proposed activity, whereby they will be necessarily be guilty of an offence.[8]
- The protection provided to Aboriginal sites/objects applies irrespective of the level of their significance or issues of land tenure. However, areas are only gazetted as Aboriginal Places

[8] It is still an offence to knowingly impact upon an Aboriginal object or place, and greater penalties now apply.

if the Minister is satisfied that sufficient evidence exists to demonstrate that the location was and/or is of special significance to Aboriginal culture.[9]

- Section 91 of the Act requires that the DECCW Director-General be notified of the location of any newly identified Aboriginal site or object which is then registered with the NSW DECCW on the *Aboriginal Heritage Information Management Service* (AHIMS) database.[10]
- As the administrator of the NPW Act, the DECCW has issued guidelines outlining the preferred structure for archaeological investigations and reporting.[11] More recently, it has also released requirements for Section 87 and Section 90 Permit Applicants under Part 6 of the NPW Act as noted above. DECCW have also drafted Regulations and a Due Diligence Code of Practice to guide how this new system will work that will come into effect shortly.

In summary, NPWS Permits and Consents are only granted where sufficient information is supplied in written form to the Director-General of the DECCW from Aboriginal stakeholders, archaeologists and developers that demonstrate accuracy and transparency in the site assessment process and the good faith intended by each of these parties in applying for consent to either move, disturb and/or destroy statutorily protected objects.

Best practice advocates that development impact to documented and/or potential sites of Aboriginal cultural heritage sensitivity be avoided where practicable and/or mitigated at the minimum, and that all decisions made for either course of action be made consequent to direct guidance provided by Aboriginal stakeholders.

Environmental Planning and Assessment Act (1979)

The EP&A Act, administered by the *NSW Department of Planning*, provides planning controls and requirements for environmental assessments in the development approval process. It also establishes the framework for Aboriginal heritage values to be formally assessed in the land-use

[9] The term 'Aboriginal Place' is a statutory term. It may or may not contain Aboriginal 'Sites' or 'Objects'.

[10] AHIMS has replaced the previous NPWS Aboriginal Sites Register.

[11] NSW National Parks and Wildlife Service 1997. 'Standards Manual for Archaeological Practice in Aboriginal Heritage Management' in the Aboriginal Cultural Heritage Standards and Guidelines Kit (Draft).

planning and development consent processes. This Act has three main parts of direct relevance to Aboriginal cultural heritage. These are:

- Part 3 that governs the preparation of planning instruments;
- Part 4 which relates to the development assessment process for local government (consent) authorities; and
- Part 5 relates to activity approvals by governing (determining) authorities.

Part 3 of the EPA Act deals primarily with development planning in which sites and places sacred or significant to Aboriginal communities are to be assessed and are to be taken into consideration in initial studies.

The DECCW (and more recently the *NSW Department of Planning*) has produced guidelines on the preparation of planning instruments that explicitly list Aboriginal sites and places of significance as values which should be assessed as part of initial planning studies.

Part 4 of the EPA Act deals with decisions made within the context of new development applications.

The DECCW is an approving body under Part 5 of the EPA Act and will require formal consideration of a variety of cultural and community factors. These may variously include potential impacts to significant anthropological, archaeological, and cultural and historical values, and will typically be addressed through the completion of environmental studies where appropriate.[12].

Section 75F of the EP&A Act (1979) no longer requires the development proponent to obtain NPWS S87 or S90 Permits. The DoP however can require these to be sought as a condition of development consent as deemed appropriate.

1.5.2 Statutory Protection for European Cultural Heritage

NSW Heritage Act (1977)

The primary purpose of the *NSW Heritage Act 1977* (as amended) is to protect, conserve and manage the environmental heritage of the State. Environmental heritage is broadly defined under Section 4 of the Act as consisting of the following items:

[12] Such studies often include heritage Assessments, Heritage Impact Studies, and Review's of Environmental Factors.

those places, buildings, works, relics, moveable objects, and precincts, of State or Local heritage significance.'

Amendments to the Act made in 2009 have changed the definition of an archaeological 'relic' whereby a 'relic' is now referred as an archaeological deposit, resource or feature that has assessed heritage significance at a Local or State level.

The definition is no longer based primarily on age (previously a 'relic' was described as comprising any item older than 50 years of age). This significance based approach to identifying 'relics' is consistent with the way other heritage items such as buildings, works, precincts or landscapes are identified and managed in NSW.[13]

While a number of the archaeological provisions of the Act have been streamlined, the Act nevertheless retains the core principals and objectives that require anyone proposing to disturb land to obtain a permit from the *NSW Heritage Council* (under Section 140 or Section 160 of the Act) if it is known or suspected that 'relics' of significance may be disturbed, moved or destroyed by future land alterations.

1.6 Report Scope and Objectives

The objectives of the current study have been to prepare a combined *Aboriginal and non-Aboriginal Archaeological Cultural Heritage Impact Assessment* to inform the 1 Grand Avenue development proposal according to the following:

1.6.1 Aboriginal Consultation

- To initiate consultation with the local Aboriginal community with regards to the proposed development of the subject land.
- To incorporate the views, possible concerns, and management recommendations provided by the local Aboriginal community into the current study.

[13] Heritage Branch. December 2009. 'Assessing Significance for Historical Archaeological Sites and Relics'. NSW Department of Planning.

1.6.2 Background Research and Assessment

- To undertake background research into the location and nature of any previously recorded Aboriginal archaeological sites (and/or areas of potential Aboriginal cultural heritage sensitivity) known to be present either within the boundaries of the study area or in immediately adjacent areas.[14]
- To provide on the basis of the above Aboriginal archaeological and cultural heritage review, a predictive model outlining the potential Aboriginal archaeological sensitivity of the site and an evaluation of the possibility for as yet any unrecorded Aboriginal archaeological sites (and/or areas of likely sensitivity) to occur within the study area.
- To undertake a search of relevant national, state and local government heritage registers and listings into the location (and nature) of any previously recorded European archaeological sites or items that may be present within the boundaries of the study area. These include the National Heritage List, the Register of the National Estate, the State Heritage Register, the National Trust of Australia, and the Parramatta City Council 1996 Local Environmental Plan.

1.6.3 Site Inspection and Evaluation

- To outline the rationale and methods to be employed during the site inspection(s) and recording of the study area.
- To provide a summary of the observations recorded during the site inspection(s), and an evaluation of the results of the fieldwork.

1.6.4 Analysis, Evaluation and Report

- To prepare a combined *Aboriginal and non-Aboriginal Archaeological Cultural Heritage Impact Assessment* that includes the outcomes of consultation undertaken with the local Aboriginal community, an evaluation of the results of the site inspection(s), and a discussion of the Aboriginal and European archaeological and cultural heritage management conclusions that have been developed to guide the development proposal.

[14] This background included a search of the DECCW AHIMS Aboriginal Sites Register and an evaluation of previous Aboriginal cultural heritage assessments undertaken in the local Parramatta/Camellia landscape.

- To provide appropriate Aboriginal and European cultural heritage management options and recommendations directed to establish a suitable framework for the ongoing protection (and/mitigation measures) of any documented and/or potential Aboriginal and European archaeological sites (or areas of potential cultural heritage sensitivity) that may be identified relative to the current 1 Grand Avenue development proposal.

1.7 Aboriginal Community Consultation

The *NSW Aboriginal Land Rights Act 1983*, administered by the *NSW Department of Aboriginal Affairs*, establishes the *NSW Aboriginal Land Council* (NSWALC) and *Local Aboriginal Land Council's* (LALCs). The Act requires these bodies to:

- Take action to protect the culture and heritage of Aboriginal person's in the Local Aboriginal Land Council's area, subject to any other law.
- To promote awareness in the community of the culture and heritage of Aboriginal persons in the Local Aboriginal Land Council's area.[15]

The proposed 1 Grand Avenue development site falls within the administrative boundaries of the *Deerubbin Local Aboriginal Land Council* (DLALC). A number of additional western Sydney Aboriginal community organisations also claim traditional and historical links within the greater Sydney landscape of which the Camellia site forms a part.

Currently, at-least five other Aboriginal community organisations (excluding the DLALC) are generally consulted with where Aboriginal heritage issues form a part of development applications and/or are contingent with notable land-use modification circumstances in the *Parramatta City Council* LGA. These organisations comprise the following:

- The Darug Custodian Aboriginal Corporation (DCAC).
- The Darug Tribal Aboriginal Corporation (DTAC).
- The Darug Aboriginal Cultural Heritage Assessments (DACHA).
- Darug Land Observations (DLO).
- Yarrawalk (a division of Tocomwall Pty Ltd).

[15] Aboriginal Land Rights Act 1983, s52(1) (m).

The (now) *Department of Environment and Climate Change and Water* (DECCW) have produced a series of documents that have been progressively developed since 2005 to guide best-practice Aboriginal cultural heritage management approaches, protocols, and procedures in development circumstances comparable to the current development project. These include the following:

- NSW National Parks & Wildlife Service. Draft Guidelines for Aboriginal Heritage Impact Assessment. Prepared by NSW National Parks & Wildlife Service with Additional Text by Kristal Buckley, Context Pty Ltd. Nd.
- Department of Environment and Conservation (DEC). National Parks and Wildlife Act 1974: Part 6 Approvals. Interim Community Consultation Requirements for Applicants. December 2004.
- Department of Environment and Climate Change (DECC). Aboriginal Cultural Heritage. Draft Community Consultation for Proponents. Part 6 National Parks and Wildlife Act 1974. May 2009.
- Department of Environment, Climate Change and Water (DECCW). Aboriginal Cultural Heritage Consultation Requirements for Proponents. Part 6 National Parks and Wildlife Act 1974. April 2010.

The latter document now supersedes all previous guidelines and requires the need to extend the opportunity for any Aboriginal individual or group to express an interest in being involved in the assessment process and to have due input in decision making where DECCW s.87/s.90 Permits are likely to be required. The DECCW guidelines suggest this outcome would be best facilitated through public advertisement.

The current requirements also indicate it would be sufficient for development proponent to provide written notification to the organisations listed below at the preliminary phase of development planning process:

- The relevant DECCW (Environmental Protection and Regulatory Group - EPRG).
- The relevant Local Aboriginal Land Council (s).
- The Registrar, Aboriginal Land Rights Act 1983, for a list of Aboriginal owners.
- The National Native Title Tribunal for a list of registered native title claimants, native title holders and registered Indigenous Land Use Agreements.

- The Native Title Services Corporation Limited (NTSCORP Limited).
- The relevant Local Council(s).

The notification would set out the details of the proposal and invite registrations from interested groups or individuals. A closing date for registration of interest would also be included. The time allowed would reflect a consideration of the project's size and complexity, but in most cases would allow at least 10 working days for interested parties to respond.

The proponent would record all registrations in writing before the closing date and present and/or provide the proposed methodology for the cultural and archaeological assessment to the registered stakeholders. The stakeholders would then be provided with a reasonable time (at least 21 days) to review and provide feedback to the proponent, including the identification of issues/areas of cultural significance that might affect, inform or refine the methodology'.

In accordance with these requirements (and the DoP DGR's referred to in **Section 1.2**), Dominic Steele of DSCA contacted the organisations listed above (in correspondence forwarded from DSCA dated 26 July 2010) and the nature and scope of the project was discussed. Available site plans and other pertinent background information were also forwarded to each of these organisations at that time.

The DECCW provided advice (dated 3 August 2010) regarding other possible Aboriginal community groups and individuals that may wish to express an interest in the project.

The *Office of the Registrar* subsequently provided advice for the project (dated 5 August 2010). A search of the *Register of Aboriginal Owners* relative to the subject site indicates the study area does not have any registered Aboriginal owners pursuant to Division 3 of the *Aboriginal Land Rights Act 1983* documented at this time.

A public notification for the project was placed with the *Koori Mail* on 3 August 2010. All responses from this public notification (seeking request for registration of interest in the project and input into the assessment process) were duly logged as per DECCW requirements.[16]

[16] The registration period for this public notice closed on Wednesday 11/08/2010. The consultation period for this public notice closed on 25/08/2010.

The responses received following the public notice comprised the following:

- Ms Leanne Watson – Chairperson - Darug Custodian Aboriginal Corporation (via mail dated 17 August 2010).
- Mr John Reilly – Sites Officer – Darug Tribal Aboriginal Corporation (via phone message dated 18 August 2010).
- Mr Scott Franks – Manager – Yarrawalk – (via email dated 7 September 2010).

No additional responses were received by DSCA from any other organisations that were formally informed about the proposal as a result of the DSCA July 2010 correspondence and the subsequent August 2010 public notification.

A preliminary archaeological (scientific) inspection of the 1 Grand Avenue site was undertaken by DSCA (represented by Mr Dominic Steele and Mr Adrian Dreyer) on 23 July 2010. This site visit was carried out in order to in summary:

- 'Ground-truth' the nature and context of the site and its immediate surrounds, and to compile an initial photographic record documenting the current condition of the site to assist in the development of an archaeological assessment of the place.

Two drafts of this report were forwarded to each of the above six Aboriginal community organisations for review and comment on the 14th of September and the 6th of October respectively.

Each group has been invited to inspect the site independently and provide a *Cultural Heritage Statement* regarding their respective views on the results of the archaeological (scientific) conclusions and management recommendations that are documented here.

It is anticipated that any statements still in preparation for the project will be forwarded directly to *National Environmental Consultancy Services on* behalf of *REMONDIS Pty Ltd* for submission to Council and the DoP to supplement this document upon their respective completions.

1.8 Report Outline

This *Aboriginal Archaeological & non-Aboriginal Cultural Heritage Impact Assessment* of the 1 Grand Avenue site at Camellia presents the following:

- An introduction to the project (**Section 1.0**).

- A review of the environmental context of the study area including its geology, original topography, hydrology, former vegetation and potential (now buried) soil profiles. This section also includes a summary of how existing landscape conditions can often assist in the development of Aboriginal archaeological/cultural heritage sensitivity predictive models that can be purposively used as a management tool in planning studies within new development circumstances. A description and evaluation of the post-Contact historical development and existing condition of the property is also presented in this section (**Section 2.0**).
- A review of the results of previous Aboriginal heritage studies undertaken in the local Parramatta landscape, and a predictive model of the likely Aboriginal archaeological evidence that may be present/survive within the boundaries of the subject site. This section also includes a summary post-Contact review of the use and development of the site complied from a search of pertinent European heritage registers and listings, along with other background historical sources (**Section 3.0**).
- A summary of the observations recorded during the July 2010 site inspection, and the results of the field inspection (**Section 4.0**).
- The conclusions that have been developed for the current project that are based upon the results of the above background Aboriginal and European research, the results of the July and August 2010 site inspections and evaluations, and the outcomes of the ongoing consultation undertaken with the local Aboriginal community. This summary is presented in the form of an *Aboriginal and non-Aboriginal Heritage Impact Statement* relative to the 1 Grand Avenue development proposal (**Section 5.0**).
- The provision of Aboriginal and European cultural heritage management recommendations and strategies relative to the proposed future development of the subject site (**Section 6.0**).
- Sources and references cited in this report (**Section 7.0**).
- Supporting documentation including the *Cultural Heritage Statements* that have been prepared (and received to date) for the project by the local Aboriginal community (**Appendices**).

1.9 Authorship and Acknowledgements

This report has been written by Mr Dominic Steele of *Dominic Steele Consulting Archaeology* (DSCA) with valuable photographic assistance provided by Mr Adrian Dreyer (DSCA Associate).

