VOLUME 1

ENVIRONMENTAL IMPACT STATEMENT

RESOURCE RECOVERY FACILITY

SSD 5339

CONCRETE RECYCLERS PTY LTD

7 MONTORE ROAD

MINTO

NEXUS
Environmental Planning Pty Ltd

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ENVIRONMENTAL IMPACT STATEMENT

RESOURCE RECOVERY FACILITY

SSD 5339

CONCRETE RECYCLERS PTY LTD

7 MONTORE ROAD

MINTO

13 October 2020

Prepared by:
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STATEMENT OF VALIDITY

Submission of Environmental Impact Statement

Prepared under Part 4 of the Environmental Planning and Assessment Act 1979

Environmental Impact Statement prepared by:

Name:	Neil Richard Kennan
Qualifications:	B.A., Dip. Urb. & Reg. Plan., Dip. Cart., MPIA, Ord 4.
Address:	PO Box 212 **CONCORD NSW 2137**
In respect of:	Resource Recovery Facility State Significant Development Application No.5339

Applicant and Land Details:

Applicant name:	Camolaw Pty Ltd
Applicant address:	PO Box 238 **RYDALMERE NSW 1701**
Land to be developed:	Lot 52 , DP 618900 No.7 Montore Road **MINTO**

Environmental Impact Statement: An Environmental Impact Statement is attached

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Statement of Validity: I certify that I have prepared the contents of this Environmental Impact Statement in accordance with the 11 July 2017 Secretary's Requirements and that, to the best of my knowledge, the information contained in the Environmental Impact Statement is neither false nor misleading.

Signature: 

Name: Neil Kennan

Date: 13 October 2020

EXECUTIVE SUMMARY

1. INTRODUCTION

This Environmental Assessment has been prepared on behalf of Camolaw Pty Ltd (**Camolaw**) in support of a State Significant Development application.

Camolaw seeks the approval of the Minister for Planning to establish a Resource Recovery Facility at No.7 Montore Road, Minto (**the Site**).

The objectives of the proposal are:

(a) To establish a commercially viable Resource Recovery Facility which is capable of recovering recyclable concrete, brick, asphalt, sandstone and sand from the waste stream for reuse.

(b) To assist the NSW State government in achieving its objectives for the recovery and recycling of waste as detailed in the *NSW Waste Avoidance and Resource Recovery Strategy 2014-2021*.

(c) To establish an environmentally responsible and sustainable industry which would create employment.

2. THE SITE

The legal description of the Site is:

Lot 52 , DP 618900
No.7 Montore Road
MINTO

The Site is located on the southern side of Montore Road to the west of the intersection of Montore Road with the Airds Road.

The following development is located either adjoining the Site or in the vicinity of the Site:

- Industrial and warehouse development with frontage to Montore Road.
- Bow Bowing Creek adjoining the Site to the west.
- Industrial development to the west of Bow Bowing Creek.
- Residential development to the west of the abovementioned industrial development and on the western side of Campbelltown Road.

3. THE PROPOSED DEVELOPMENT

It is proposed to establish a Resource Recovery Facility on the Site with intended capacity of 450,000 tonnes per annum.

The proposed facility would receive concrete, brick, asphalt, sandstone and sand from the building and construction industry.

Plans of the proposed development are at **Appendix 4**.

Waste material would be delivered to the Site by truck, usually with an average capacity of 16 tonne. Product from the Site will be transported in vehicles of average capacity of 20 tonnes.

Incoming trucks would stop at a receival point where the load would be inspected to ensure loads comply with the materials which the facility is licenced to receive pursuant to the Environment Protection Licence.

If accepted, the driver would be instructed to proceed to the weighbridge office where a docket would be issued. Once a docket is issued, the truck driver would be directed to a designated stockpile depending on the type of waste the truck is carrying. After the material is tipped, the loader spreads it for further inspection. If the load contains waste which the facility is not licenced to receive, the material is loaded back onto the truck and the driver would be instructed to turn around and leave the Site.

All trucks would leave the Site via the wheel wash.

A wheel loader would push the accepted waste up into the main stockpile awaiting processing.

If waste received is too large for the primary crusher, it would be broken down in size using a mechanical pulveriser fitted to an excavator or an hydraulic rock breaker prior to loading into the primary crusher.

The use of the Site as a Resource Recovery Facility would require the use of a number of related components. The key elements of the proposal are typically as follows:

- 3 x 35 tonne class wheel loaders.
- 1 x 45 tonne excavator.
- 2 x 30 tonne excavators.
- stormwater storage tanks.
- 1 x water cart.
- 1 x 20,000 litre capacity self-bunded fuel tank.
- 2 x Weighbridge.
- Wheel wash.
- Workshop for general repairs.
- Staff lunch room and associated amenities.
- Car park.

Two weighbridges will operate at the access point to the Site to weigh both loaded incoming vehicles and outbound delivery vehicles.

The weighbridges are designed to accommodate vehicles up to 19 metres in length, the weighbridge structure consists of a reinforced concrete foundation, steel sub-structure, and concrete deck which will be raised above the surrounding pavement.

Truck queuing has been allowed for on the approach to the incoming weighbridge for six (6) articulated or rigid trucks. A load compliance area will be provided on the approach to the weighbridge. Light vehicle access will be provided at the same entry/exit point, however, light vehicle parking will be along the northern boundary.

An office will adjoin the weighbridge to house the weighbridge staff, which will house a small amenities section for these staff.

The proposed hours of operation would be:

Monday to Friday	6:00 am to 7:00 pm
Saturday	7:00 am to 4:00 pm

The facility would not operate on public holidays or on Sunday.

Typically, there would be fifteen (15) employees on site comprising:

- One (1) Site Foreman.
- Three (3) Loader Drivers.
- Three (3) Excavator Drivers.
- Two (2) Weighbridge Attendants.
- Two (2) Fitters.
- Four (4) Labourers.

A stormwater retention system is proposed for the Site to collect and treat runoff, preventing off-site migration of sediment contaminated stormwater. On-site tanks will be utilised to store and supply captured stormwater to satisfy dust suppression and sand washing demands.

Design of this system is in accordance with NSW Landcom (2004) Soils and Construction Handbook.

A concept sediment basin design has been developed for the proposed resource recovery facility as follows:

- The Site is graded to direct all surface runoff to site basins prior to reuse or discharge from the Site to meet water quality objectives. The driveway and the entry section of the car park are excluded from capture.
- Sedimentation basins are located to the north and south of the Site. Both basins are below ground concrete pits.
- A floating pump will be located in each basin for extraction of clean water to on-site

tanks for reuse in dust suppression and sand washing.

- Detailed design of the proposed basins is to be undertaken in accordance with Landcom (2004) during the construction certificate stage.

The developed site will have well compacted, unsealed surfaces which will be largely impervious and consist of crushed recycled concrete and aggregates.

At full capacity, the plant would process 1,600 tonnes per day. Variations would occur depending on the day to day movements of trucks based upon an average load of 18 tonnes and 250 working weekdays per annum.