The site plans presented in **Section 1.0** of this report as **Figures 1.1** and **1.2** and in **Section 2.1** as presented as **Figure 2.1** have been provided by *National Environmental Consulting Services* on behalf of *REMONDIS Pty Ltd.* The development proposal design plans, sections, and elevations images provided in **Section 1.0** as **Figures 1.4** to **1.7** have been provided by *Algory Zappa & Associates Pty Ltd* (2010) on behalf of *REMONDIS Pty.*

All other images presented in this report in (see **Section 4.0**) have been prepared by DSCA or as otherwise referenced. DSCA would like to also acknowledge the assistance and advice provided by the following people in the course of preparing this report:

Ms Sue Just	National Environmental Consulting Services.
Mr Kevin Cavanagh	Deerubbin Local Aboriginal Land Council.
Mr Steve Randall	Deerubbin Local Aboriginal Land Council.
Ms Leanne Watson	Darug Custodian Aboriginal Corporation.
Ms Sandra Lee	Darug Tribal Aboriginal Corporation.
Mr John Reilly	Darug Tribal Aboriginal Corporation.
Mr Denis Hardy	Darug Tribal Aboriginal Corporation.
Ms Celestine Everingham	Darug Aboriginal Cultural Heritage Assessments.
Ms Gordon Morton	Darug Aboriginal Cultural Heritage Assessments.
Mr Scott Franks	Yarrawalk.
Mr Gordon Workman	Darug Land Observations.
Mr Shannon Freeburn	DECCW AHIMS Aboriginal Heritage Operations Branch.

Figure 1:1: General Location and Context of the 1 Grand Avenue Site at Camellia (Source: REMONDIS and NECS PEA December 2009).

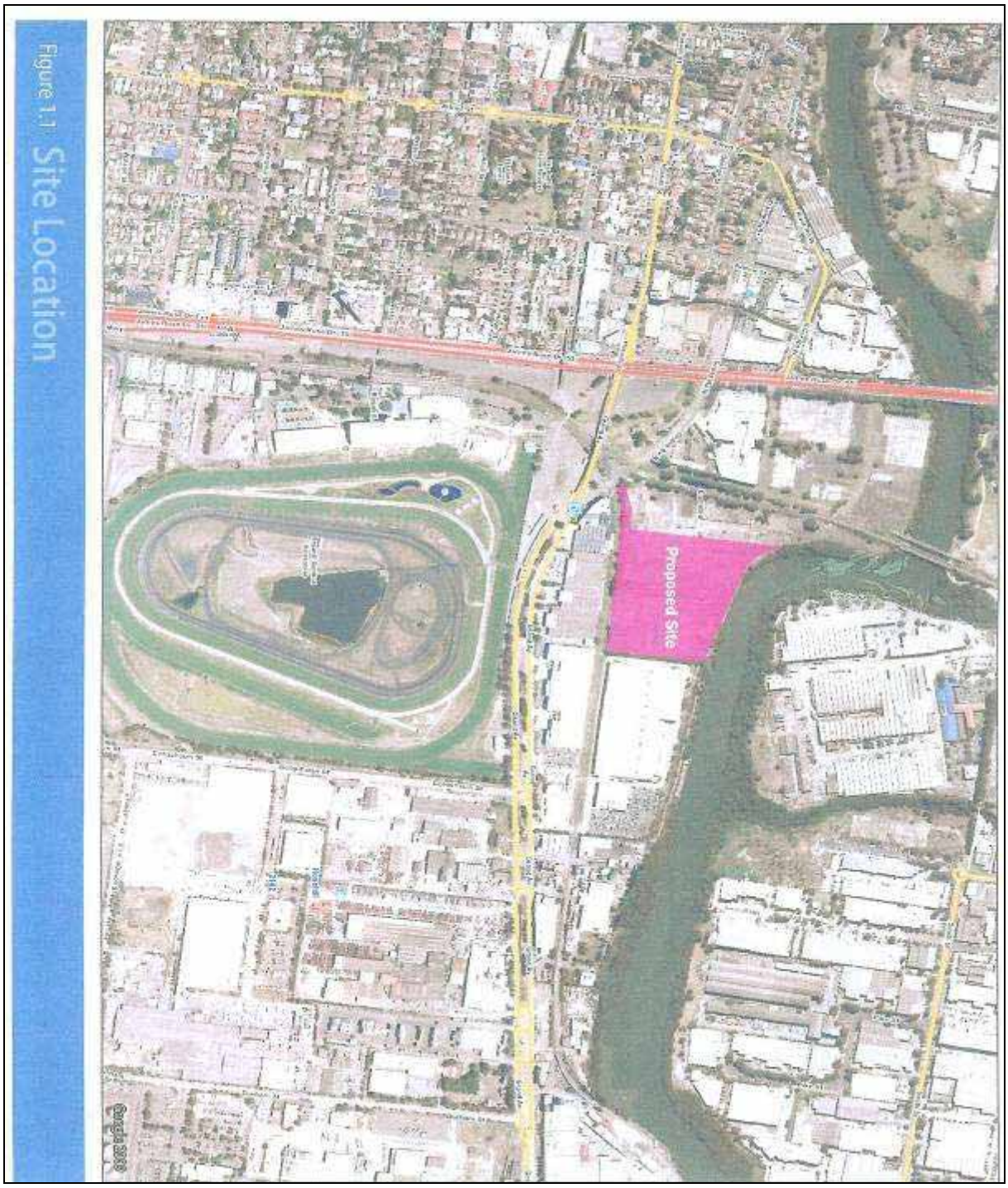


Figure 1.2: Location and Layout of the Proposed 1 Grand Avenue Site at Camellia (Source: REMONDIS and NECS PEA December 2009).

Figure 1.3: An Aerial View of the 1 Grand Avenue Site Showing the Post Demolition and Vacant Nature of the Site with Parramatta River to the North, Grand Avenue to the South, Modern Station Infrastructure to the West, and Existing Industrial Facilities to the East (Source: Google Maps 2010).

Figure 1.4: Proposed 1 Grand Avenue REMONDIS Integrated Recycling Facility Layout Plan (Source: Algory Zappa & Associates Pty Ltd 2010).

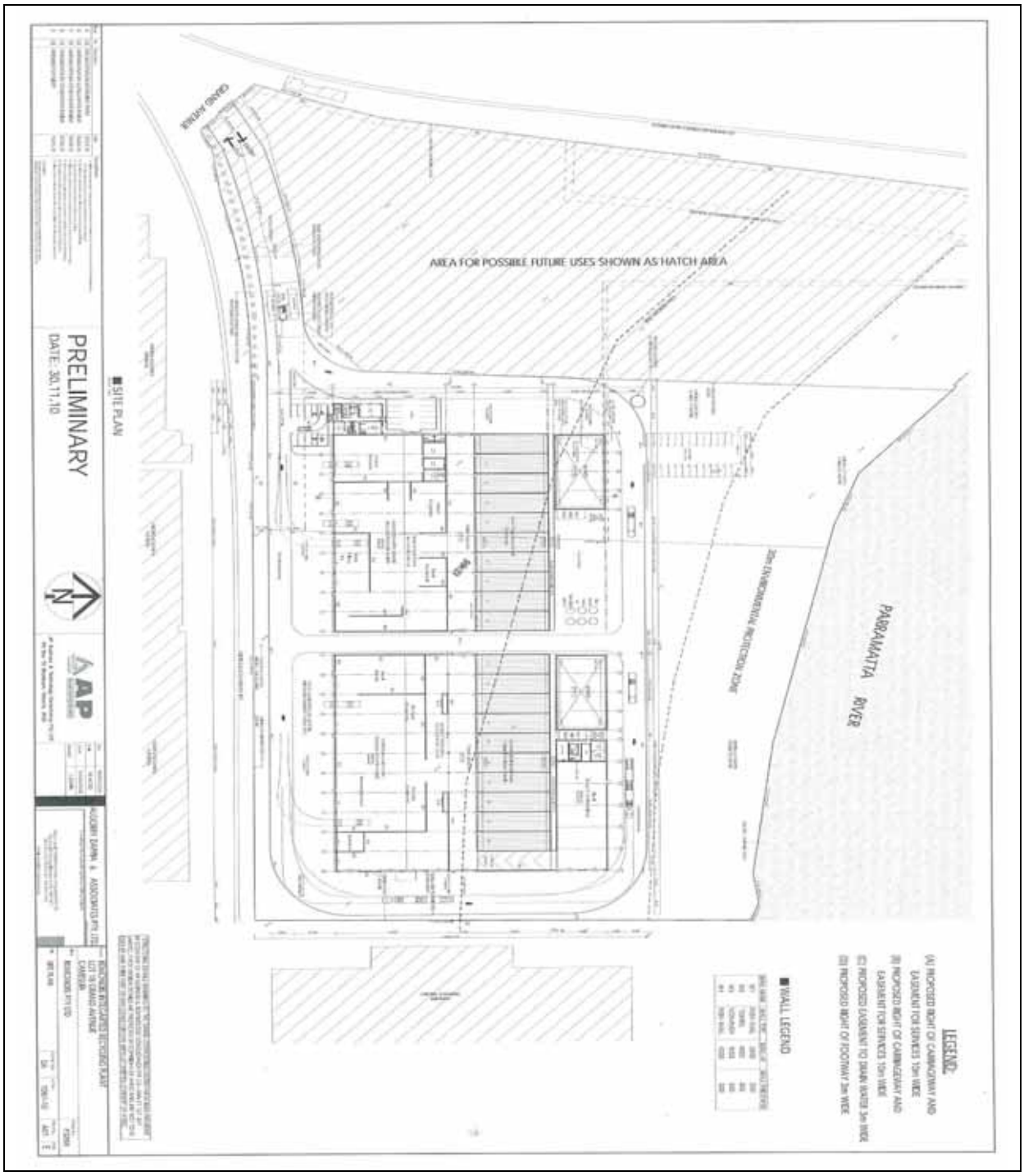


Figure 1.5: Proposed 1 Grand Avenue REMONDIS Integrated Recycling Facility Part Site and Ground Floor Plan (Source: Algory Zappa & Associates Pty Ltd 2010).

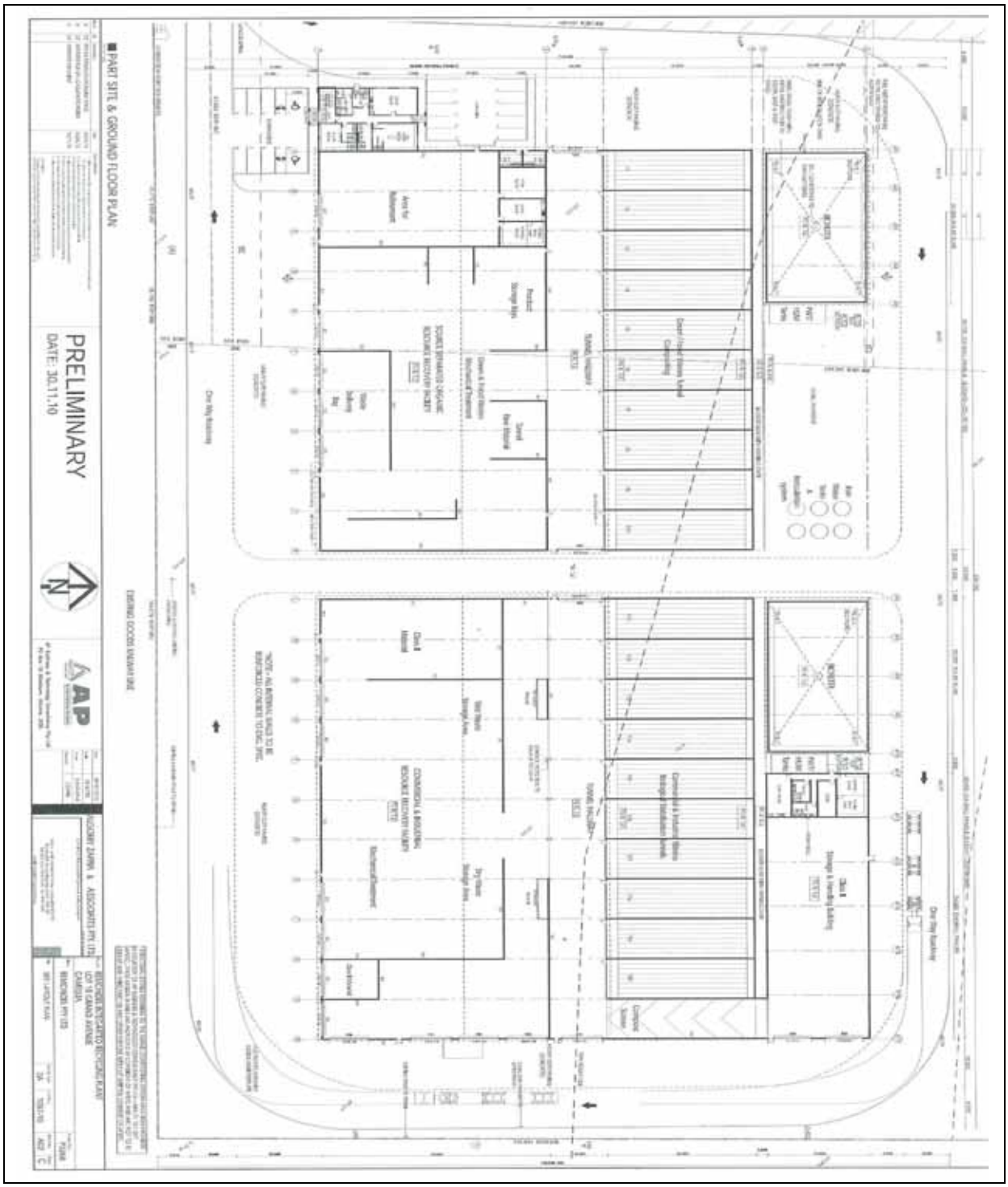


Figure 1.6: Proposed 1 Grand Avenue REMONDIS Integrated Recycling Facility Sediment Control Plan (Source: Algory Zappa & Associates Pty Ltd 2010).

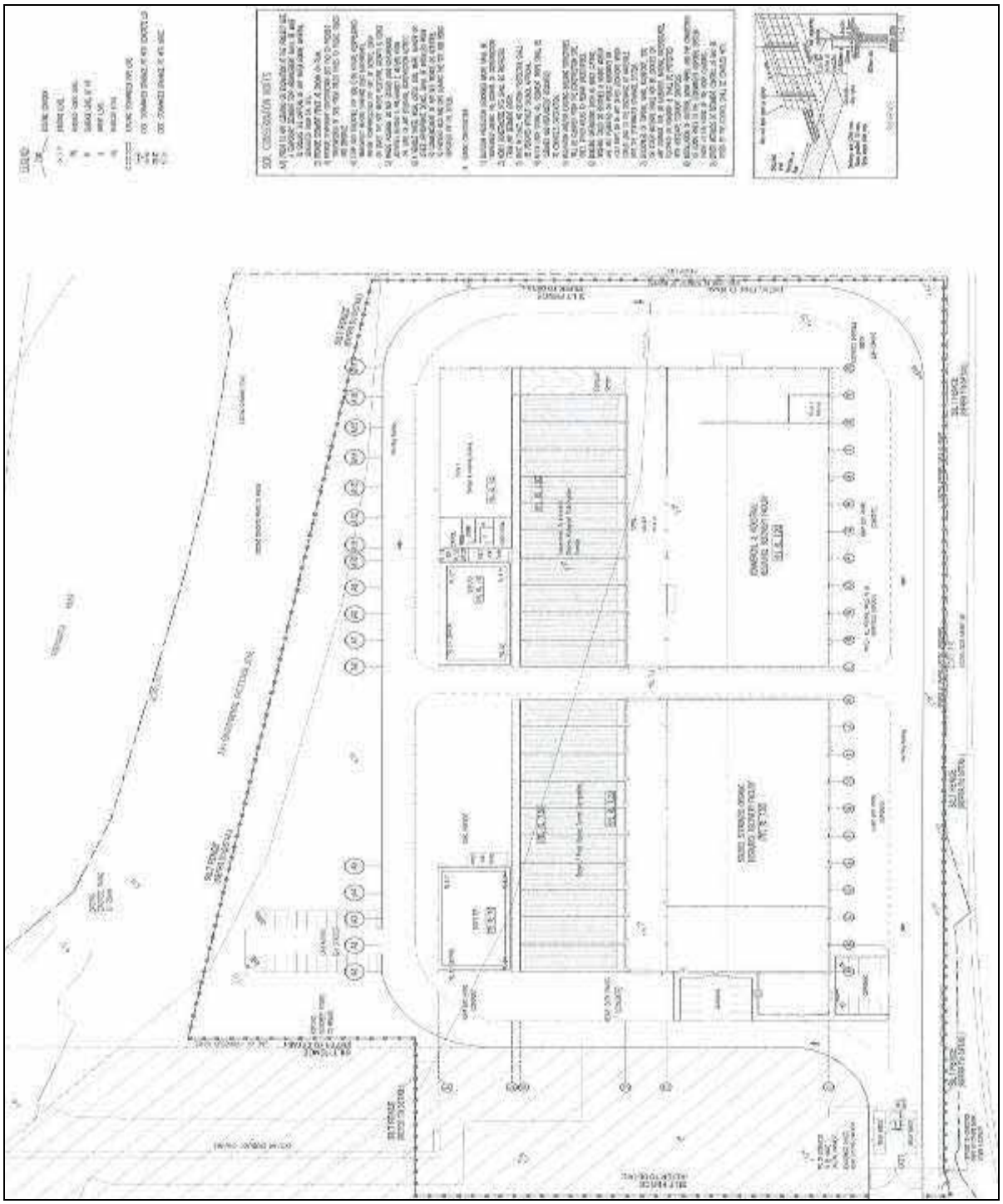
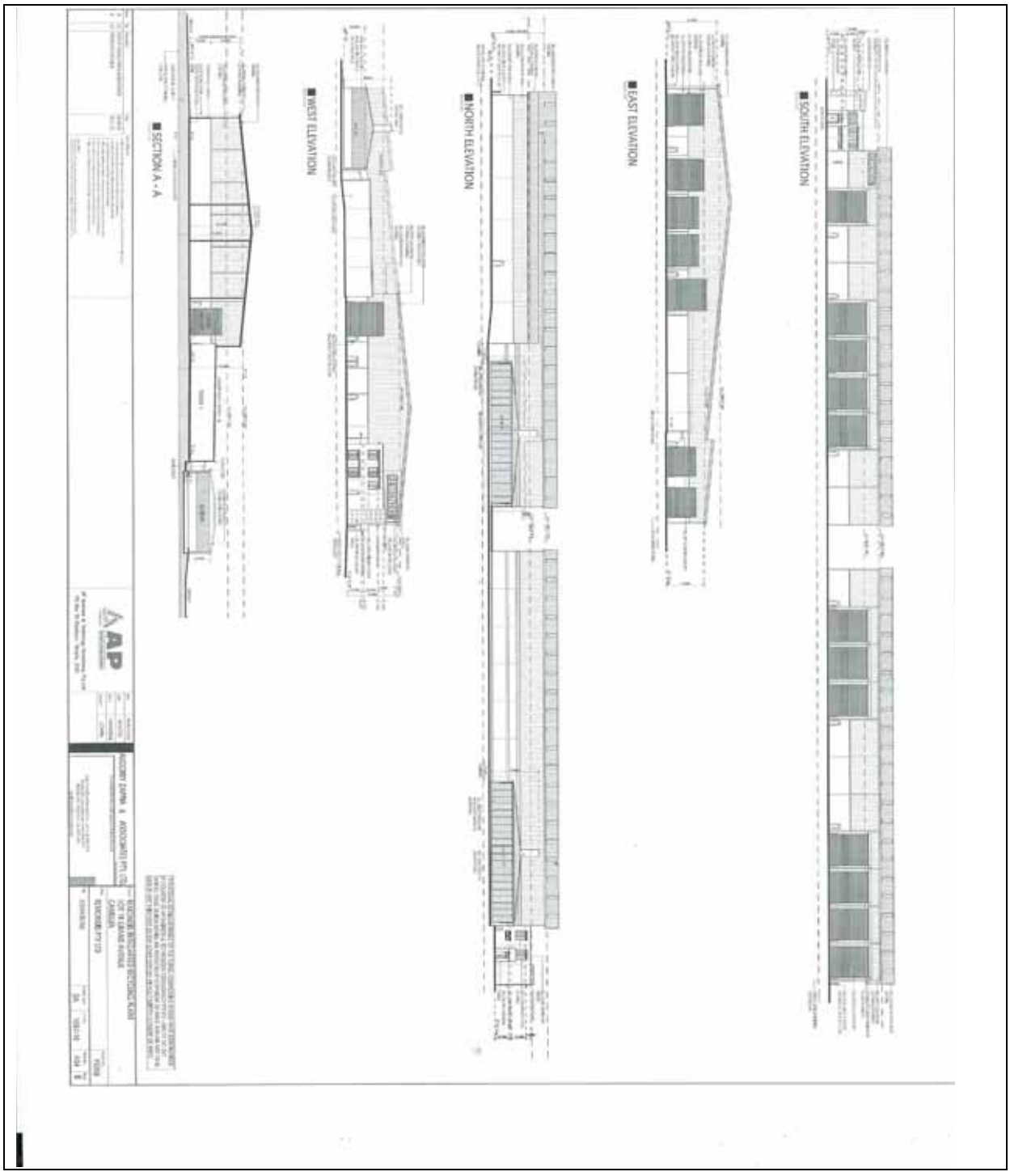


Figure 1.7: Proposed 1 Grand Avenue REMONDIS Integrated Recycling Facility Site Elevations and Sections (Source: Algory Zappa & Associates Pty Ltd 2010).



2.0 Environmental and Historical Context

2.1 The Environment and Aboriginal Archaeological Patterning

Ongoing archaeological research in the greater Sydney region (see for example Attenbrow 2010 for a useful review and summary) demonstrates how the natural (pre-Contact) environment influenced not only the availability of resources to Aboriginal people in the past, but also largely determines in the present what types of Aboriginal archaeological sites/cultural heritage evidence is likely to be located (and/or survive) when land is assessed in contemporary development circumstances.

The past distribution and availability of resources such as drinking water, plant and animal foods, raw materials of stone, wood and vegetable fibre used for tool production and maintenance were all strongly influenced by the nature of soils, the composition of vegetation cover, and the climactic characteristics of any given region. The locations of different site-types (such as open campsites, sheltered habitation and art sites, axe grinding grooves and engravings, and scarred trees etc) that may have originally occurred (and/or now survive) in an area was therefore strongly influenced by such factors as these, along with a range of other associated features which are specific to different land-systems and bedrock geologies.

In addition, the nature and extent to which any given parcel of land has been subject to impacts as a consequence of post-Contact land-use practices (such as original vegetation clearance and development etc) will also strongly define what types of Aboriginal archaeological evidence is likely to survive and its likely integrity.

Detailing the environmental context of a study area is therefore an integral procedure necessary for understanding potential past Aboriginal land-use practices, along with predicting potential Aboriginal archaeological site distributions and their possible nature within any given landscape.

The information outlined below (in combination with the results of the background Aboriginal and European archaeological and cultural heritage review presented in **Section 3.0**) is considered to be pertinent to the current assessment of the potential Aboriginal and European archaeological and cultural heritage sensitivity of the 1 Grand Avenue site relative to the current industrial development proposal.

2.2 Site Context, Topography, Geology, Soils, Hydrology & Vegetation

2.2.1 1 Grand Avenue Site Location and Context

The 1 Grand Avenue site is situated on the southern bank of Parramatta River within the primarily industrial and commercial suburb of Camellia that is located approximately 5km to the east of the City of Parramatta's CBD and some 23km to the west of the Sydney city centre. The suburb is located between Clay Cliff Creek to the west, Duck River to the east, Grand Avenue to the south, and Parramatta River to the north.

The major roads servicing Camellia today are Grand Avenue (that is orientated east-west) and James Ruse Drive (that is orientated north-south). Along with the nearby rail line extending between Rydalmere and Clyde (and the goods spur connecting it to Camellia Railway Station), these were historically important transport links that originally opened the suburb of Camellia for industrial purposes that characterises the use and development of the place from the late Nineteenth Century to the present.

With minimal residential occupancy existing today, the small suburb of Camellia has had no school in the past, no post office, or any current retail outlets excluding an *Aldi* supermarket that is located within an office building close to the station (see McClymont 2009).

The proposed RIRF re-development footprint is presently vacant, level, and retains no operative industrial structures or facilities. The site is currently sealed at ground level by building slabs and hardstand and fill capping fabric associated with the now demolished warehouse and work platforms related to the former use of the property by JHI. These capping surfaces overly potentially contaminated fills below. No natural soil profiles are currently exposed across the site.

The site is currently used as a shipping container storage facility, and for the stockpiling of various building materials.

As detailed in following sections of this report, the subject site is potentially sitting above an extensive alluvial terrace associated with Parramatta River ('*Parramatta Sandsheet'*). The surrounding river foreshore (particularly to the east of the site and to the south-east along Duck River) has seen industry concentrated since the beginnings of the Colony and many of these low-lying alluvial areas in the Parramatta LGA have also been reclaimed (as illustrated in **Figure 2.2**).

2.2.2 Site Topography

The Parramatta River 9130-3-N, 1:25,000 Topographic Map (Central Mapping Authority 1986) indicates that the site is set in a low relief and undulating to rolling landscape on a river flat at the head of the tidal section of Parramatta River and has an elevation of approximately 10m Australian Height Datum (AHD). The property itself and its immediately surrounding land are relatively flat. The existing embankment along the Parramatta River foreshore that forms the northern site boundary is approximately 3m to 5m high and generally slopes towards the river.

2.2.3 Site Geology

The site geology contains Quaternary alluvial deposits comprising silty to peaty quartz, sand, silt and clay with minor ferruginous and humic cementations with occasional shell layers (Chapman and Murphy 1989). The depositional environment is likely to be an alluvial estuarine environment.

Bedrock underlying the various fills across the site and the Quaternary sediments below is expected to be part of the Wianamatta Group shales, comprising laminated black to grey Ashfield Shale. The Quaternary sediments are underlain by Tertiary Hawkesbury Sandstone.

A review of the Sydney 1:100 000 Soil Landscape Series Sheet 9130 (Soil Conservation Service of NSW) indicates that the site is underlain by disturbed terrain which has been extensively disturbed by human activity including complete disturbance, removal or burial of soil. Local relief is typically less than 10 metres with slopes of less than 30 percent. The review of the soil map also indicates that the area of the site was developed terrain.

2.2.4 Site Soils

Currently available geotechnical information for the subject site (drawn from Consulting Earth Scientists July 2010:17-18) indicates the following:[17]

> *'The site stratigraphy, as observed in the boreholes and estimated from the CPT probes conducted by CES (2007b) typically comprised fill material overlying natural alluvial soils, which in turn is underlain by sandstone bedrock. The main variation across the site relates to the depth of fill and the consistency / relative density of the alluvial soils.*

[17] This summary is based on information previously compiled by CES in November 2007 (see attached references).

Across the site, the depth of fill material is relatively shallow (< 1.0m) with the many locations encountering natural alluvial soils directly beneath the pavement (including any granular basecourse layer). The fill material contained asbestos in parts, building rubble, concrete, sand, gravel and clay. The alluvial soils comprised interbedded clay, silty clay, sandy clay, clayey sand and sand, which is typical of a river depositional soil profile. The alluvial soil was red-brown, brown, yellow-brown and grey in colour, and at least stiff and/or medium dense in consistency/relative density. Some loose and soft to firm layers were present, although these were rare'.

2.2.5 Hydrology

As previously detailed, the upper tidal reaches of Parramatta River define the northern boundary of the subject site. Vineyard and Subiaco Creeks drain into the River immediately to the north and north-east of the of the site respectively, while a tributary of Clay Cliff Creek occurs to the west (some 250m to 300m) from the proposed RIRF re-development footprint. Potentially flood affected areas relative to the subject site are illustrated in **Figure 2.1**.

The alluvial deposits associated with Parramatta River (at least further to the east of the 1 Grand Avenue site) appear to originally have had numerous small hollows and undulations, and has as a result irregular surface drainage. The information adapted from analyses of groundwater on the site provided by Consulting Earth Scientists (July 2010:17-18) provides further useful insights:

'The overall flow of the groundwater was [found] *to the north east, towards the river and that there was a mound in the northern portion of the site which was modifying the flow pattern. Another, smaller mound in the water table was indicated by data collected from wells installed by CES, to the south of the site. While not as pronounced as the northern mound, the southern mound also had the effect of modifying the groundwater flow towards the river.*

In addition, CES installed a data logger in one of the wells located within the northern portion of the site…[and] *the data collected indicated that the groundwater in that area of the site is tidally influenced and water table levels fluctuate by as much as approximately 0.2 metres.*

Woodward Clyde (1994) noted that surface water runoff and storm water was discharged directly into the Parramatta River from the sites storm water system. The report noted that historical waste water discharges are not documented in detail, however anecdotal information obtained from interviews with former James Hardie employees suggested that historical waste

water discharges were not documented in detail; [but] *suggested that from the early 1970's process water generated in the manufacture of fibre cement on the eastern portion of the site was directed to a waste water treatment and recycling plant. Any excess water to recycling demands was discharged to the Parramatta River.*

CES (2007a) also made reference to a concrete lined channel, at the bottom of what was believed to have been a former basement level in the north-western part of the site. The channel was believed to have been used for the collection of waste water used in former manufacturing processes undertaken on the site. The channel is presumed to have directed waste water, to a waste water treatment plant previously located in the northern part of the site. The remains of the water treatment plant were observed during a site walkover (25 September 2007) and comprised a sump with a weir, that connected to the basement level channel. It was likely that the channel discharges storm water directly from the site to the Parramatta River.

Previous investigations undertaken at the site have highlighted a wide variety of permeability's in the sites natural soils which range from relatively impermeable (natural clays) encountered in some areas of the site at surface which are underlain by permeable coarse alluvial gravels at depth."

2.2.6 Former Vegetation

Excluding surviving mangrove vegetation fringing the southern bank of Parramatta River, and remnant immature re-growth (inter-mixed with introduced plantings) along the western and southern margins of the site, the original pre-Contact alluvial woodland timber and under-storey vegetation formerly present on the site has today been fully removed.

Prior to European settlement, much of the greater Parramatta region appears to have been heavily timbered with open Eucalypt forests. European settlement from late 1788 lead to rapid exploitation of timber resources and land clearing for agriculture and later industrial uses which dramatically altered the original landscape.

Available historical documentation indicates that the vegetation regime of the subject site would have originally comprised grassy woodland prior to first occupation and development, with the River and its associated creek banks in the immediate vicinity to have supported Cumberland Plain Woodland species such as Grey Box and Forest Red Gum with a grassy under-storey (Benson and Howell 1990:68).

2.2.7 Pre Contact Resource Availability

The local landscape of which the 1 Grand Avenue site forms a part is likely to have provided a variety of resources to Aboriginal people in the past. These would have included fresh drinking water provided by Parramatta River and its associated creek-lines, plant and animal foods along the banks of these watercourses and in the fringing woodlands, raw materials of stone, wood and vegetable fibre used for tool production and maintenance, and vegetable materials for other daily needs such as shelter (brush/bark covers etc), transport, and communication in the form of bark canoes to travel up and down Parramatta River and its creek tributaries.

The potential resource zones situated within close proximity to the site are likely to have made the general locality an attractive place that may have been repeatedly used by people over time that may have resulted in the creation of archaeological deposits that potentially survive today below the current capping surfaces and fills across the property.

Figure 2.1: The Proposed 1 Grand Avenue Development Site at Camellia Showing Potentially Flood Affected Areas (Source: REMONDIS and NECS PEA December 2009).