The Site will have access for vehicles up to and including 19m semi-trailers which will adhere to the following requirements:

- Provision will be made for all loading and unloading to take place wholly within the designated loading area.

- No loading or unloading will be carried out across parking spaces, landscaped areas, pedestrian aisles or on roadways.

Dust suppression and sand washing demands will be satisfied through reuse of stormwater runoff sourced from 200 kL sedimentation basins.

Captured runoff will be transferred to storage tanks for use on demand.

Approximately 500 kL of tank storage will be available on-site to provide 2 days of operational demand (based on 6 operational days per week) for dust suppression and 5 operational days per week for sand washing.

Water demand for toilet flushing will be supplied from a 5 kL roof water tank adjacent to the workshop building.

Mains water supply is available at the Site to provide water once site storages are exhausted.

A 30,000 litre capacity diesel fuel tank will be established on the Site. The fuel tank would be self bunded and fully baffled in accordance with relevant Australian Standards.

4. IMPACT OF THE PROPOSED DEVELOPMENT

4.1 Air Quality Impact

Potential air pollutants associated with the proposed development comprise dust and particulate matter. Specifically, the following pollutants are identified:

- Total Suspended Particulates (**TSP**);

- Particulate Matter (**PM_{10}** and **$PM_{2.5}$**), and

- Respirable crystalline silica (**RCS**).

The primary dust sources identified from the proposal are:

- vehicles travelling on unsealed roads, and
- wind-blown dust from stockpiles or exposed areas.

The following mitigation measures were included in estimating potential dust emission from the Site.

- Level 2 (>2 l/m²/hr) water spray or chemical suppressant on unsealed haul roads – 84%.
- Watering stockpile/exposed areas – 50% reduction.
- Minimisation of wind erosion due to wind speed reduction provided by the existing infrastructure surrounding the Site – 30% reduction (control factor for "wind breaks").
- Traffic speed restrictions of 10 km/hr for all on-site vehicles.

The predicted results show minimal incremental impact from the proposed operations at the nearby residential receptors. Predicted total results for $PM_{2.5}$, PM_{10} or TSP are below impact assessment criteria when compared with NSW EPA guidelines at the residential receivers.

The cumulative annual average PM_{10} and $PM_{2.5}$ concentrations predicted at the industrial receiver locations marginally exceed relevant impact assessment criteria. The results also show that the maximum predicted total 24-hour average PM_{10} concentrations exceed the impact assessment criterion at the three closest industrial receivers.

The predicted exceedance of the impact assessment criterion for 24-hour average PM_{10} at the closest industrial receivers is largely due to the conservative assessment methodology whereby the maximum predicted incremental concentration, due to the proposal, is added to the maximum ambient concentration. Therefore, in accordance with the Approved Methods, a "contemporaneous" assessment has been conducted to provide a more detailed analysis of the potential impacts of the proposal.

The highest expected $PM_{2.5}$ annual average concentration at Industrial Receiver 1 was 1.76 $\mu g/m^3$ which represents approximately 20% of the $PM_{2.5}$ criteria and is considered an acceptable contribution to the airshed in an industrial area. To assess the implications of the $PM_{2.5}$ annual average exceedance a "contemporaneous" assessment has been conducted to provide a more detailed analysis of the potential impacts of the proposal.

The contemporaneous assessment of 24-hour average PM_{10} and $PM_{2.5}$ concentrations involves adding the existing background PM_{10} concentration, observed at the OEH monitoring site in Campbelltown West, to the predicted incremental concentration for each day of the simulation period. Figure 7-1, Figure 7-2, Figure 7-3, Figure 7-4, Figure 7-5 and Figure 7-6 of the air quality report present the results of the contemporaneous assessment of 24-hour average PM_{10} and $PM_{2.5}$ concentrations at the industrial receivers I1, I2 and I3, respectively. There are no additional exceedances of the PM_{10} and $PM_{2.5}$ criteria.

The results of the dispersion modelling indicate that dust and particulate matter concentrations due to the operation of the proposal can be adequately managed on site to mitigate impacts.

4.2 Acoustic Impact

The noise and vibration impact assessment has been prepared to address the relevant Secretary's Environmental Assessment Requirements. The assessment was conducted in general accordance with the following NSW Government guidelines:

- NSW Noise Policy For Industry (EPA, 2017);
- Noise Guide for Local Government (EPA, 2013);
- NSW Road Noise Policy (DECCW, 2011), and
- Interim Construction Noise Guideline (DECC, 2009).

Long-term unattended noise monitoring was initially performed in 2012 and then repeated in 2016 to determine any change in the background and ambient noise level in the area, primarily as a result of new industrial developments and/or changes in traffic volumes on Campbelltown Road.

Further short-term monitoring was conducted in November 2018. The noise monitoring is described as follows:

Period 1: between 14 and 26 June 2012 in the backyard of 12 Kintyre Place, St Andrews at approximately 3m from a 2m high Colorbond fence.

Period 2: between 14 and 23 November 2016 in the backyard of 14B Gleneagles Place, St Andrews at approximately 5m from a 1.5m high timber fence.

Period 3: 30 November 2018 in the backyard of 10 Kintyre Place, St Andrews at approximately 7m from a 2m high Colorbond fence.

The predicted operational noise levels indicate noise from the proposed facility will comply with the L_{Aeq} and L_{Amax} criteria between 6:00am and 6:00pm under neutral weather conditions at all considered receivers.

The predicted noise levels from the construction of the facility have been assessed against the NSW Interim Construction Noise Guidelines. The predicted noise levels indicate that the construction works will readily comply with the relevant criteria.

Trucks from the proposed facility would access the major arterial road network via Airds Road, Ben Lomond Road and Rose Payten Drive. None of these sub-arterial roads have residential receivers. No traffic noise impact is expected.

4.3 Site Contamination

Environmental Investigation Services has prepared a report titled *"Preliminary Stage 1 / Stage 2 Environmental Site Assessment"* a copy of which is at **Appendix 13**.

The scope of work included the following:

- a review of site information including background and site history information;
- a site inspection to identify Areas of Environmental Concern (**AEC**);
- preparation of a Preliminary Conceptual Site Model (**PCSM**);
- design and implementation of a sampling, analysis and quality plan (**SAQP**);
- interpretation of the analytical results against the adopted Site Assessment Criteria (**SAC**);
- a Data Quality Assessment;
- a Tier 1 Risk Assessment and review of PCSM, and
- preparation of a report presenting the results of the assessment.

Soil samples were obtained from 33 sampling points which meets the minimum sampling density recommended by the EPA. The sampling locations were placed in accessible areas of the Site. Ten (10) additional samples were collected from the two (2) stockpiles on the Site. Selected samples were analysed for a range of Contaminants of Potential Concern (**CoPC**) as outlined in the SAQP. The results were assessed against the SAC.

The results of the testing identified the following contamination issues.