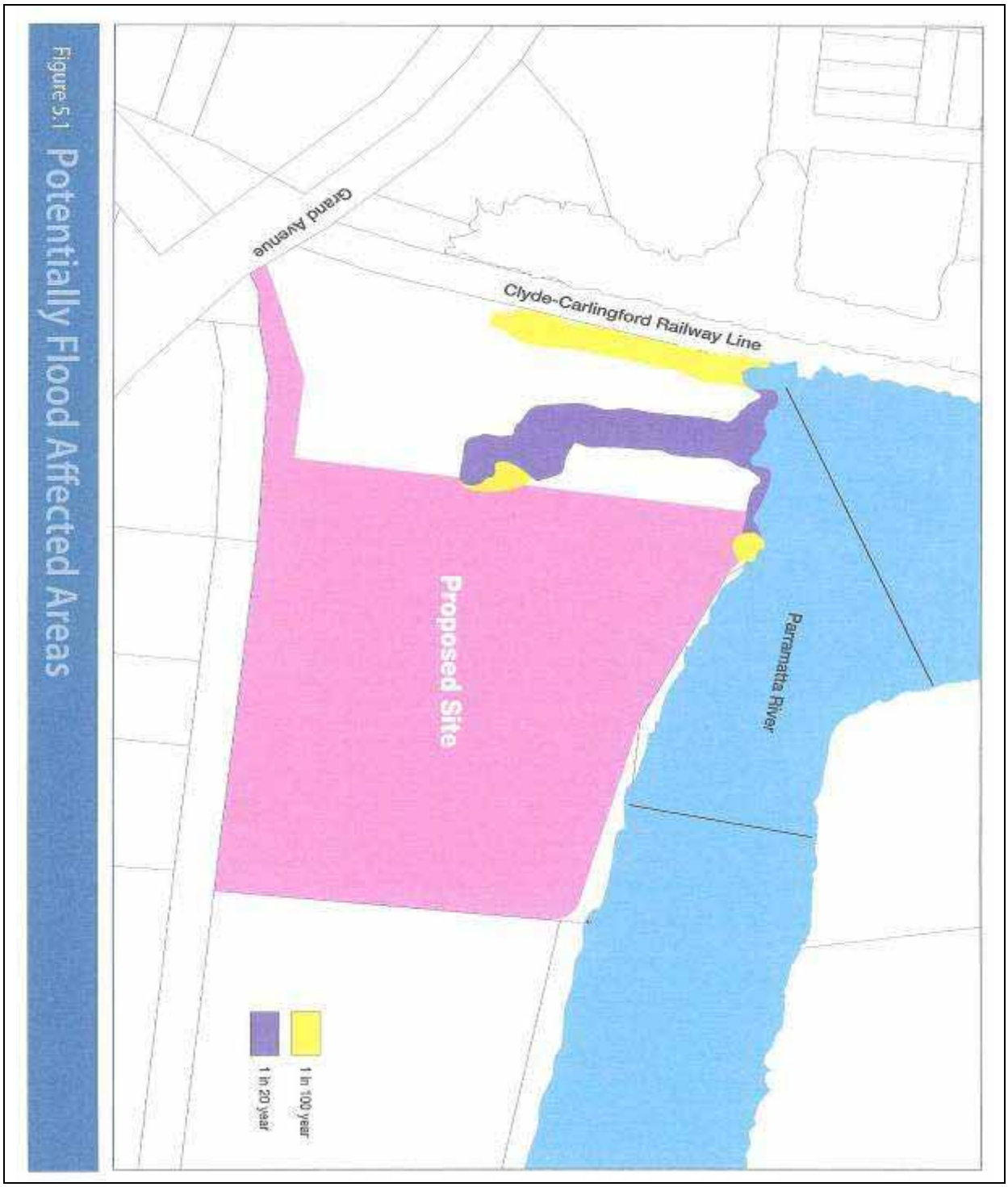
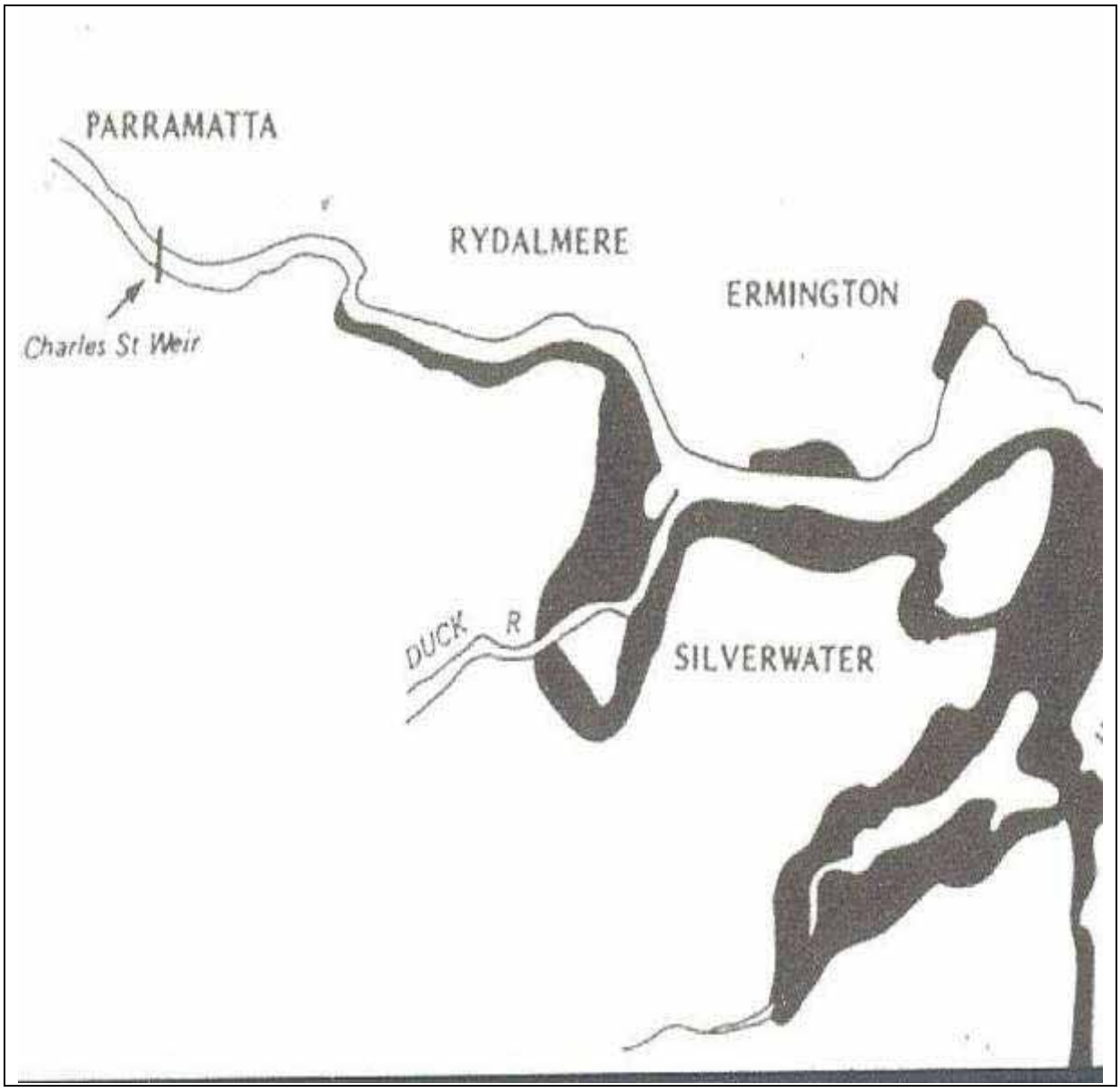


Figure 2.2: Reclaimed Land (Shaded) Along the Parramatta and Duck Rivers (Source: Mary Dallas Consulting Archaeologists 2003).



3.0 Aboriginal and European Cultural Heritage Context

3.1 Sydney Regional Aboriginal Archaeological Overview

3.1.1 Site Types, Frequency and Survival

Over 4,000 Aboriginal archaeological sites have been registered with the *DECCW AHIMS Sites Register* in the greater Sydney region to date (see Attenbrow 2010 for a review). Despite the extensive impacts that have accompanied 222 years of post-Contact European occupation and land development, Aboriginal archaeological sites have been located in all types of landforms and include:

- Shell midden deposits contained within both sandstone rock shelters of suitable size that provided protection to people in the past during possibly inclement weather conditions etc, and also in open contexts, most often in coastal/estuarine foreshore environments and/or adjacent to principal watercourses.
- Painted and drawn art images in (primarily) sandstone overhangs/shelters.
- Engraved images and axe grinding grooves created on the surfaces of usually flat rock platforms that are more predominant in Hawkesbury Sandstone landforms.
- Open campsites that are commonly represented by the presence of durable materials such as flaked (and occasionally ground) stone artefact scatters reflective of often repeated site use of both short and long term duration.
- Occasional scarred and (rarer) carved trees. Most trees of a sufficient age to possess evidence for Aboriginal scarification have since died naturally and/or have been long-since felled during the post-Contact historical period.
- Some stone arrangements, waterholes, burials, and mythological sites reported to have been present in the landscape over time. Details for many of these types of sites are however often scant in the *DECCW AHIMS Sites Register*.
- A number of post-Contact historical Aboriginal campsites that are documented to occur in and around the Sydney region (as described below relative to the *City of Parramatta* LGA).

The distribution (and likely survival) of past Aboriginal archaeological cultural evidence in the region is strongly related to bedrock geology and local topographic features including relative elevation and the presence of drinking water and associated resource zones from which needed food and other raw

materials (such as stone and organic items etc) used for tool manufacture and maintenance would have been procured as people's daily needs required.

3.1.2 An Archaeological Summary of Aboriginal Occupation of the Sydney Region

Aboriginal people are known to have inhabited the greater Sydney region for at least 30,000 years before present (BP). A Pleistocene sand body (commonly referred to as the *'Parramatta Sandsheet'*) on the Parramatta River has been identified a relatively short distance to the west of the 1 Grand Avenue site. To date, this geomorphic feature has been subject to three archaeological excavation and investigation projects. One of these studies (as discussed below) has returned possibly the oldest date for the first Aboriginal use and occupation of the Sydney-Parramatta region (as summarised in McDonald 2007:36-37).

At a broader level, a small number of sheltered occupation sites have been documented to occur in the Blue Mountains and its foothills (see for example Stockton & Holland 1974, Kohen et al 1984 and Nanson et al 1987) in a variety of environments that have revealed dates of between 15,000 and approximately 22,000 years BP.[18]

Two dates ranging from 10,000 to 12,000 years BP has been reported for an open campsite at Regentville, while a rock shelter on Darling Mills Creek (Darling Mills SF2) at West Pennant Hills (North Rocks) has revealed a date of a little over 10,000 years BP for first occupation (Attenbrow 2002:18). A number of open campsites investigated in recent years in western Sydney have also revealed dates ranging from between approximately 4,600 and 6.000 years before present.

The earliest dated coastal sites along the eastern sea-board of NSW are located at Burrill Lake that shows evidence for first occupation approximately 20,000 years ago (see Lampert 1971), and at Bass Point which is dated to some 17,000 BP (see Bowdler 1970). Both of these sites would have been occupied at a time when the sea level was much lower and the present coastline would have formed part of an inland environment drained by a series of rivers and streams. There are no other coastal Aboriginal archaeological sites of comparable age known at present.

[18] The dates of c.22,000 BP for the first use of the Kings Tableland shelter in the Blue Mountains and c.15,000 BP for the Shaws Creek K2 shelter along the Nepean River appear to be secure.

Two further sites dated to around 7,000–8,000 BP consist of a sheltered occupation site at Curracurrang, and an open campsite (containing a cooking hearth) at the *Prince of Wales Hospital* in Randwick that provide indications about how people may have lived around the time of sea level fluctuations and subsequent stabilisation along the eastern sea-board of New South Wales during this period (see Attenbrow 2010 for a summary).

The majority of the above coastal Aboriginal archaeological sites predate the end of the last ice age and demonstrate that Aboriginal people lived in the Sydney area throughout a period of extreme environmental change. During these times, when the earliest sites were in use, sea levels were up to 100m lower than at present with colder global conditions locking seawater in expanded polar ice caps and large inland glaciers. As documented by MDCA (2003:24) we can infer that:

> *'During this period the Sydney area was a vastly different environment to today. The coastline lay tens of kilometres further east, the Parramatta River (and Sydney Harbour) was a deep river valley winding its way out to the coast and the harbour islands were hills within the valley. Starting about 10,000 years ago, the warmer temperatures of the end of the last ice age began to melt the polar ice sheets and raise water levels over the course of several thousand years. During this time many of the oldest Aboriginal sites along the coast and waterways were abandoned and drowned by the rising waters. There are few sites in the Sydney area that are known to date back to this period of changing temperature and environment.*
>
> *By about 6,000 years ago waters had completely flooded over the old coastal plain and the Sydney environment with which we are now familiar was largely stabilised. The vast majority of sites in the area date to within the last 5,000 years, well after the sea had reached its present level. It is assumed that most of the older sites are now many metres underwater'.*

In this respect, the majority of Aboriginal archaeological sites recorded at present in the western Sydney region away from the current coastal strip and immediate hinterland are dated to within the last 2,500 to 3,000 years. Available evidence suggests that the early occupation of the Sydney region was not intensive nor included large groups of people, and that around 5,000-6,000 years ago (when the sea levels stabilized at the present levels) more intensive use of the landscape by Aboriginal people subsequently began. Many open sites situated away from the coast appear likely to have been first occupied in the last 1,500 years before Contact.

Our understanding of how and when Aboriginal people occupied and used the Sydney landscape in the past is largely based upon changes that have been observed in the composition of stone tool

assemblages and the use of certain types of stone materials used for tool manufacture that are apparent from the analysis of excavated archaeological assemblages undertaken in recent decades.

Over the 30,000 years of Aboriginal occupation of the region, and in particular the last 5,000 to 8,000 years, various temporal markers have been established in an attempt to distinguish the more significant changes in tool types and tool kit composition over time (see for example Attenbrow 1987, Lampert 1971, McCarthy 1948 & 1964, and Megaw 1965).

The most widely used terminology for the archaeological phases within what is currently known as the *Eastern Regional Sequence* are the *Capertian* (or *Pre Bondaian*), and the *Early*, *Middle* and Late *Bondaian*. This sequence is still being refined and continues to be clarified by ongoing archaeological work. The sequence is generally accepted and is regularly applied throughout most of the eastern sea-board of Australia.

- The *Capertian* (c.15,000 to 8,000 BP) stone tool phase appears to have been essentially composed of large and quite heavy stone artefacts fashioned from fine grained silicified tuff and chert materials over other stone types (eg. silcrete and quartz etc). Tool types included uni-face pebble tools, core tools, denticulate stone saws, scrapers, hammer-stones, some bipolar cores and flakes, and burins.

  Notably it should not be assumed that all 'large' artefacts are old. While these characteristics are not exclusive to this phase, in combination they tend to signal 'earlier' occupation (JMCHM 2005a:27). The tools appear to vary between sites depending on intended use, shape, and size of cobble core, or extent of reduction (Hiscock & Attenbrow 2003:240). Large flakes struck from cobbles appear to have been carried for use as cores when travelling long distances. Limited occupation evidence from the *Capertian* phase in the Sydney region suggests a relatively small, highly mobile population (ibid:27).

- The change from the *Capertian* to the *Bondaian* appears to have taken place some time after 8,000 years before present, and is defined by a noticeable shift in stone tool size, raw material use, and in the range of raw materials utilised by people for subsequent tool production. Features of the *Capertian* phase appear to have continued in many areas on the east coast of Australia, but backed and edge ground implements appear to have been progressively introduced and widely used over this time period.

- The three phases which are recognised as belonging to the *Bondaian* sequence are largely based on the timing of the introduction, and subsequent decline, of backed stone implements, as well as the increased use of bi-polar flaking techniques. Other technological innovations which are evident during the *Bondaian* period include the introduction of ground edge implements (around 4,000 years before present), and the widespread use of shell fish hooks for fishing during the last 1,000 years. The three *Bondaian* phases are summarised below.

- The *Early Bondaian* phase (from approximately 8,000 years ago to approximately 3,000 years ago) is characterised by the appearance of backed artefacts from around 7,000 to 8,000 years ago and appears to have been dominated by the increased use of fine grained siliceous cherts and silcrete materials over time. While the use of the larger and heavier stone implements characterising the earlier *Capertian* period seems to have persisted, archaeological evidence suggests backed and edge ground implements were widely introduced and used over time.

  Silcrete cobbles eroding from Tertiary and Quaternary gravel formations are the most common siliceous stone know across much of the Cumberland Plain, and were the primary raw material sources exploited by people camping away from the Nepean River gravel beds.

- The *Middle Bondaian* phase (from approximately 3,000 years ago to approximately 1.000 years ago) appears to have been dominated by the use of fine grained siliceous cherts and silcrete materials and the manufacture and use of smaller backed implements. This phase is seemingly characterised by the increased manufacture of micro-blades such as Bondi Points, geometric microliths, elouera's, and bi-polar artefacts, and the use of quartz as a ready source of a raw material for the production of flaked stone implements.

  The proportion of quartz artefacts (always low) appears to have increased a little, and edge ground implements have been recovered from some archaeological sites but are relatively rare. Backed artefacts appear to be generally smaller in size and weight than retouched artefacts recorded within *Pre Bondaian* stone assemblages. Cores are generally small and highly reduced when discarded, and asymmetrical alternating flaking (allowing the removal of regularly shaped flakes suitable for backing) was added to existing stone reduction techniques.

- The *Late Bondaian* phase (last 1,000 years to the present) appears to have been dominated by the reduction of numbers of backed artefacts from around 1,000 years ago, the increased use of quartz for stone tool manufacture, and the use of bone and shell implements (including

shell fish-hooks) at some investigated Aboriginal archaeological sites (both in open contexts and in sandstone rock shelters). These trends are however not widespread across the Cumberland Plain. There appears to be greater variation between sites and their assemblages (particularly in terms of raw material use) than the Regional Sequence suggests. A number of other key signatures are apparent for this phase as summarised in JMCHM 2005a:28).

'Heat-treatment of silcrete was used to improve its flaking properties as part of the reduction strategy for this raw material type, and was a component of Bondaian technology. The disappearance of backed artefacts in some locations suggests that access to silcrete (which is the predominant raw material on the Cumberland Plain) may have changed at the beginning of Late Bondaian, perhaps due to territorial restrictions on these resources. Quartz pebbles were available in sandstone areas, locations that are often depauperate in other fine-grained siliceous rocks. The bipolar reduction technique was also interestingly used on a range of raw materials e.g. silcrete, quartz. The shift in the reduction techniques may reflect changes in group mobility, increased sedentism, changes in subsistence strategies, or increasing use of other raw materials e.g. bone, shell tools. The number of elouera and edge ground stone tools also increased during this later phase. Edge ground hatchet heads are more frequent in the last 1,000 years, and were often noted as important personal items in early historical accounts'.

3.2 Local Aboriginal Archaeological Context

3.2.1 Archaeology in the Cumberland Plain

Ongoing archaeological research has yielded considerable evidence concerning the nature of Aboriginal use and occupation of the greater Cumberland Plain in general, and within the *Parramatta City* LGA and its immediate surrounds in particular. The most common sites in the local landscape consist of open campsites and isolated finds (upwards of 90% or more in combination), followed by far fewer scarred tree recording (2%).

A number of key studies undertaken over the last fifteen years or so have progressively refined our understanding of past Aboriginal land-use practices in the region. In particular, this research has demonstrated that many earlier models (often based primarily on surface evidence) have been largely

flawed in their attempts to accurately describe the characteristics of Aboriginal archaeological sites in the local landscape and predict site location distribution patterns and/or their relative variability.

The following summary of these findings is provided below as adapted from information presented by previous investigations outlined in the bibliography of this report that provide an appropriate context for the current study:

- Open campsites have been identified in all landscape types in the Cumberland Plain. These include along creek-lines of varying stream order (size etc) and principal river bank channels, and in more elevated topographic land units such as hill topes and ridge lines.
- The high proportion of sites that have been recorded on creek-banks or river/creek-bank combinations in the past is likely to be more indicative of ground surface visibility conditions and/or taphonomic factors (such as ground erosion or burial by sediment deposition), rather than an accurate picture of the original distribution of sites/artefacts across the broader landscape.
- In most locations across the Cumberland Plain that have been subject to controlled archaeological excavation (as opposed to surface survey alone), even those with sparse or no surface archaeological remains, have been found to contain sub-surface archaeological materials of varying density and integrity.
- Contrary to earlier models, many open campsites do contain high densities of finds, with variability appearing to depend on the range of activities areas and site types present despite the effects of factors such as past vegetation clearance and ploughing.
- The complexity of the archaeological record in certain landscape contexts across the Cumberland Plain is more complex than previously thought. Intact knapping floors, backed blade manufacturing sites, heat treatment locations, a number of specialised tool types, and generalised camp sites have all recently been located during recent investigations such as in and around Rouse Hill and along Second Ponds Creek, and now along the Parramatta River.
- On the basis of environmental factors, sites on permanent water (and perhaps in close proximity to useful stone raw material sources and other needed food and vegetable resources) are likely to be more complex and have represented a focus for larger groups of people or to have been used repeatedly by smaller groups over a long period of time, than sites on ephemeral or temporary water-lines.

Based on previous archaeological studies in the region, and using stream order models (after Schrever 1966 and Strahler 1952 etc), it can be predicted for much of the Cumberland Plain that the nature (density and complexity) of archaeological evidence will vary according to the permanence of water (e.g. stream order), landscape unit, and proximity to lithic (useable stone) resources in the following way.

- In the headwaters of upper tributaries (first order creeks) archaeological evidence would be expected to be sparse and represent little more than background scatters of flaked stone artefacts.
- In the middle reaches of minor tributaries (second-order creeks) it would be expected that archaeological evidence would be sparse, but potentially reflecting focused activity (such as one-off camp site locations and/or single episode knapping events) undertaken by people in the past of the place.
- In the lower reaches of minor tributaries (third order creeks) it would be expected that archaeological evidence for more frequent occupation will be found. These archaeological remains may possibly include evidence for repeated occupation by small groups, possible knapping floors, and potential surviving evidence for more concentrated day to day activities undertaken by people over time.
- On major creek and river lines (fifth order watercourses) there would potentially be archaeological evidence for more permanent or repeated occupation. Sites would be expected to be more complex, and some may be found to be stratified[19] depending on local sedimentation processes.
- Creek junctions (confluences) may provide evidence for the foci of past Aboriginal site activity. The size of the confluence (in terms of stream ranking nodes) could be expected to influence the size and /or complexity of the documented/potential Aboriginal heritage site.
- According to this model, ridge top locations located between drainage lines will usually contain limited archaeological evidence, although isolated knapping floors or other forms of one-off occupation may occur in such locations.

[19] This term refers to Aboriginal archaeological sites that may have the potential to retain multiple layers of cultural heritage remains that may be dated to assist in the documentation of how the occupation of a place may have taken place over time.

- Where naturally outcropping stone resources such as silcrete occur, it is expected that these will have been exploited by people in the past. Evidence for stone extraction activities (such as de-cortication, stone material quality testing and perhaps limited stone knapping) would be expected to occur in such locations, as might more general occupation evidence.
- Sites in close proximity to an identified (and accessible) stone raw material source would likely cover a range of characteristics relating to artefact size and the retention of cortex. As a general rule, the size of artefacts in an assemblage should decrease, as should the percentage of cortex with distance from the source from which it was procured in the past. In this context, raw material conservation would not be expected, given the short distances between stone sources in the local study area.

3.2.2 DECCW AHIMS Aboriginal Sites Register Search

Research into Aboriginal archaeological and cultural heritage investigations previously completed within the local landscape immediately surrounding the 1 Grand Avenue site was undertaken prior to the commencement of the current Aboriginal community consultation program, preliminary site inspection, and assessment project.

This included a search of the *NSW Aboriginal Heritage Information Management System* (AHIMS) *Aboriginal Sites Register* maintained by the DECCW, a review of reports compiled within the *DECCW Catalogue of Reports*, and an evaluation of other secondary sources.

Previous research (for example MDCA 2003 and DSCA 2010) indicates that approximately 50 Aboriginal archaeological sites have been registered with the *DECCW AHIMS Sites Register* within the *Parramatta City* LGA boundary to date.

A targeted search of the AHIMS Register was undertaken for a 2km (east-west) by 2km (north-south) area that was centred on the subject land.[20] This search returned records for a total of three Aboriginal archaeological sites.

Two of these are open campsites (flaked stone artefacts scatters comprising one or more stone artefacts), while the third has been registered as an area of 'Potential Archaeological Deposit (PAD). These comprise the following:

[20] AMG coordinates in Zone 56 of E316000- E318000 and N6255000-N6257000.

- AHIMS Site (#45-6-2554). Elizabeth Farmhouse.
- AHIMS Site (#45-6-2559). Sydney Turf Club (STC).
- AHIMS Site (#45-6-2738). James Ruse Reserve Open Camp (PAD) 1.

The first two of these sites were originally recorded and registered by an amateur enthusiast (Guider 1996). The third site (PAD) refers to a location that does not show at present any physical (surface) manifestations of Aboriginal archaeological evidence but has been assessed to possess possible Aboriginal heritage sensitivity on environmental, topographical, and land-use grounds.

The 2003 *Parramatta City Council Aboriginal Heritage Study* (MDCA 2003:81) makes reference to an open campsite '*adjacent to Camellia Station'* (presumably the 'STC Site') that was relocated as part of the proposed 'Parramatta to Chatswood Rail Link Environmental Study' and that '*further artefacts were recorded*' as part of this study. No further information has been sourced to evaluate this outcome during the current background review prepared for this report.

In summary, the background research undertaken the current study indicates that:

- No Aboriginal archaeological sites (or any specific areas of potential Aboriginal cultural heritage sensitivity) have been previously registered with the *DECCW AHIMS Site Register* to occur within the boundaries of the 1 Grand Avenue study area.

3.2.3 The Parramatta Sandsheet and Aboriginal Archaeology

An old (Pleistocene) alluvial terrace and flat (with reworked sands comprising a back-plain and levee within an active floodplain zone associated with Parramatta River) has been identified to occur under portions of the current *City of Parramatta* CBD streetscapes and its surrounding areas.[21]

Commonly referred to as the *'Parramatta Sandsheet'* (see McDonald 2007), this buried landscape has been assessed to possibly extend to the west from O'Connell and Macarthur Streets to the east of the city centre and north of Old Government House in Parramatta Park, down to the south at Clay Cliff Creek, and to the east towards the confluence of Clay Cliff Creek and Parramatta River near the present day alignment of James Ruse Drive (JMCHM October 2005).

[21] This fluvial terrace is likely to be a geomorphic feature that was created during high sea levels (around 120,000 to 130,000 years ago), or possibly including a Holocene development profile dating to perhaps the last 12,000 to 18,000 years ago.

A locality plan of this potentially buried geomorphic landscape overlain on a 1951 aerial photograph of this portion of the Parramatta CBD is presented in **Figure 3.1**.[22] The 1 Grand Avenue subject site is located immediately to the east of James Ruse Drive that borders this image.

A number of key Aboriginal archaeological investigations (three to date) have been completed in recent years that have documented aspects of this old geomorphic landscape during re-development projects undertaken along Charles and George Streets that are each located some 1.8 km to west of the 1 Grand Avenue site.

The precise extent, nature, or survival of the potentially old and dynamic geomorphic 'Sandsheet' landscape that Aboriginal people may have experienced and used as the current alignments of the rivers, creeks and surrounding hills changed over time that may be present beneath the current Camellia industrial precincts between Grand Avenue and Parramatta River is presently unclear.

One principal Aboriginal and European archaeological investigation project (located at 109-113 George Street) has revealed evidence for the likely use and continuous occupation of the place by Aboriginal people dating back to some 30,000 years ago before present. The evidence tells us much about multiple periods of occupation and informs us about such things as traditional Aboriginal stone tool manufacture practices, past tool-kit maintenance and storage, insights into grinding techniques for the preparation of food, and the use of heat treated stone.

McDonald (2007:36-37) summarises the results of three related George and Charles Street archaeological investigations (at RTA-G1, CG1 and CG3) as follows:

> *'A Pleistocene sand body on the Parramatta River, excavated in three different development contexts...has returned the oldest date for the region…*[approximately 30,000 years before present]…*This extensive sand body was first occupied during the Late Pleistocene at which time an assemblage dominated by silicified tuff artefacts was found. The upper limit for the silicified tuff assemblage is bracketed by age determinations of c.6,000-8,000BP. Ground stone hatchet heads here are dated to c.3ka, consistent with most age estimations for the earliest appearance of this artefact type in the region. Heat treatment of silcrete, and backed artefact production occurs in the uppermost units of the sand body – the top 2-3,000 years of which had been truncated by modern buildings. The Parramatta sand sheet provides significant new*

[22] This map is based upon research undertaken by Mitchell 2003 and 2005 (see attached references).

information about timing and patterns of Aboriginal occupation in the region. The three salvage programmes completed here…provide evidence for distinct and clear changes in the archaeological record through time'.

In this regard, the following issues were considered to be relevant at the initiation of the project in order to evaluate whether:

- Deposits related to the '*Parramatta Sandsheet'* possibly extending to around James Rouse Drive were likely to be present beneath the warehouse slabs, workshop platforms, and capping fills at the former JHI site that may be impacted by the re-development proposal.
- Is archaeological evidence of past visitation and use of the place by Aboriginal people likely to be present and/or survive below-ground relative to the impacts associated with the current RIRF re-development proposal?
- What measures would need to be undertaken to guarantee a sound outcome to record, manage, and protect any potential Aboriginal archaeological evidences that may be exposed by future re-development works.

3.3 Aboriginal People of Parramatta at Contact

A number of Aboriginal cultural heritage studies have been completed to date for the *City of Parramatta*. These document the places, events and people that appear to have influenced and shaped the Aboriginal history of the landscape immediately prior to and beyond European settlement (see for example DEP 1986 and MDCA 2003).

From a review of historic and contemporary documentary sources relating to a variety of Aboriginal cultural, social and historical research themes including original language groups, social organisations, first contact information, subsequent conflict, co-existence, displacement, and assimilation we can infer that:

- At Contact, the Aboriginal people who lived at the head of the harbour at Parramatta are believed to have been the 'Burramattugal' (see for example Kohen 1986:65 and 1993:21)[23], which were an inland clan (or local decent group) of the Darug people.[24]

[23] Also often referred to as the 'Boromedegal', 'Boora me di-gal', 'Booramedegal' and 'Burramedigal' (see Attenbrow 2010.)

- The words 'Burramutta' and 'Parramatta', appear to have been similar (or the same) words; there being only one sound in Aboriginal language for European equivalents of 'B' & 'P', and 'D' and 'T' (Tench 1979:239 as reported in MDCA 2003).
- Parramatta appears to have translated to as either '*the head of the river'* or '*the place where eels lie down*'. The term 'Burramattugal' (with the masculine suffice 'gal'), therefore refers to the people, specifically the men, who lived in the Parramatta area (see for example Tench 1979:292, Collins 1975a:453, Kass et al 1996:5-6 and West 1990:7 etc).
- Neighbours of the Burramattugal included the Wangal to the east, the Toongagal (Tugagal) in the vicinity of Prospect/Toongabbie, and the Bidjigal (Bediagal) to the north and west (Collins 1978:309, Attenbrow, 2010 and Phillip in Hunter 1968:513 etc). The Bidjigal, appear to have had at least a strong relationship with a similarly named clan, the Bideegal who were reported by early Colonial observer Watkin Tench to reside at Botany Bay (Tench 1979:208).
- A collection of clan groups, referred to as the '*woods tribes',* lived to the west of the Burramattugal in the Cumberland Plains at Contact (see for example Attenbrow 1996:26, MDCA 2003, and GML 2000:94).