Elevated Contaminants of CoPC above Human Health SAC

Fragments of asbestos cement were identified in the two (2) stockpiles and on the site surface. In addition to this, matted material containing asbestos was identified in shallow surface soils. Due to the discrete nature of asbestos containing materials (**ACM**), it is considered likely that more ACM will be exposed during works on the Site. The matted material could be crushed by hand pressure and was, therefore, considered friable.

The contamination in this location is considered to pose a moderate to high risk to human receptors at the Site in the current site configuration and will require remediation and/or management.

Elevated Contaminants of CoPC above Ecological SAC

Concentrations of Benzo(a)Pyrene were encountered above the Ecological SAC adopted for the investigation. These contaminants can pose a risk to the environmental receptors.

Elevated concentrations of zinc and B(a)P in criteria (TP4, TP7, TP11, TP21, TP27 and TP31) were not considered to pose an unacceptable risk to ecological receptors for the following reasons:

1. The Site is in an urban setting and located in an industrial area, therefore, it would be reasonable to assume there are no endangered species on the Site.
2. The existing flora does not show any significant signs of stress.
3. The data indicate that the elevated concentrations are confined to a shallow surface

layer of fill which can be easily penetrated by roots.

Based on the scope of works undertaken, Environmental Investigation Services is of the opinion that the CoPC identified at the Site pose a risk to the receptors and its is considered that the Site can be made suitable for future industrial use provided that the following recommendations are implemented to better manage the identified risks:

1. Undertake a Detailed Soil Investigation for Asbestos in accordance with the Western Australian Asbestos Guidelines 2009 (endorsed in NEPM 2013).

2. Prepare an Asbestos Management Plan for future site excavation and/or construction works.

3. Where necessary, prepare an Environmental Management Plan for the ongoing management of contamination remaining on the Site.

4. In the event that unexpected conditions are encountered during development work or between sampling locations which may pose a contamination risk, all works should stop and an environmental consultant should be engaged to inspect the Site and address the issue.

Following from the Environmental Investigation Services site investigation, EI Australia (**EI**) was commissioned to undertake additional site investigation. EI has prepared as report titled *"Additional Site Investigation"*, dated 24 March 2020, a copy of which is at **Appendix 14**.

The primary objectives of the EI investigation were to:

- Delineate the contamination identified by previous site investigations, by means of additional intrusive sampling and laboratory analysis for relevant contaminants of concern.

- Make recommendations for the appropriate management of any contaminated soils.

To achieve the above objectives, the following scope of works was completed:

- A detailed site walkover inspection, performed in collaboration with a licensed services locator, whom utilised electro-magnetic equipment to search for buried services;

- Construction of test pits / boreholes at sixty (60) locations, distributed in a triangular grid pattern across the Site;

- Soil sampling within fill soils at each of the locations, and

- Laboratory analysis of selected soil samples for the contaminants of potential concern (**COPC**).

Site observations were recorded during walkover inspections on 18 September 2019 and 4 October, 2019.

The sampling component of the EI study was initially planned in accordance with the following rationale:

- Sampling soils from sixty (60) test pits / boreholes, distributed on a triangular grid across the Site which complemented the previous Environmental Investigation Services (2018) pattern, to further characterise and delineate contamination within in situ fill soils, and
- Laboratory analysis of representative soil samples for the identified contaminants of concern (asbestos, in particular).

In practice, seventy two (72) sampling locations were ultimately selected, based on conditions at the time of the field work, most significantly the presence of the two stockpiles (SP1 and SP2) in the southern half of the Site.

The EI Additional Site Investigation concludes:

- The previous EIS (2018) site assessment identified matted (friable) asbestos material within fill at test pit TP14 in the southern portion of the Site, while bonded ACM fragments were observed in surface soils at location SS01, as well as within the two stockpiles, identified as "Northern Stockpile" and "Central Stockpile" (both no longer present by the time of this ASI).

- Information received from Concrete Recyclers identified that the "Central Stockpile" was removed from the Site to an EPA licensed facility.

- Areas where the "Northern Stockpile" was previously identified were inaccessible during the investigation. EI assumed the majority of this stockpile had been flattened out across the Site.

- Based on the soil sampling and analysis completed by EI for this ASI:

  - The sub-surface was comprised of a layer of anthropogenic filling (up to 1m BGL), overlying residual clays (and shale at depth).

  - Individual sample concentrations of HMs, PAH, TRH, BTEX, pesticides and PCBs all complied with the adopted SILs applicable to commercial / industrial land use.

  - Asbestos was identified in (fill) samples from eight of the test pit locations, all of which were within the southern half of the Site (TP107, TP114, TP115, TP118, TP123, TP125, TP305 and TP306). Except in the case of TP305_0.2-0.6, the concentrations of asbestos in these samples all exceeded the corresponding SIL.

  - The absence of asbestos in SP1 and SP2 indicated that the materials comprising these stockpiles were General Solid Waste in accordance with the EPA (2014) Waste Classification Guidelines.

  - The asbestos contamination appeared to be limited to the southern half of the Site.

Based on the findings of the EI Additional Site Investigation, EI concluded the ACM at the Site posed a moderate to high risk to (future) human receptors. Remediation of the land was, therefore, necessary, in order for it to be suitable for the proposed (Resource Recovery Facility) development.

Remedial Action Plan

Following from the EI Additional Site Investigation, EI was commissioned to prepare a Remedial Action Plan for the Site, a copy of which is at **Appendix 15**.

The main objective of the Remedial Action Plan (**RAP**) is to guide remediation of the Site, by providing detailed procedures which comply with relevant guidelines, yet prevent adverse effects on human and environmental receptors.

The remediation objective will be achieved by:

- Outlining the legislative framework relevant to the works;
- Providing a summary of the previous investigations of the Site, including the Site setting and contamination status;
- Definition of remediation goals and acceptance criteria;
- Review of available remediation technologies, with identification of the most appropriate method of site clean-up;
- Description of work procedures which are compliant with relevant environmental legislation;
- Guidance on approvals and licences required for the remediation works;
- Provision of information to assist the contractor in their preparation of a Work, Health and Safety Plan (**WHSP**) and other site management/planning documents;
- Identification of the key stakeholders and their responsibilities, and
- Provision of a Sampling and Analytical Quality Plan (**SAQP**) which will validate the effectiveness of the remediation.

Remediation Goals

The remediation goals for the RAP are consistent with the NSW EPA SEPP 55 guidelines and Council's contaminated land policy, and include:

- Meeting the conditions of the planning consent and to render the Site suitable for the proposed land use(s);
- Demonstrating that the proposed remediation strategy for the Site is environmentally justifiable practical and technically feasible;
- Adopting clean-up criteria appropriate for the future use of the Site to mitigate possible impacts to human health and the environment;
- Consideration of the principles of ecologically sustainable development in line with Section 9 of the *Contaminated Land Management Act 1997*;

- Minimising waste, as per the *Waste Avoidance and Resource Recovery Act 2001*;
- To remediate all contamination at the Site so there are no unacceptable risks to on-site and off-site receptors, and
- Demonstrating that the plans for site management of remediation work consider work health and safety, environmental management, and site contingencies.