Our understanding of Aboriginal life in and around the developing township of Parramatta during the early years of the settlement is well documented in a number of comprehensive Aboriginal histories that have been prepared in recent years (see for example MDCA 2003). While details of these studies need not be reproduced here, some notable historical events during the Macquarie period bear some mention that has relevance to the current 1 Grand Avenue heritage assessment.

In December 1814, Governor Macquarie called for a general meeting in Parramatta requesting the attendance of all Aboriginal people living between Port Jackson and the Blue Mountains (*Sydney Gazette* December 10, 1814). The intention was to instigate and promote a government sanctioned 'Native Feast' designed to attract Aborigines to the Native Institution. The first feast took place on Native Institution land behind St. Johns Church and was attended by around sixty Aborigines of different affiliations (see Reece 1967:191 and Kass et al 1996:81). The event was considered such a success that the feast and accompanying distribution of clothing and blankets became a regular event

[24] Also often referred to as the 'Dharug', 'Dharuk', 'Dharuck', 'Dharrook' and 'Daruk' (see Attenbrow 2010).

in subsequent years until it ceased in 1835 (see MDCA 2003:52ff, *NSW Government Gazette* April 1, 1835 and Reece 1967:196.

The 1816 feast for example was preceded by a meeting between members of various tribes from Mulgoa, South Creek and the Hawkesbury, who had been summoned to Government House at Parramatta by Macquarie at which time Macquarie rewarded *'friendly natives'* with blankets and provisions and bestowed orders of merit and distinction upon senior tribal members. The honours bestowed included '*chief'* and '*special constable'* and were accompanied by the presentation of brass crescent chest plates or gorgets (Brook & Kohen 1991:70-71). The event was attended by 179 Aborigines; 105 men, 53 women and 21 children who were supplied with bread, beef, sugar and potatoes, 100 lemons and 10 gallons of rum (ibid:72).. A full description of the feast appeared in the *Sydney Gazette* on January 4, 1817.

Attendance at the feast grew rapidly in the following years and in 1818 some 300 people attended including Wiradjuri people from beyond the Blue Mountains. 1822 appears to have been the last time that Parramatta Native Institution children demonstrated their accomplishments as the Institution was abandoned soon after, however though the original purpose for the meeting was gone, the feast was retained as a demonstration of the Colonial Government's goodwill towards Aborigines (Reece 1967:194).

Visiting Aboriginal groups appear to have used 'fringe camps' on the outskirts of the European settlement in separate locations while in Parramatta for the feasts. Tribes from the south camped at the (freshwater) head of A'Beckett's Creek near the junction of Woodville Road and Union Street, those from the west camped along Clay Cliff Creek, and other groups stayed in the vicinity of the toll house on the 'Western Road' (Kass et. al 1996:105). These creek lines are located to the south and west of the 1 Grand Avenue site respectively.

Thomas Fowlie in his manuscript '*History of Granville'* further recollected that Aboriginal groups travelling from the west camped near where Camellia Station now stands (Fowlie 1919, ML Manuscript A1492/ CY Reel 1037:Frames 16-20).

As outlined below, the available historically documented evidence not only demonstrates that traditional (and re-configured) Aboriginal groups maintained a close connection to the local landscape well into the post-Contact period despite the impacts that accompanied European settlement, but also provides insights into the nature of post-Contact Aboriginal archaeological sites that may potentially survive along the Camellia Peninsula.

3.4 An Aboriginal Archaeological Site Prediction

3.4.1 Rationale

Predictive models of Aboriginal archaeological site location attempt to identify areas of relative archaeological/cultural heritage sensitivity (high, moderate and low etc) as a tool that can be used for the planning and management of known Aboriginal sites and places of potential sensitivity within future re-development and/or land-use modification circumstances.

These models are generally based upon information including the types of landscape units contained within a study area, the results of previous Aboriginal archaeological and cultural heritage investigations undertaken in the surrounding landscape, the distribution of previously recorded sites along with their known nature, integrity, and potential composition, and upon an understanding of traditional Aboriginal land-use patterns (where possible) as guided by contemporary Aboriginal communities.

3.4.2 A Prediction of Possible Archaeological Evidence in the Subject Site

The following Aboriginal archaeological and cultural heritage predictive model for the 1 Grand Avenue site was prepared prior to the commencement of the current site inspection and assessment program. Based upon information compiled within the *DECCW AHIMS Sites Register*, and the background data for local Aboriginal archaeological contexts reviewed above, the types of sites/evidence that were expected to potentially occur/survive within (beneath) the proposed RIRF re-development footprint were outlined.

- Sedimentological and environmental evidence such as pollen.
- Flaked and possibly ground stone artefacts.
- Possible midden materials including animal bones and shells.
- Possible features such as hearths.
- Possible human burials.

I: *Environmental Evidence*. Soil, pollen and stratigraphic evidence has the potential to inform us about the pre-Contact nature of the 1 Grand Avenue site, the possible presence of former buried landforms (such as the '*Parramatta Sandsheet'* etc) associated with Parramatta River, and how and when the site was progressively modified during the historic period as the place was

transformed from a natural environment, through use as a Colonial agricultural landscape, and to a industrial precinct that characterises the locality today.

II: *Open Camp Sites and Shell Middens*. These sites are likely to occur on dry and relatively flat landforms along or adjacent to both major and minor watercourses in the Parramatta LGA, along with foreshore zones. However, repeatedly or continuously occupied sites are more likely to be located on elevated ground situated at principal river and creek confluences in the local landscape.

Scatters of flaked stone artefacts (or potentially durable food remains such as animal and fish bone or shell) may be the result of mobile hunting activities, while single or low density occurrences might relate to tool loss, tool maintenance activities or abandonment. These types of sites are often buried in alluvial or colluvial deposits and only become visible when subsurface sediments are exposed by erosion or disturbance.

It is instructive to note that one of the earliest industries along the Parramatta River was the collection of shell from the river banks to be converted into lime for construction needs as the developing township of Parramatta dictated (MDCA 2003:70). It is quite likely that Aboriginal shell middens were quarried as convenient concentrations of shell, a practice which is known from elsewhere in the local Sydney Harbour landscape (see Attenbrow 1992:19).

III: *Isolated Artefacts.* These items occur without any associated evidence for prehistoric activity or occupation. Isolated finds can occur anywhere in the landscape and may represent the random loss, deliberate discard or abandonment of artefacts, or the remains of dispersed artefact scatters. Manuports are items consisting of raw materials of stone that do not naturally occur within the soil profiles of a given region. Transported onto a site by Aboriginal people from sources elsewhere, these items will have subsequently been discarded before use as flaked or ground stone tools.

It was anticipated at the initiation of the project that there was some chance that isolated stone artefacts or manuports may occur within the study area. As per 'open campsites' noted above, these items are likely to be difficult to detect in many re-development circumstances.

IV: *Human Burials*. These are generally found in soft (often deep) sandy soil profiles adjacent to river, creek and (dune) foreshore environmental contexts. Most burials in the local region have been exposed to date as a result of ongoing natural processes of erosion and/or as a consequence of development disturbance. Some have been dated to relate to the post-Contact

period, while others are firmly confirmed to be associated to various prehistoric periods (see Attenbrow 2010 etc).

Evidence of post-Contact 'fringe' Aboriginal campsites may be located (survive) in close proximity to early houses, farms and official buildings (including wharfs etc) where people may have camped and bartered with fresh food (game, fish and shellfish etc) and other materials for such items as metal axes/hatchets, food rations, clothing, pipes, tobacco and rum etc. Refuse pits/dumps may also have been a focus for acquiring new materials (such as glass, ceramics and metal) which tools may have been made from in preference over traditional raw materials (such as stone).

3.5 European Archaeological and Cultural Heritage Context

3.5.1 Introduction

A search of relevant heritage registers and listings into the location and nature of any previously recorded European archaeological sites or items that potentially may be present within the boundaries of the 1 Grand Avenue re-development site and its immediate surrounds was undertaken at the initiation of the current study.

This was supported by a background review of the nature of the known European settlement and development of the subject site and the surrounding local Camellia landscape as presented below. This research revealed that:

- No European archaeological heritage sites or items of possible sensitivity were identified to be present within the proposed RIRF re-development footprint.

3.5.2 An Outline European History

Charles Williams (c.1762-1819), alias Christopher McGee/Magee, a First Fleet emancipist settler and previous farmer, was one of the first people to be granted land along the banks of Parramatta by Governor Phillip in the current suburb of Camellia (Collins 1975 [1798] and Tench 1979 [1793]).

The grant to (hereafter) Magee comprised 30 acres (12 ha) on the southern bend of the River leading to Parramatta near the present site of Camellia Railway Station and was bestowed in July 1791.[25] We

[25] GML 2000 'Parramatta Archaeological Management Unit (PAMU) 2962'.

do not know precisely where his grant extended to and how much 'improvement' to the land was made (in terms of timber felling, de-stumping, pasture preparation, or reclamation of low-lying area etc), but it appears to have had a limited impact upon the original pre-Contact landscape.

Historically known as Eleanor (Elinor?) or McCave (McCabe?), is known to have married Magee in August 1788 and to have subsequently settled on his land grant in 1791. A son of theirs, James appears to have been baptised in November 1789 but died in late January 1789 and was buried at Rose Hill. A daughter is recorded from this marriage to have been was baptised in January 1791 (McClymont 2009:83).

It appears that the granted parcel of land was (initially) used to grow maize, wheat and tobacco. However, it further appears that Magee soon *'gave himself up to idleness and dissipation….and became much degraded'.* Contemporary accounts suggest that the couple were known throughout the fledgling colony '*for their general immorality of their conduct…..'* (ibid:83).

Eleanor Magee and her infant child drowned in Parramatta River in 1793 and their grave is one of the oldest and undisturbed in Australia. The grave site is located within a reserve adjacent to the bank of Parramatta River and the Clyde-Carlingford Railway Line, currently fenced-off from public access. Situated to the north-west of the proposed 1 Grand Avenue RIRF re-development footprint and located within a small cluster of trees (GML 2000), the grave remains intact and will not be affected by the current re-development proposal.[26] The grave appears to have been created within the vicinity of 'Magee's hut', although the exact location of this hut is unknown. It is possible that archaeological evidence associated with this exists within this 'Archaeological Management Unit' (AMU), although it is unlikely that substantial structural remains survive in this area (GML 2000).

In 1792 (Ensign) Lieutenant William Cummings of the NSW Corps was granted a 25 acre parcel of land on the southern side of the River alongside the Magee land allocation. The Cummings grant was the first provided to an officer in the Colony up to this time. A further 100 acres was granted to Cummings by acting Governor Major Francis Grose contiguous to and east of his existing land on Parramatta River in 1794 (Kass et al 1996:39, McClymont 2009:83). The precise locations and configurations of these grants are unknown. A number of additional grants were also made in this

[26] The original headstone has been replaced and painted white, and signage has been erected.

general locality at Camellia at this time including 100 acres to John Macarthur on the northern side of Duck Creek.

Magee sold his grant to Cummings *'house, crop and stock'* for the inflated price of *'less than one hundred pounds* (Collins 1798[1975]), drank the proceeds, and subsequently moved to the Hawkesbury where he was granted another land grant (McClymont 2009).

The land grants of Magee and Cummings were purchased by Macarthur who extended Elizabeth Farm's holdings by acquiring additional lands up to c.1816 thus eventually gaining significant control of the Parramatta River frontage (within the *Elizabeth Farm Estate*) between the township of Parramatta and Duck River.

It is not presently clear to what uses the lands immediately adjacent to the current 1 Grand Avenue site were put to during this period. It is likely that some crop cultivation and stock grazing were carried out. There is no historical evidence to indicate that building occurred on the study area or its immediate surrounds at this time. The locality may well have retained some level of timber cover during the period. It is noteworthy that this area was still outside (to the east) of the 1822 Town Boundary which continued only as far as *Queens Wharf* at the time, and the later 1844 Town Boundary Stones (see GML 2000).

Five acres (2 ha) of river flat land east of Clay Cliff Creek on Parramatta River (comprising part of the Elizabeth Macarthur Estate) and covering a portion of the original Magee grant were leased to Silas Sheather, one of Macarthur's gardeners (nurserymen), in 1852 (Turbit and Turbit 2005:24). A further three acres of adjoining land were subsequently leased. On this land, what was known as *Camellia Grove* (a successful plant nursery) was subsequently established from which the current suburb gained its present-day name.[27] A formal 21 year lease was entered into in May 1852 (and extended in 1874) that required this portion of the Macarthur estate to be improved with the construction of a house and the development of surrounding gardens. By early 1870s the house was surrounded by fruit trees, shrubs, beehives and a camellia nursery that was a landmark for ferry-boat passengers.

In 1881, *Elizabeth Farm Estate* totalled approximately 1,100 acres. This was the size of the property that was sold to solicitor and entrepreneur Septimus Alfred Stephen. Purchased for 50,000 pounds,

[27] It appears that Sheather's original house and nursery were located at least in part on the eastern side of the Ryde-Carlingford Railway Line that formed a part of the original JHI 1916-1917 land holdings.

Stephen subdivided the property in 1883 and commenced to sell it off in separate allotments. The land formerly leased by Sheather that became the *Camellia Grove* was purchased by him in 1899 (McClymont 2009) and apart from a small portion, the land was intact until sold to the *James Hardie Company* in 1916 (Turbit 2006:80).

Along the river frontage a strip of land was acquired by ferry operator Charles Jeanneret of Hunters Hill. Jeanneret constructed a private steam tramway joining the township of Parramatta to the wharf. It was the first private enterprise tramway to be built in the Colony. The tramway operated between 1884 and 1943, with part of its route surviving as the present day alignment of Grand Avenue to the south of the 1 Grand Avenue study area (GML 2000, McClymont 2009). Stephen's plan to sell off the blocks for residential development ultimately turned out not to be economically viable and many of the blocks were subsequently offered for use for industrial purposes.

The tramway maintained Jeanneret's competitive edge in river transport and also became an important factor in opening the industrial sites around the Camellia Peninsula. Industrial land owners and their customers alike depended on the ferry/tram link to and from industrial plants on the river and the Parramatta Township to the west, and in turn the increasing subdivision of the Camellia and Parramatta Township's for site workers followed as convenient and inexpensive transport options became viable.

Along with the main rail line that commenced in 1855 to serve Parramatta, there were also other rail developments critical for Camellias growth including the opening of the *Clyde Railway Station* in 1880 and a private rail track in 1887-1888 from Clyde to Bennett's newly constructed racecourse at Rosehill. This rail link is still in use. The first rail station within the vicinity of the study area beyond Rosehill was originally named Subiaco in 1885, but renamed Camellia in September 1901 after Sheather's flower gardens and nursery (McClymont 2009:86). As illustrated in **Section 1.0**, Camellia Railway Station is located at the entrance to the 1 Grand Avenue site.

Between Jeanneret's original tramline and Parramatta River, the land immediately to the east of the subject site was acquired in July 1885 by the *Australian Kerosene Oil and Mineral Company* (the AKO) that purchased approximately 67 acres (27 ha) of land from *Hudson Brothers* and paying 300 pounds per acre. Hudson's had paid only 50 pounds per acre of land only a short time before illustrating increasing demand for well-accessed industrial land at Camellia (ibid:87).

The AKO occupied the site until 1916. Their factory covered some 15,000 square feet with a rail siding extending from Bennett's rail line to the AKO wharf on the Parramatta River. The factory

produced candles, soaps and lubricants from shale oil, which were sold under the 'Southern Cross' brand name. The raw material was brought in by rail and the finished products were shipped down river to Darling Harbour for distribution from the wharf at the junction of the Parramatta and Duck Rivers that was constructed in the 1870s. The company went into bankruptcy in 1898 and its property was liquidated in 1908. Most of the buildings on the land were subsequently demolished in 1916 (GML 2000, McClymont 2009).

3.5.3 Former James Hardie Site at 1 Grand Avenue

Building upon the background historical information reviewed above, it appears that prior to the purchase of the land by the *James Hardie Company* in 1916 and subsequent industrial operations that commenced from 1917 that the site was used primarily for agricultural purposes. The following summary for the post 1916 occupation context, use and development of the site has been extracted from McClymont (2009:87) that is based upon previous research compiled by Kass et al (1996), Turbit and Turbit (2005), and Turbit (2006):

> *'The James Hardie Company, an asbestos-cement products manufacturer, was established in 1916 and operated until 1996. Ten acres of relatively inexpensive land, originally owned by Henry Hudson at Camellia was purchased in 1916. With its access to water rail and road transport and a nearby labour market, the site was ideal. Using the brand name 'Fibrolite' the company began asbestos sheet cladding manufacture. In 1917 their corrugated sheets met with instant success as a roofing medium. Gradually the range was expanded to include cement water pipe and plumbing accessories, moulded brake and clutch linings, heat-insulating materials. The marbled finished 'Tilux' for use in bathrooms and kitchens was accepted widely for low-cost housing.*
>
> *After both World Wars there was great demand for Hardie's products. In 1954-55, of the 28,882 homes built in NSW, 15,050 were built of asbestos cement. By 1965, 1,500 people were employed by Hardie's with a payroll of £2, 500,000 annually. The unprecedented growth required more land and factory space. Product storage space shortages became acute and expansion plans were thwarted for the want of more land and so the company obtained approval to purchase the houses and streets of the Camellia Township, where many Hardie employees lived.*

Hardie's great strength became its great misfortune. Asbestos proved to be carcinogenic and dangerous. When the company vacated the site at the end of the twentieth century, it was unusable without extensive remediation'.

Additional historical information compiled by AGC Woodward Clyde Pty Ltd 1994 (presented in CES 2010) that includes a consideration of the land that formed part of the former JHI site to the west of the Clyde-Carlingford Railway Line provides further details of the historical development and use of the site. The key historical points identified in the 1994 Environmental Audit as part of the divestment and due diligence process, prior to the sale of the site to the SWC are summarised below:

- 1816-1897: The site formed part of the land granted to John Macarthur.
- 1897-1916: Various owners of the site are recorded during this period (farmers etc) and companies including the Camellia Chemical Company and Rheem Australia. The site appears to have been used primarily for light industrial purposes at this time.
- 1916: JH purchased approximately 4 ha on the eastern side of the Clyde-Carlingford Railway Station.
- 1917: The filling of the JHI site is believed to have commenced from the earliest occupation by JH with that part of the site being progressively filled and developed between 1917 and the mid 1960s. The fill comprised mainly asbestos wastes but also included a significant volume of boiler ash. The asbestos waste comprised friable pulp waste from the manufacturing process as well as, presumably, out of specification and excess bonded asbestos products. Some of the products may have been coated with bitumen, zinc silicate and other paints. No records were found which mentioned imported fill was used on the site. Other chemicals, mainly hydrocarbon-based (eg diesel, hydraulic oil and petrol) were extensively used and stored on the site and are believed potentially to have been disposed on site. James Hardie continued production of fibrous cement products until 1993 at which time production ceased and the site was decommissioned.
- 1918: JH purchased an additional 3 ha of land on the site.
- 1918 -1994: The north eastern portion of the site was used for the storage of drums.
- 1958: The land between the Clyde-Carlingford Railway Line, River Road, and the Parramatta River was purchased

- 1971: River Road was acquired.
- 1976: Two parcels of land adjacent to the river were purchased from the Maritime Services Board (MSB).
- 1989: Consolidation of the titles in the eastern area occurred at this time.
- 1994-1996: Demolition of the JHI site occurred during this period. All buildings were demolished down to slab levels and building rubble was used to level some areas of the site where there were steps in the slabs.
- 1996: SWC acquired the site.
- 1999: The SWC formally notified NSW EPA that the site was contaminated.
- 2000: The NSW EPA declared that the JH site represented a "Significant Risk of Harm" to human health. The SWC submitted a VRP to the NSW EPA at this time. The NSW EPA accepted the VRP and entered into a VRA with the SWC. The SWC were required to clean up surface asbestos contamination at the site and to improve surface seals (concrete and bituminous concrete pavements) to ensure that buried asbestos waste was isolated so that exposure pathways to humans and the environment were not present. Australian Water Technologies were also commissioned by SWC at this time to prepare a CMP for the JHI site to ensure that remedial measures implemented were effective and maintained into the future.
- 2001-2002: SWC undertook remediation of the site in accordance with the VRA during this period.
- 2003: NSW EPA gave notice that the terms of the VRP had been satisfactorily completed and determined that the site no longer presented "Significant Risk of Harm" to human health or the environment.
- 2004: SWC developed a Site Management Plan (SMP) which contained a Safe Work Plan (SWP) for the site to replace the former CMP. The NSW EPA registered a public positive covenant on the titles of the JHI site. The terms of the covenant require the site owners to maintain remediation of the properties under the SMP.

3.6 A European Archaeological Site Prediction

3.6.1 Background

As previously discussed, the proposed RIRF re-development footprint is now vacant and is sealed at ground level by building slabs and hardstand and fill capping fabric associated with the now demolished warehouse and work platforms related to the former use of the property by JHI. These capping surfaces overly contaminated fills below. No natural soil profiles are currently exposed across the site.

The proposed construction of the recycling facility will be largely created upon the surface of a raised engineered platform above the existing site seal with the only subsurface penetration to occur during the installation of future underground services.

3.6.2 The Potential Historical Archaeological Resource

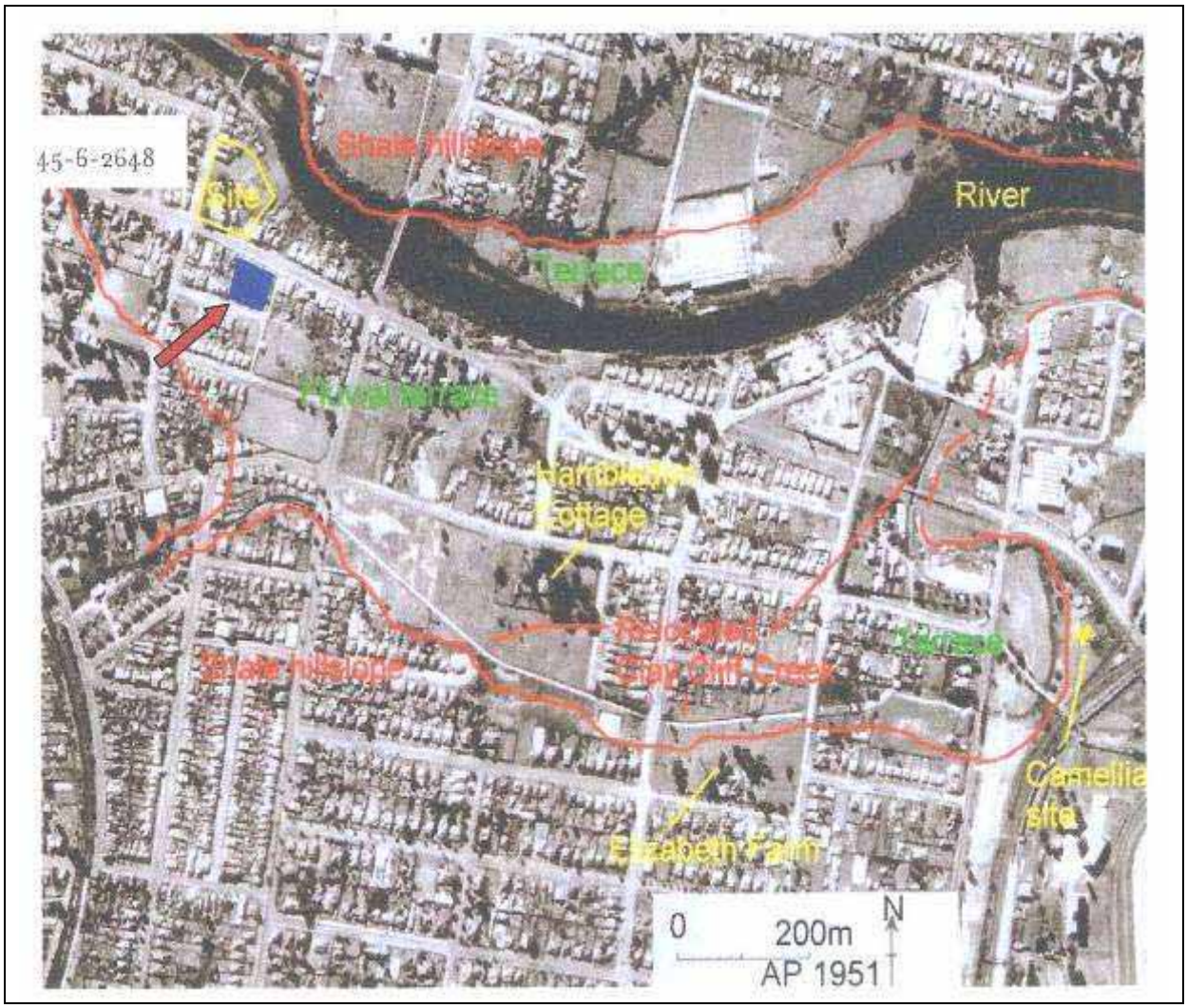
The types of European archaeological evidence that may be exposed by future site works at 1 Grand Avenue potentially include the following:

- Evidence for modifications to the original soil profiles and topography of the locality that occurred at different times during the historic period. These possible evidences will be buried below considerable depths of various surface caps and underlying fill materials and are unlikely to be exposed by the depth of excavation required for the RIRF re-development proposal.
- Archaeological features and deposits associated with activities or structures not identified in the available historical documentation related to the earliest (and subsequent) periods of European visitation and use of the locality dating from c.1788 to c.1916. This evidence may include building remains (such as footings etc) and refuse dumps/dispersed artefact scatters associated with former agricultural use(s) of the site.
- Traces of some of these types of potential archaeological features and deposits associated with such historical uses are likely to be ephemeral, if not largely invisible in the archaeological record to begin with, and are likely to have been further obscured as a result of ongoing impacts associated subsequent use and development of the site.
- Subsurface industrial features sealed below the current surface slabs and capping fills associated with the use and development of the former JHI site from c.1916 to 1996. It is

unlikely that significant basement-level features (previously un-recorded historically) will be exposed by future site works.

The likelihood for the presence, survival, and possible significance of the potential European archaeological resource that may be identified during future construction activities at 1 Grand Avenue, and the possible impacts of future works on this resource, are further evaluated in following sections of this report.

Figure 3.1: Annotated 1951 Aerial Photograph Showing a Fluvial Terrace Between Parramatta and Clay Cliff Creek (Source: JMCHM 2205a).



4.0 July 2010 Site Inspection

4.1 Site Inspection and Recording Methods

An archaeological inspection of the 1 Grand Avenue site was undertaken by DSCA on 23 July 2010. This site visit was carried out to:

- Evaluate the nature and context of the site and its immediate surrounds, and to compile a preliminary photographic record documenting the current condition of the site to assist in the development of an archaeological assessment of the place.
- Evaluate the nature, condition, and distribution of the various hard surfaces and capping fills that now seal the site.
- Develop (where possible) an appreciation of the likely nature of the original site topography relative to Parramatta River prior to its use and development during the historic period.
- Record other pertinent observations useful to guide an appraisal of the likely impacts to potentially buried profiles that may be encountered during future works associated with the RIRF re-development proposal.

The site inspection reported here was undertaken according to accepted field and reporting methods and included:

- Documentation of observations pertinent to the current assessment of Aboriginal and non-Aboriginal archaeological and cultural heritage potential sensitivity (such as a consideration of former landforms potentially present on the site, it's likely original topography, the nature of any ground exposures/visibility; and the extent of existing disturbances etc).
- Photography to record the site inspection was undertaken using a Nikon D-200 digital camera (with 28mm-105mm lenses 35mm lens equivalent) and a range of scale bars as needs dictated.
- A Magellan Explorist 100 handheld GPS was utilised as required to accurately plot any noteworthy features.
- Air photos, development plans, sketch plans, and a 1:25, 000 topographic map were also used as necessary to correlate all field observations reported below.

4.2 Site Observations

Figure 41 illustrates the locations of the 1 Grand Avenue property that were subject to photographic recording and evaluation during the July 2010 site inspection. A series of indicative images presented here as **Figures 4.2** to **4.9** are provided and discussed below.

A view of the entrance to the subject site (looking northeast) accessed from Grand Avenue off James Ruse Drive and via a car-parking area adjacent to Camellia Railway Station is presented here as **Figure 4.2**. Hard surfaces that characterise the current ground cover across the site are illustrated in the foreground of this image. Stockpiled shipping containers are visible to the rear of this photograph. **Figure 4.3** provides a view looking back (southwest) to the site entrance. Stored containers and stockpiled timber materials that are currently present in this portion of the site are evident.

A comparable view (looking north) of these stored containers and industrial materials is illustrated in **Figure 4.4**. An indicative view of the hard surfaces that cover the eastern portion of the subject site is presented in **Figure 4.5**.

A view of a portion of the southwest of the site is provided by **Figure 4.6**. Here, the surface of the property is capped by fill deposits and is presently semi-grassed. Fringing vegetation is evident in the background of this image.

Figures 4.7 and **4.8** illustrate the flat and vacant nature of the 1 Grand Avenue site and detail the nature of the slab surfaces that seal the study area formerly associated with the industrial operations of the JHI site. As indicated, no natural soil profiles or original topography is presently exposed. Available evidence demonstrates that any surviving original deposits are sealed by at least 1m to 2m (or more in places) of contaminated industrial waste materials and fills dating from c.1917 onwards below these hard surfaces.

An indicative view of the channel of Parramatta River (looking east) is provided by **Figure 4.9**. This image provides a clear indication of to what extent the ground level slabs of the former JHI warehouse and working platforms were constructed on fill above the original river bank level. Note also the fringing mangrove vegetation, and the drainage discharge features associated with the twentieth century industrial complex.

Figure 4.1: 1 Grand Avenue Site and Photographic Recording Locations (Source DSCA 2010).