Preferred Remediation Option

Based on the available remedial technologies, the proposed site development (Resource Recovery Facility) the potential risks to human health and the environment, as well as the relative cost effectiveness of feasible remedial techniques, the preferred remedial option for the Site is:

- Offsite disposal of impacted soils to licensed waste facilities. All wastes shall be transported to appropriate, EPA-licensed facilities, after formal classification. All excavated (remediation) areas shall be validated by base and wall, soil sampling, and
- Site reinstatement with validated, imported (or recovered) excavated natural materials (where required).

On-site consolidation (encapsulation) and/or capping of impacted materials will be considered a secondary option, where economic constraints dictate.

Remediation Works

Site characterisations revealed the presence of bonded and friable asbestos contamination across the Site, which made it unsuitable for the proposed industrial use. The remedial tasks required are as follows:

- Excavation and off-site disposal of friable asbestos materials at locations TP14 (EIS, 2018) and TP123 (EI, 2020); and
- Excavation and off-site disposal of fill materials at locations NS1, NS2 and SS01 (EIS, 2018) and TP107, TP114, TP115, TP118, TP125 and TP306 (EI, 2020), followed by hand picking of asbestos fragments and processing of oversize materials (to remove bricks/concrete).

A qualified environmental scientist, performing the role of Environmental Management Coordinator, will be appointed to the project, to ensure that critical stages of the Site remediation are appropriately supervised and documented, with the relevant data collected for environmental reporting purposes. These will include, though not necessarily be limited to, site induction of personnel in relation to contamination hazards and environmental management issues, marking of remediation areas, inspection of environmental monitoring systems, implementation of specified control measures and validation sampling.

4.4 Greenhouse Gas Impact

Emissions from Construction

The assessment of the construction period associated with the Resource Recovery Facility is limited to the following activities:

Truck Movements for Construction

- Removal of Fill totalling 500 trucks.
- Transportation of Construction Materials totalling 280 trucks.

Machinery and Plant used on site for Construction

- Average of 1 large diesel powered plant in operation for half the construction period.

Expected Construction Workforce

- 4-10 persons per day depending on construction task.

Electricity Generation for Construction

- Off-site generated mains power for the site office.
- On-site diesel generated power for power tools.

Waste and wastewater

- Typical construction waste generated.
- Typical waste and waste water generated from persons on-site.

Emissions from Operation

The assessment of the operational period associated with the resource recovery facility is limited to the following activities:

Truck movements during operational period

- Trucks inbound with product totalling 171 per weekday and 106 per Saturday.
- Trucks outbound with product totalling 171 per weekday and 106 per Saturday.

Machinery and Plant used on site during Operational Period

- Average of 6 large diesel powered plant in operation at any one time, e.g. 3 excavator and 3 loaders.

Front End Loader

- Sand Washing Plant operating every day with a power consumption of 100kw/h.
- Concrete Crushing Plant operating every other day with a power consumption of 200kw/h.
- Pugmill.

Expected Typical Operational Workforce on-site

- 15 persons per day.

Electricity Generation for Operational Period

- Off-site generated mains power for site office, weighbridge and lunchroom.
- On-site diesel generated power for sand washing plant, concrete crushing plant and Pugmill.

Overall Emissions

The latest National Inventory Report (2016) and State and Territory Greenhouse Gas Inventories detailed Australia's total greenhouse gas emissions in 2013 amounted to 532.971 million tonnes of carbon dioxide equivalent (Million tonnes CO2-e) whilst New South Wales accounted for 130.273 million tonnes of this total.

The Resource Recovery Facility will account for less than 0.006% of current NSW emissions.

Reducing Greenhouse Gas Emissions from Diesel Fuel Consumption

Diesel fuel consumption, namely that used in the transportation of material to and from the Site, generation of on-site power and that used in on-site vehicles represents the source of the major greenhouse gas emissions for the proposed development.

Mitigation options to reduce energy consumption and greenhouse gas emissions include:

- Avoid prolonged idling of equipment: Develop a policy about idling times and monitor unnecessary operation.
- Throttle down and switch off equipment when not in use.
- Fill fuel tanks to 95% of capacity to allow for expansion and reduce spillage.
- Perform regular inspection and maintenance.
- Log fuel use by vehicle and machinery to help identify fuel leaks and poorly performing vehicles.
- Consider the use of biofuels (Biodiesel or ethanol).

- Using vehicles with greenhouse gas emissions ratings of a minimum of 7.5 for passenger vehicles and 6 for light commercial vehicles, as described in the Green Vehicle Guide (www.greenvehicleguide.gov.au).

Reducing Greenhouse Gas Emissions from Electricity Consumption

Mitigation options to reduce energy consumption and greenhouse gas emissions from electricity consumption include:

- Specifying the use of grid-sourced renewable energy supply.
- Increasing solar access availability. Work areas should be located away from the western side of the development where utility areas such as toilets and showers should be located.
- Utility areas should be naturally ventilated where possible, and if possible be designed to provide good cross-flow potential.
- Light switches will be located at room exits to encourage switching lights off when leaving a room. Separate switches will be installed for special purpose lighting.
- Motion detectors should be used for externally lit non-critical areas.
- The option to use compact fluorescent bulbs is proposed.
- Hot water is likely to be required for tea making and showering facilities. Electric storage hot water systems are the least efficient hot water systems. Instantaneous hot water, solar hot water with an electric boost or gas hot water should be considered.
- Installation of energy saving appliances.

4.5 Visual Impacts

The catchment from where the Site can be seen is limited due largely to the topography of the Site and its surrounding area. The activity on the Site is not visible from the residential development to the west of Campbelltown Road. It is, however, possible to obtain limited views to the Site from the industrial development in the locality.

From all of the vantage points the view is to the Minto Industrial Area. Any development on the Site as proposed would be seen as part of the industrial vista provided by the varied industrial development in the Minto Industrial Area.

All machinery associated with the proposed development is to be located within purpose built buildings and the stockpiles of unprocessed and processed materials would be screened from the majority of the adjoining industrial development through side boundary walls and landscaping.

In light of the above, it is concluded that there would be no visual impact associated with the proposed development.

4.6 Traffic Impact

The industrial precinct of Minto, and in particular the road network, is an approved B-Double route with access from Ben Lomond Road to the north, Pembroke Road to the east or Rose Payten Drive to the south of the Site.

Within the vicinity of the Site, the following controls are in place:

- Priority controlled junction of Montore Road / Airds Road.
- Roundabout intersection of Airds Road / Ben Lomond Road.
- Roundabout intersection of Ben Lomond Road / Pembroke Road.
- Signalised intersection of Rose Payten Drive / Pembroke Road / Smith Creek Bypass.
- Signalised junction of Rose Payten Drive / Campbelltown Road.

There are numerous public transport networks surrounding the industrial precinct of Minto. Minto Railway Station is approximately 1km walking distance to the north, and Leumeah Railway Station is 3km to the south. Both stations are on the South Line, Cumberland Line and Airport and East Hills Line.

Public bus networks service Minto station, however, no service runs along Airds Road which would be a key link to the Site which suggests only a low percentage of staff and visitors to the proposed development will utilise public transport.

The Site will have access for vehicles up to and including 19m semi-trailers which will adhere to the following requirements:

- Provision will be made for all loading and unloading to take place wholly within the designated loading area.
- No loading or unloading will be carried out across parking spaces, landscaped areas, pedestrian aisles or on roadways.

Traffic generation associated with the proposed Resource Recovery Facility is based on the annual production (50-week year), truck capacities and expected daily input and output of materials.

In addition to the above, it is estimated that 1 fuel delivery truck would access the Site per week to replenish the on-site fuel storage tank.

The total number of daily truck trips (entering and exiting the Site) will be 342 on any given weekday.

The morning peak period occurs between 8:00am and 10:00am with a total of 88 truck trips.

The afternoon peak period will occur between 12:00pm and 2:00pm with a total of 63 truck trips.

For the purpose of analysis, and as a worst-case scenario, peak hour rates of 44 vehicle trips for the AM (18 inbound and 26 outbound) and 32 for the PM (19 inbound and 13 outbound) been adopted.

Staff vehicle trips will occur predominately outside operating hours.

The traffic assignment for the proposed development and associated vehicle trips will be similar to that described below:

Inbound 90% from the north feeding from the M5 and M7.

10% will travel from the local streets in the precinct.

Outbound 30% of outbound trips will travel to the north.

30% will travel to the south.

30% will travel to the west.

10% will travel throughout the local streets.

The masses of the trucks are expected to be:

- All empty vehicles will be less than 32-tonnes.
- 45% of full trucks will be greater than 40-tonnes.
- 55% of full trucks will be less than 32-tonnes.

All traffic will ingress and egress via one existing entry / exit driveway from Montore Road. The car parking design complies with the relevant Australian Standards, with the clockwise internal circulation the most practicable and safest operation.

The proposed development will operate with a capacity of 1,600t per day, generating a total of 342 vehicle trips during the day which includes a morning peak hour generation of 44 vehicle trips, with 32 vehicle trips in the afternoon peak hour. Analysis shows the surrounding road network can adequately cater for the additional traffic generated.

The haulage routes will predominantly favour the approaches from Ben Lomond Road to the north and Rose Payten Drive to the south, both of which are approved B-Double routes.

To reduce impacts on local residents, drivers of laden heavy vehicles will be required under an Operational Plan of Management and Driver Code of Conduct to follow the routes to avoid Raby Road between Campbelltown Road and Eagle Vale Drive.

4.7 Water Quality, Flooding and Stormwater Drainage

Soil and Water Management

The objectives of the Site Soil and Water Management Plan are to:

- Develop a stormwater management system to prevent potential offsite water quality and quantity impacts.

- Develop a stormwater reuse system.
- Demonstrate compliance with relevant Water Sharing Plans.
- Provide an impact assessment of the proposed development on the adjacent Bow Bowing Creek environment.
- Provide an assessment of predicted wastewater loads.
- Assess groundwater impacts.

A concept sediment basin design has been developed for the proposed resource recovery facility:

- The Site is graded to direct all surface runoff to site basins prior to reuse or discharge from the Site to meet water quality objectives. The driveway and the entry section of the carpark are excluded from capture.
- Sedimentation basins are located in the north and south of the Site. Both basins are below ground concrete pits.
- A floating pump will be located in each basin for extraction of clean water to on-site tanks for reuse in dust suppression and sand washing.
- Detailed design of the proposed basins is to be undertaken in accordance with Landcom (2004) during the construction certificate stage.

The sediment basins will be managed by pumping the collected rainfall runoff to on-site holding tanks. If all storage tanks are full and water remains in the sedimentation basin, water will be monitored to ensure water quality objectives are met prior to discharging Bow Bowing Creek.

Emergency overflow weirs are provided in the earth bund along the western portion of the Site for the controlled release of ponded water from the Site in the rare case of site pit or pipe blockage.

The water quality monitoring system will be:

- A site calibrated 50ppm water sample kept on-site.
- In the event that water needs to be discharged from the basin, a water sample will be taken daily from the basin settling zone.
- Water samples will be compared to the calibrated sample.
- Discharge may occur from the basin once water samples match the calibrated sample (i.e. water quality objectives have been achieved).
- The calibrated water sample will be re-calibrated every 12 months by laboratory analysis for total suspended solids to ensure accuracy.

The objective for stormwater quality is:

- To ensure adequate site drainage is provided by the concept drainage design.

The proposed pit and pipe network is as follows:

- A large portion of stormwater runoff from the Site will be directed to two (2) sedimentation basins located in the north and south of the Site.
- Water from each basin is pumped to storage tanks via floating pumps.
- Once the storage tanks are full, pumping ceases and water collects in the sedimentation basins. Water stored in tanks will be used for dust suppression and sand washing.
- An overflow pit is located within each sedimentation basin. In the northern basin, overflow from sedimentation basin will discharge into the overflow pit during the minor and major storm event, prior to discharging to Bow Bowing Creek. In the southern basin, flows will discharge to the overflow pit during the minor storm event. Once the pipe capacity is exceeded, water will overtop the basin and discharge to Bow Bowing Creek via the emergency overflow weir.
- Runoff from the driveway and the entry section of the car park will be captured by the proposed pit and pipe network and discharge to Council's kerb and gutter system.
- Runoff from vegetated batters discharge directly to Bow Bowing Creek.

In summary water demands to be supplied by stormwater reuse are:

- Winter dust suppression - 51 kL/day;
- Summer dust suppression – 126 kL/day;
- Sand washing – 75 kL/day.
- Toilet flushing – 0.3 kL/day.

Dust suppression and sand washing demands will be satisfied through reuse of stormwater runoff sourced from 200 kL sedimentation basins.

Captured runoff will be transferred to storage tanks for use on demand.

Approximately 520 kL of tank storage will be available on-site to provide 2 days of operational demand (based on 6 operational days per week) for dust suppression and 5 operational days per week for sand washing.

Water demand for toilet flushing will be supplied from a 5 kL roof water tank adjacent to the workshop building.

The site water management and reuse system is summarised as follows:

- Stormwater from the roofs and hardstand areas is to be collected and stored for dust suppression via sprinklers and water cart and sand washing.

- Rainwater from the workshop building roof is to be collected and stored in rainwater tank/s and used for toilet flushing.

- Town water will be used for potable uses and to supplement other supplies as required.

The hierarchy of water usage for dust suppression, sand washing and toilet flushing by source is as follows:

1. Captured site stormwater.

2. Reticulated town water supply.

Bow Bowing Creek is a major tributary of Bunbury Curran Creek which joins the Georges River approximately 10km north east of the Site. Aside from its headwaters, the creek channel is concrete lined to its confluence with Bunbury Curran Creek.

In the vicinity of the Site, this concrete channel is approximately 300mm deep and approximately 3.5m wide.

Downstream of the headwaters, the riparian corridor is either absent with industrial development on the right and left bank of the concrete channel or consists of grassed batters of approximately 20m either side of the channel.