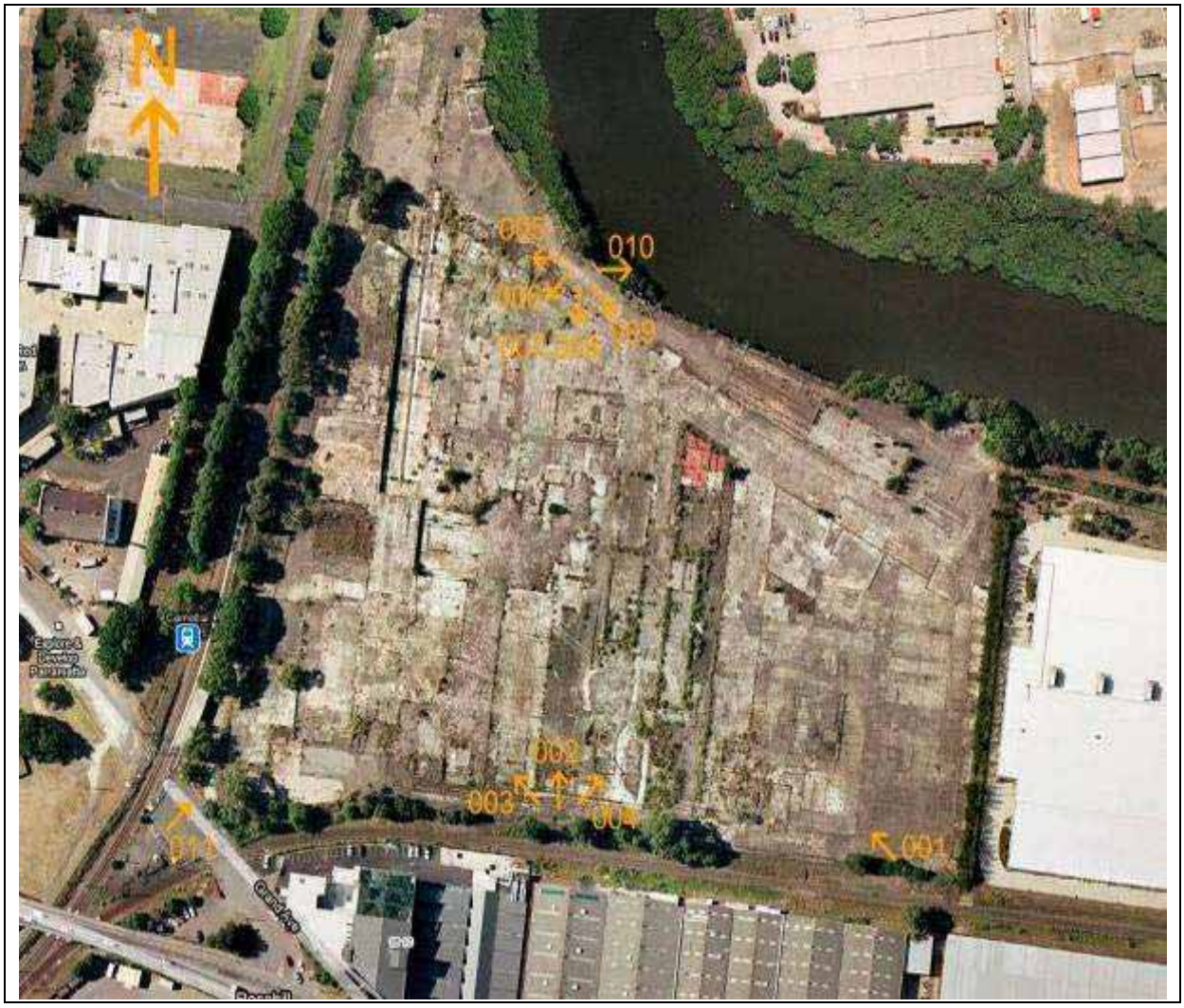


Figure 4.2: View of the Entrance to the 1 Grand Avenue Site Facing North East (Source DSCA 2010).

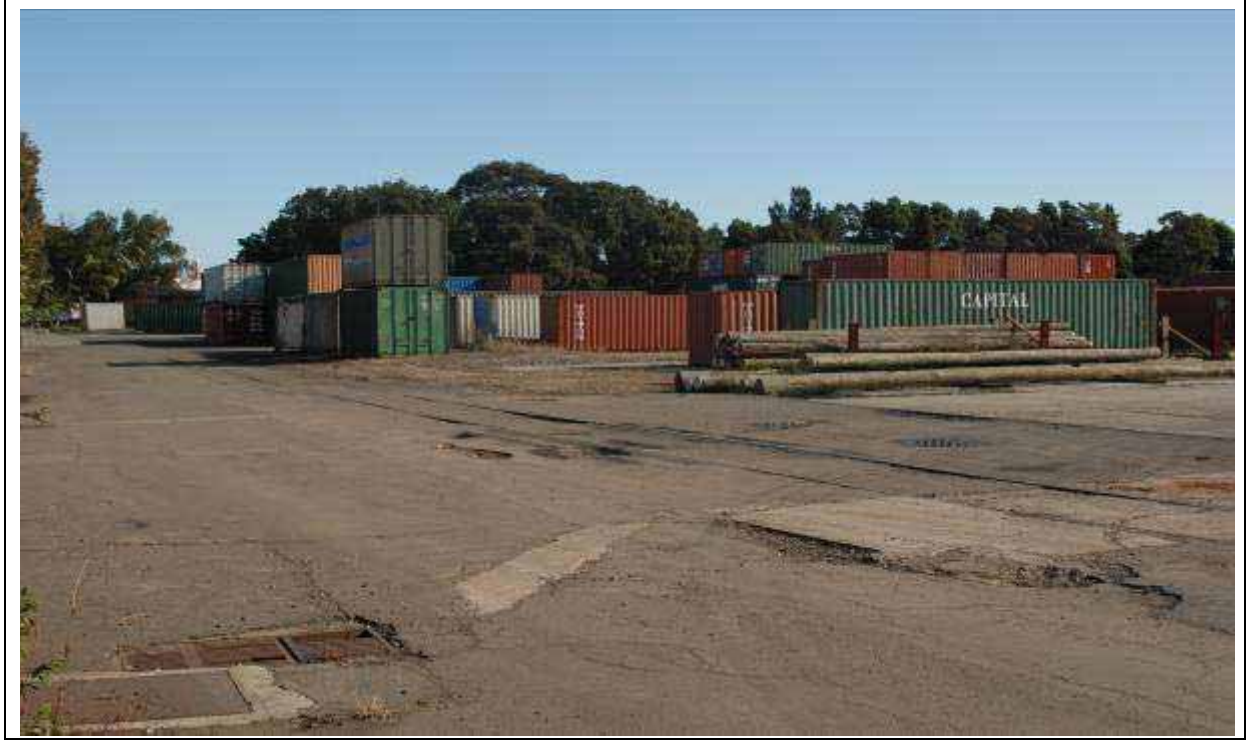


Figure 4.3: Shipping Containers and Timber Stockpiles Currently Stored on the 1 Grand Avenue Site Facing South West (Source DSCA 2010).

Figure 4.4: Shipping Containers, Timber and Other Industrial Materials Currently Stored on the 1 Grand Avenue Site Facing North (Source DSCA 2010).

Figure 4.5: An Indicative View of the 1 Grand Avenue Site Facing North East (Source DSCA 2010).

Figure 4.6: An Indicative View of the 1 Grand Avenue Site Facing South West (Source DSCA 2010).

Figure 4.7: An Indicative View of the 1 Grand Avenue Site Facing South (Source DSCA 2010).

Figure 4.8: An Indicative View of the 1 Grand Avenue Site Facing South East (Source DSCA 2010).

Figure 4.9: A View Along Parramatta River Facing East (Source DSCA 2010).

5.0 Summary and Conclusions

5.1 The 1 Grand Avenue Re-development Proposal & Potential Impacts

The 1 Grand Avenue re-development proposal seeks approval for the construction of two integrated alternative waste treatment facilities with associated infrastructure including a weighbridge, access roads, administration offices and workshops, and car parking areas.

It is proposed to construct the new facilities principally upon the surface of a raised engineered platform that would be situated above the existing site seal with the only subsurface penetration required would be for the installation of underground services.

An existing 30m wide buffer zone along Parramatta River bordering the north of the site will be maintained and will remain unaffected by the proposal. A substantial area to the west of the proposed re-development footprint will not be disturbed by the current proposal. It will be reserved for possible future use.

The design of the proposal will provide an effective barrier between possible contamination and future site occupiers. All future excavations will be undertaken in accordance with a Safe Work Method Plan to ensure an adequate seal is maintained over the areas of fill known to contain contaminants. The proposal also details procedures to control any future intrusive activities that could result in exposure of buried contaminated materials on the site.

The scale of impacts associated with the proposal with the potential to affect currently buried subsurface materials below the site seal is limited. As a result, the likelihood for future construction activities to adversely impact upon potential Aboriginal and non-Aboriginal archaeological features or deposits of significance would appear to be minimal.

5.2 Aboriginal Archaeological & Cultural Heritage Impact Statement

The background Aboriginal archaeological and cultural heritage research, site inspection, analysis and assessment of the 1 Grand Avenue site undertaken for the current study indicate that:

- Prior to the commencement of the present Aboriginal heritage assessment process, no *previously* documented Aboriginal archaeological sites or 'objects' were known to occur within the boundaries of the subject site. However, the entire proposed RIRF re-development footprint is currently covered by hard surfaces and no natural soil profiles are presently visible.

- It is unclear at present whether deposits associated with the 'Parramatta Sand Sheet' either occur or survive beneath the currently sealed footprint of the subject site. As reviewed in **Section 3.0** of this report, a number of significant Aboriginal archaeological sites have been identified to occur in association with this geomorphic formation some 1.8km to the west of the 1 Grand Avenue property in recent years.
- Mindful of the considerable alterations to the original pre-Contact landscape of the study area that largely followed the initial occupation and subsequent industrial development and use of the former JHI site between c.1916 to 1996, and the limited scope of subsurface impacts associated with the current RIRF re-development proposal, it is expected that any as yet undetected evidence for past Aboriginal visitation and use of the subject site that may be exposed by future works will consist of materials most likely encountered in largely disturbed recovery contexts.
- In summary, it is concluded that in terms of Aboriginal archaeological heritage, the study area appears to be potentially of relatively low sensitivity due to previous historic (industrial) uses and disturbances with the likelihood that future works will extend to minimal depths below the current capping surfaces that seal the site with the potential to impact upon the potential Aboriginal archaeological resource.
- In terms of the site comprising an area of potential historical '*Aboriginal association'* as discussed in **Section 3.0** of this report, available documentary records indicate that areas in and around Camellia were the focus of post-Contact visitation and use by Aboriginal people, particularly during the Macquarie period. This use of the local landscape appears to have continued up to the mid 1830s at which time the available historical records become largely silent. Whether any tangible (physical) archaeological evidence documenting this period of Aboriginal history is present and/or survive within the 1 Grand Avenue re-development footprint is currently unknown. Recognition however of the importance this area of the Camellia Peninsula may have played in the lives of the traditional Aboriginal owners is acknowledged.

5.3 Evaluation

On the basis of the above considerations, it is concluded that the 1 Grand Avenue re-development proposal is unlikely to have a *significant* adverse impact upon the Aboriginal archaeological heritage

values of the place and that no *clear or obvious* Aboriginal archaeological constraints are apparent for the re-development proposal proceeding as planned subject to the implementation of the management recommendations provided below should approval be granted by the DoP.

5.4 European Archaeological & Cultural Heritage Impact Statement

The background European archaeological and cultural heritage research, site inspection, analysis and assessment of the 1 Grand Avenue site undertaken for the current survey and assessment study reported here indicate that:

- No previously documented European archaeological sites, features or deposits relative to the historically recorded use and occupation of the proposed RIRF re-development site have been identified during the course of preparing the current study.
- As reviewed in **Sections 2.0** and **3.0** of this report, the 1 Grand Avenue site is listed on the Parramatta 1996 LEP in respect to the proximity of the historic grave of Eleanor Magee and child that dates to c.1793. The grave is located adjacent to the Clyde-Carlingford Railway Line and is situated to the north-west (outside) of the proposed RIRF re-development footprint within a reserve with restricted public access. As a result, the grave location and its curtilage will not be affected by the current re-development proposal.
- No additional areas of potential European archaeological heritage sensitivity have been identified in any other areas of the proposed RIRF re-development site during the course of the research, site inspection, and assessment program documented here.
- The potential for as yet undocumented European archaeological features or deposits of significance to be present (or survive) on the property relative to the scale of works associated with the 1 Grand Avenue re-development proposal is assessed to be low.

5.5 Evaluation

On the basis of the above considerations, it is concluded that the 1 Grand Avenue re-development proposal is unlikely to have a *significant* adverse impact upon the non-Aboriginal archaeological heritage values of the place and that no identified constraints are apparent for the re-development proposal proceeding as planned subject to the implementation of the management recommendations provided below should approval be granted by the DoP.

6.0 Management Recommendations

6.1 Basis for Recommendations

It is assessed that the 1 Grand Avenue re-development proposal is unlikely to have an adverse impact upon the Aboriginal and European archaeological and cultural heritage values of the place.

It is therefore concluded that there are no *significant* Aboriginal archaeological (scientific) or European heritage constraints for the proposal proceeding at this time subject to the consideration of the following conditions:

- Recognition of the legal requirements and automatic statutory protection provided to Aboriginal 'objects' and 'places' under the terms of the *National Parks and Wildlife Act* of *1974* (as amended 2010)
- Consideration of the views and advice that may be provided for the proposal by the *Deerubbin Local Aboriginal Land Council*, the *Darug Tribal Aboriginal Corporation*, the *Darug Custodian Aboriginal Corporation*, the *Darug Aboriginal Cultural Heritage Assessments,* the *Darug land Observations*, and *Yarrawalk*.
- Recognition of the protection provisions of the *NSW Heritage Act 1977.*

6.2 Recommendations

I Based on the conclusion that the *potential* for as yet undetected Aboriginal or European archaeological items of significance to occur within the subject site that may be affected by future site works is assessed to be *low*, it is recommended that there are no *obvious* or *significant* Aboriginal or non-Aboriginal archaeological and cultural heritage constraints to the proposed 1 Grand Avenue re-development proposal proceeding as planned.

II Prior to the commencement of future works on the site, all planners and contractors involved should be made aware of the possibility that as yet undiscovered Aboriginal archaeological materials may exist within (beneath) the footprint of the proposed RIRF activity areas. This could be undertaken through a site induction notifying all involved of their obligations under the *National Parks and Wildlife Act 1974*.

III Prior to the commencement of future works on the site, all planners and contractors involved should be made aware of the possibility that as yet undiscovered European archaeological

features and deposits may occur on the site and their obligations and responsibilities under the *NSW Heritage Act 1977*.

IV In the (largely) unexpected circumstance that any Aboriginal or European objects are unearthed as a result of future works, it is recommended that activities should temporarily cease within the vicinity of the find locality, be relocated to other areas of the site, and the *NSW Department of Environment and Climate Change and Water* (DECCW) and the *NSW Heritage Branch* be contacted to advise on the appropriate course of action to allow the identified item(s) in a timely fashion to be recorded/conserved to ensure works schedules are maintained and balanced with statutory heritage requirements.

V Two copies of this report should be forwarded to:

The Manager
Planning and Heritage Section – Metropolitan Region
Central Aboriginal Heritage Unit
NSW Department of Environment, Climate Change and Water
Level 7, 79 George Street
PARRAMATTA, NSW, 2150

VI Two copies of this report should be forwarded to:

The Manager
NSW Heritage Office
3 Marist Place
PARRAMATTA, NSW, 2150

VII A copy of this report should be forwarded to:

Ms Sandra Lee
Secretary
Darug Tribal Aboriginal Corporation
PO Box 441
BLACKTOWN, NSW, 2148

VIII A copy of this report should be forwarded to:

Ms Leanne Watson
Chairperson

Darug Custodian Aboriginal Corporation
PO Box 81
WINDSOR, NSW, 2756

IX A copy of this report should be forwarded to:

Ms Celestine Everingham
Coordinator
Darug Aboriginal Cultural Heritage Assessments
90 Hermitage Road
KURRAJONG HILLS, NSW, 2758

X A copy of this report should be forwarded to:

The Chairperson
Deerubbin Local Aboriginal Land Council
PO Box 3184
MOUNT DRUITT, NSW, 2770

XI A copy of this report should be forwarded to:

Mr Scott Franks
Director & Aboriginal Heritage Manager
Yarrawalk
PO Box 76
CARRINGBAH, NSW, 1495

XII A copy of this report should be forwarded to:

Mr Gordon Workman
Darug Land Observations
PO Box 571
PLUMPTON, NSW, 2761

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Attachments

Darug Aboriginal Cultural Heritage Assessments Correspondence

30th of November 2010

Darug Aboriginal Cultural Heritage Assessments

ABN 51734106483

Gordon Morton & Associates

Mob: 0422 865 831
Fax: 45 677 421

Celestine Everingham
90 Hermitage Rd., Kurrajong Hills, 2758
Ph/Fax: 45677 421
Mob: 0432 528 896

30 . 11 . 10

Attention:
Dominic Steele Consulting Archaeology

re Remondis Integrated Recycling Facility
1 Grand Avenue, Camellia, N.S.W.

DACHA have reviewed your report on the above site. We feel due to the previous industrial uses of the land and the very visible disturbed surface it is of relatively low sensitivity now. In the past, before colonisation it was an area of great activity by the Darug people – the traditional owners. DACHA support the recommendations in your report, also the application for any permit required for future development.

Yours Sincerely,
C. Everingham
&
G. Morton

Cultural Heritage – Building respect for the past and Conservation for the future