Screen planting along industrial lot boundaries is typical as seen at the Site.

Stormwater from industrial areas is discharged to the creek at numerous locations via stormwater pipes with concrete lined flow paths.

Flooding

The Site is within the catchment of the 1 in 100 year flood event. In order to ascertain the potential impact of the proposed development on the flood regime of the catchment, Martens & Associates has prepared a report titled *Preliminary Flood Assessment: Minto Resource Recovery Facility 7 Montore Road, Minto, NSW* (**the Flood Report**) a copy of which is at **Appendix 19**.

The objectives of the Flood Report are to:

- Prepare an hydrologic model (**RAFTS**) for the Site to determine the peak flow of the 1% annual exceedance probability (**AEP**) flood.

- Prepare an hydraulic model (**TUFLOW**) for the Site under existing and proposed conditions and calibrate to available flood data.

- Prepare relevant flood maps including flood extents, depths, levels, velocities, hazards and impacts.

- Comment on flood characteristics and model outcomes in existing and proposed conditions.

The catchment upstream of the Site comprises:

- The Site is located within the Bow Bowing Bunbury Curran (**BBBC**) Creek catchment.
- The Site is located on the banks of the Bow Bowing Creek.
- The upstream catchment is primarily urban residential and rural landscape areas, with some industrial areas, and includes the suburbs of Minto, Kentlyn, Leumeah, Ruse, Kentlyn, Airds, Bradbury, Campbelltown, Englorie Park, Ambarvale, Glen Alpine, Menangle Park, Gilead, Mount Annan, Blair Athol, Blairmount, Gregory Hills, Claymore, Woodbine, Eagle Vale, Eschol Park, Kearns, Raby and St Andrews.
- The total catchment area is approximately 4,110 ha.

The Flood Report notes the following regarding modelled flood behaviour:

Existing Conditions

1. The majority of the Site is elevated above the 1% AEP flood level and thus is flood free. A small portion of areas along the western boundary of the Site which slopes down to Bow Bowing Creek is affected by flood waters from the creek.
2. Along the southern boundary, the Site slopes down to the drainage easement on Nos.26 and 27 Pembury Road. The easement is affected by flood waters from the creek as well as local overland flow with depths of up to 780mm.
3. Along the northern boundary of the Site, the Site slopes down to the footpath connecting Bow Bowing Creek and Montore Road. The 1% AEP flood water is contained on the footpath and turning head of Montore Road outside of the Site with depths of up to 900mm. The Site entrance is inundated by flood waters of up to 500mm.
4. The 1% AEP flood levels range from 43.12m AHD to 42.60m AHD from the south-western corner of the Site to the north-western corner of the Site.
5. Flood velocities on-site are generally low, below 1.0 m/s in the 1% AEP event.
6. Hydraulic hazards on-site in the 1% AEP flood event are all low, with the exception of an approximately 20m^2 area on the western end of the Site due to a 1.5m drop in the grid elevation at that location.

Proposed Conditions

1. Proposed flood characteristics are largely consistent with existing conditions, and differences due to the proposed development are negligible.
2. The western and southern portion of the Site has been elevated which renders the Site completely flood free from Bow Bowing Creek in the 1% AEP event.
3. There is some flood affectation on the northern end of the driveway ramp due to flood water ponding up in the turning head on Montore Road. The flood water reaches depths of up to 500mm which is largely unchanged from the existing condition.

4. The 1% AEP hydraulic hazard at the entrance is low hazard.

5. Council requires a minimum freeboard of 500mm above the predicted 1% AEP flood level for industrial areas in relation to any creek or major stormwater line. The 1% AEP flood level is 43.12m AHD at the south-western boundary and 42.60m AHD at the north-western boundary. The proposed earthworks raises the Site to be 1.0m to 1.5m above the 1% AEP flood level in Bow Bowing Creek, and, therefore, complies with Council freeboard controls.

Offsite Flood Impacts

1. The proposed development has negligible changes to flows and water levels in Bow Bowing Creek in the 1% AEP flood event.

2. The proposed filling of the Site has minor off-site impacts of up to 70mm, however, they are contained to a small area within the drainage easement south of the Site. These impacts are considered to be immaterial as they are contained within the drainage easement which are designated as overland flow paths and are unlikely to represent an increased risk to people or property, thus, they are considered acceptable.

3. Along the southern boundary of the Site, the proposed upgrade of the pipe in the easement on the southern adjacent property has effectively accommodated the swale capacity lost due to the proposed retaining wall and earthworks at the Site boundary. Without the pipe upgrade, offsite impacts on water levels to the south of the Site would occur.

4.8 Groundwater

A review of NSW government public record revealed there are no bores within close proximity to the Site, and situated at a comparable topographic location, with groundwater data or standing water level information.

In order to assess the impact of the proposed development on groundwater, a local groundwater level is assumed at the Bow Bowing Creek channel invert (approximately 39.3m AHD). Groundwater gradient is assumed to reflect the local surface gradient of approximately 2%.

A conceptual groundwater model has been developed. Groundwater level of 39.3mAHD being channel invert level of Bow Bowing Creek is assumed with groundwater gradient expected to reflect the local surface gradient of approximately 2%.

No element of the proposed development will intercept the groundwater table and no groundwater extraction is proposed.

Measures are proposed to ensure surface operations do not result in contamination of underlying groundwater. The proposed development will have a negligible impact on groundwater as:

- The proposed sedimentation basins do not intercept the anticipated site groundwater table.

- The highly compacted nature of the Site surface will limit infiltration across the Site and

prevent significant drainage to groundwater. It is, therefore, assumed that there will be no negative impacts regarding acid sulphate soils or salinity.

- Site operation will not introduce significant potential contaminants to the Site. The primary site "pollutant" is sediment, which poses no risk to groundwater. Other possible pollutants include fuel and lubricants associated with site equipment. Standard practice management and maintenance of equipment, fuel and lubricant storage will achieve appropriate protection of local groundwater, including spill kits, use of bunding, procedures and trainings to contain pollutants in line with the recommendations of AS1940B1993 and AS4452B1997 as required by NSW EPA.

- There will be some areas of significant difference between the existing and proposed landform, but generally excavation and grading is within -0.75 to +0.75 m from existing levels. Apart from the excavations for the proposed sedimentation basins (approximately 2m deep), no significant excavation is proposed.

4.9 Flora and fauna

The NSW Government has developed a NSW Biodiversity Offsets Policy for Major Projects (**the Policy**). Major projects include State Significant Development and State Significant Infrastructure.

The policy:

(a) Establishes a set of offsetting principles for Major Projects.

(b) Defines key thresholds for when offsetting is required.

(c) Adopts an assessment methodology to quantify and describe the offset required.

(d) Defines mechanisms required to establish offset sites.

(e) Provides a range of flexible options which can be used in lieu of providing offsets, including rehabilitation actions and supplementary measures.

The Framework for Biodiversity Assessment (**FBA**) underpins the Policy. It contains the assessment methodology which is adopted by the Policy to quantify and describe the impact assessment requirements and offset guidance which apply to Major Projects.

A list of flora species detected at the Site is provided in Appendix A of the AES Report at **Appendix 9**. No threatened flora species were found at the Site.

Under the *Biosecurity Act 2015*:

> *"all plants are regulated with a general biosecurity duty to prevent, eliminate or minimise any biosecurity risk they may pose. Any person who deals with any plant, who knows (or ought to know) of any biosecurity risk, has a duty to ensure the risk is prevented, eliminated or minimised, so far as is reasonably practicable."*

Of those species recorded, the following are priority weeds in the Greater Sydney Area:

- African Olive (*Olea europaea subsp cuspidata*)
- Chilean Needle Grass (*Nassella neesiana*)
- Cape Broom (*Genista monspessulana*)
- Fireweed (*Senecio madagascariensis*).

In the core infestation area of African Olive (which includes the Campbelltown LGA), land managers have a duty under the Act to prevent spread from their land where feasible and reduce impacts from the plant on priority assets. The plants on Site would be removed as part of the redevelopment of the Site.

No fauna species listed as threatened on the *TSC Act* or the *EPBC Act* were detected during the survey.

Under **Section 7.9** of the *Biodiversity Conservation Act 1999*, an application for development consent under **Part 4** of the *Environmental Planning and Assessment Act 1979* for State Significant Development is to be accompanied by a Biodiversity Development Assessment Report (**BDAR**) unless the Planning Agency Head and the Environment Agency Head determine that the proposed development is not likely to have any significant impact on biodiversity values.

The proposed Resource Recovery Facility is not likely to have a significant effect on biodiversity values. An application for a BDAR waiver has been prepared in accordance with the requirements of NSW Department of Planning and Environment *Biodiversity development assessment report waiver determinations for SSD and SSI applications 2018*. The BDAR waiver was granted in November 2019 a copy of which is attached to the AES Report at **Appendix 9**.

4.10 Aboriginal and Culture Heritage Impact

The *National Parks and Wildlife Act 1974* (**NPW Act**) provides statutory protection for Aboriginal objects by making it illegal to harm Aboriginal objects and Aboriginal places. The NPW Act provides two tiers of offence against which individuals or corporations who harm Aboriginal objects or Aboriginal places can be prosecuted. The NPW Act defines Aboriginal objects and Aboriginal places as:

> ***Aboriginal object*** *means any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains.*
>
> ***Aboriginal place*** *means any place declared to be an Aboriginal place under section 84.*

The Site has gone through an extensive stage of ground surface clearing and earthworks, significantly in 2013 and likely prior to 1961. The surrounding area has changed significantly with the development of industries within the area.

It is highly unlikely that Aboriginal objects have survived within the Site.

No Aboriginal sites were recorded within 200m of the Site.

A total of three (3) registered Aboriginal sites were located within the wider area. The closest sites were over 1.2km from the Site as described in the table below.

Site features	Total
Artefact (isolated)	2
Potential Archaeological Deposit (PAD) and Artefact	1
Total	**3**

Searches of the Australian World Heritage Database, the Commonwealth Heritage List, National Heritage List, State Heritage Register, State Heritage Inventory, the Campbelltown Local Environmental Plan 2015 and the Campbelltown Control Plan were conducted on the 27 February 2019.

The searches concluded that there are no recorded historic or Aboriginal heritage items within the Site and that the Site does not fall within the visual catchment of any nearby heritage items.

4.11 Waste Impact

Site Preparatory Works

Minimal earthworks would be required to achieve a level site for the proposed development. The site works would include cut and fill of a small part of the Site to reach the desired finished level.

The Construction Site Manager will identify opportunities for waste avoidance.

Site Operation

Operation of the Site has the potential to generate the following waste:

- Office wastes.
- Packaging wastes (i.e. cardboard, paper, plastic / shrink wrap, pallets).
- Amenity wastes.
- Maintenance wastes.

Waste Avoidance

Waste avoidance measures may include:

- Avoiding printing where ever possible.
- Printing double sided to avoid paper and printer toner / ink cartridge wastes.
- Providing ceramic cups, mugs, crockery and cutlery rather than disposable items in kitchen and staff common areas.
- Purchasing consumables in bulk to avoid unnecessary packaging.

Re-use

Establish systems to transport products in re-useable packaging where possible.

Recycling

Recycling opportunities include:

- Paper recycling trays provided in office areas for scrap paper collection and recycling.
- Printer toners/ink cartridges collected in allocated bins for appropriate contractor recycling.
- Development of purchasing policy to include purchase of recycled products.
- Providing recycling collections within each of the offices (e.g. plastics, cans and glass and also paper and cardboard if not collected separately).
- The office and amenities will have its own waste and recycling storage area where the recycling and garbage bins will be stored prior to collection.

4.12 Hazard and Risk Assessment

The proposed Resource Recovery Facility has a number of potentially hazardous operations including:

- Re-fuelling of plant and equipment.
- Potentially contaminated run-off.
- Equipment, raw material and product fires.
- Acoustic and air quality impacts.

These operations have the potential to impact off-site or cause impact at the adjacent properties.

The proposed development is not a *Hazardous Industry*, *Potentially Hazardous Industry* or *Hazardous Storage Establishment* as defined in SEPP 33 as it would not pose a significant risk in relation to the locality to human health, life or property, or to the biophysical environment.

The proposed development is, however, *Potentially Offensive Industry*.

The following potential hazards would exist on the Site as part of the proposed development:

- the storage and handling of dangerous goods.
- contaminated runoff.
- refuelling of plant and equipment.
- contaminated material deliveries.

Materials stored and handled at the proposed development include mobile plant which would be used at the proposed development including front end loaders and excavators. Diesel is to be stored in a 30,000 L purpose designed storage tank which is self bunding.

The Site processes waste materials which could contain contaminants. Rainwater impacting the Site could become contaminated by the materials stored in the open areas of the Site. Rainwater runoff could, therefore, cause damage to the biophysical environment adjacent to the proposed development. Release of potentially contaminated water could result in impact to these sensitive areas. To mitigate this potential, a Soil and Water Management Plan has been prepared, details of which are provided in **Part 9**. The Soil and Water Management Plan is copied as **Appendix 5**.

There is potential for leachate being produced from the operation of the facility.

Management measures

Pollutants which could potentially originate from the facility include suspended solids in site runoff, and oil, fuel or chemicals used on the Site.

The main source of potential water contamination is hydrocarbons from fuels and oils used by the plant on the Site. The risk of hydrocarbons entering the water system will be minimised by restricting all plant and vehicle repair and maintenance to the designated workshop area. Bunding will be constructed around the workshop area to contain any leaks or spills and divert clean water around the Site. Refuelling is restricted to within the designated area.

Any spill or leaks are dealt with as per the Spill and Leaks Procedure. Waste and contaminated material is removed off- Site by a licenced waste contractor. Visual inspections of the workshop area and refuelling area will be undertaken to ensure bunding and other controls are adequate. Regular inspections will also assist in identifying potential risks to the environment.

Water collected in the sump will be tested prior to discharge for targeted analytes and either discharged through the normal water management system or other treatment or disposal options will be investigated.

The proposed development would operate with a number of internal combustion engine powered components (e.g. front end loaders, excavators etc). This equipment would require periodical refuelling. During the refuelling operation, there is a potential for fuel leaks and spills to occur from split or failed hoses, overfill of the truck/equipment or tanker/vehicle tank failure. A dedicated refuelling procedure would be established for mobile plant, and when such plant is refuelled.

The waste to be received at the Site would be limited to that which the EPA Licence for the Site permits. Visual inspections of waste as it arrives at the Site would be undertaken and any contaminated waste would be returned to the delivery truck and removed from the Site.

The proposed development has been designed such that the vast majority of materials delivered to the Site are recycled. Approximately 5% of the material delivered to the Site is material which cannot be recycled and that waste would be transported to recyclers or to landfill.

4.13 Commitments

Camolaw Pty Ltd is committed to the following objectives:

- To provide a long term, fully licensed Resource Recovery Facility capable of recycling mixed Construction and Demolition (**C&D**) waste.

- To protect the health and safety of site workers and the general public, and ensure business viability by compliance with relevant legislation, standards and regulating authorities.

- To ensure site operations do not significantly impact the potential environmental receptors and comply with the following environmental legislation:

  - the *Environmental Planning and Assessment Act 1979*, and

  - the *Protection of the Environment Operations Act 1997*.

- To encourage and facilitate community participation in the recycling of construction and demolition waste.

- To protect the surrounding environment through the implementation and management of environmental controls and contingency measures.

- To operate the Resource Recovery Facility in a manner which is sympathetic to the amenity of the area in which it is located.

The development will be undertaken in accordance with the Environmental Impact Statement including accompanying Appendices.

The development will be undertaken in accordance with the following drawings:

- Drawings prepared by Martens and Associates Pty Ltd as contained in **Appendix 4** of the EIS.

- Landscape plans prepared by Conzept Landscape Architects in **Appendix 18**.

- Plans prepared by Macarthur Design & Drafting in **Appendix 4**.

- Plan prepare by Optima X Prime in **Appendix 4**.

Camolaw Pty Ltd will develop a program of informing both the NSW Department of Planning, Industry and Environment and Council of construction staging and operation of the Resource Recovery Facility throughout the development process.

Camolaw Pty Ltd will obtain the necessary approvals and permits to undertake both construction and operation of the Resource Recovery Facility.

A copy of the approved and certified plans, specifications and documents, including conditions of approval will be kept on the Site at all times.

All building works will be carried out in accordance with the Building Code of Australia.

Environmental Management Plan

An Environmental Management Plan (**EMP**) will be developed for both the construction and operation stages of the Resource Recovery Facility.

The key principles of the EMP will be to provide:

- An environmental management tool for the construction and operation of the proposed Resource Recovery Facility.
- A means of identifying baselines for monitoring the impact of the Resource Recovery Facility.
- An outline of reporting requirements associated with the Resource Recovery Facility.
- The processes for interaction between Camolaw Pty Ltd and the relevant government authorities.
- The means by which compliance with the Secretary's requirements and the requirements of the Environmental Protection Licence will be achieved.

The EMP will contain sub-sections which will provide details of the management of the Resource Recovery Facility to minimise potential impacts discussed in the EIS. Sub-sections of the EMP will include:

- Induction and Training.
- An Erosion and Sediment Control Plan which will cover both establishment and operation of the facility.
- A Construction and Operational Noise Management Plan which will detail measures to minimise acoustic impact during establishment and operation of the facility.
- An Air Quality Management Plan which will detail measures to be employed to minimise air quality impacts during both establishment and operation of the facility.
- A Waste Management Plan.
- A Stormwater Management Plan.
- A Traffic Management Plan.
- A Complaints Register.
- A Hazard Reduction Plan.
- A remedial Action Plan.

5. CONCLUSION

Consultation with the Secretary of the Department of Planning and Environment has resulted in a number of Key Issues being identified for assessment as part of the preparation of this Environmental Impact Statement.

This Environmental Impact Statement has, in accordance with the requirements of the Secretary, considered the likely impacts to the environment which might potentially result from the use of the Site as a Resource Recovery Facility.

It is concluded that the proposed development is an acceptable land use for the Site.

GLOSSARY OF TERMS AND ABBREVIATIONS

Commercial Waste	The component of the waste stream originating from wholesale, retail or service establishments.
Construction and Demolition Waste (general)	Bricks, concrete, masonry and steel reinforcement materials arising from demolition or construction work but does not include other materials such as plastics, paper, metals (other than steel reinforcement materials), timbers, organic wastes or wastes arising from refurbishment.
Construction and Demolition Waste (inert)	Brick, concrete, masonry, dirt, asphalt and ferrous/non-ferrous metals arising from demolition and construction work and requiring no further processing other than pulverising and separation of steel reinforcement prior to placement in a crushing circuit.
Construction and Demolition Waste (mixed)	Waste arising from refurbishment, demolition and construction work and includes bricks, concrete, masonry, dirt, tiles, gyprock, paper, ferrous/non-ferrous metals, timbers and organic wastes.
Commercial and Industrial Waste (General)	The solid component of the waste stream arising from commercial, industrial, government, public or domestic premises (not collected as Municipal Solid Waste), but does not contain Listed Waste, Hazardous Waste or Radioactive Waste.
Commercial and Industrial Waste (Listed)	The solid component of the waste stream arising from commercial, industrial, government, public or domestic premises (not collected as Municipal Solid Waste), that contains or consists of Listed Waste.
Consent Authority	The Minister for Planning and Environment.
Contaminants	In relation to a waste stream, any material that is not included in the definition or, if the stream is not defined, in the accepted meaning, of the waste stream in question.
Designated development	Section 4.10 of the Environmental Planning and Assessment Act 1979 states that *"Designated development is development that is declared to be designated development by an environmental planning instrument or the regulations."* Schedule 3 of the Environmental Planning and Assessment Regulation 2000 defines the type of development which is classified as designated development.
Green waste	The vegetative portion of the waste stream from domestic and commercial premises and municipal operations.
Industrial waste	The component of the waste stream arising from industrial processes and manufacturing operations.
Integrated development	Development which requires development consent and one or more of the approvals listed in Section 4.46 of the Environmental Planning and Assessment Act 1979.
Local Environmental Plan	Local Environmental Plans are planning documents prepared by a Council which detail the zoning of land and the type of development which is permitted with consent or prohibited in a particular zone. Controls on development are also provided.
Maximum Noise Level (LAmax)	The maximum noise level over a sample period is the maximum level, measured on fast response, during the sample period.
State Environmental Planning Policy	A planning instrument made by the State. State Environmental Planning Policies deal with issues of State significance.

The Site	Refers to the land upon which the proposed development is to take place.

ABL	The Assessment Background Level is the single figure background level representing each assessment period (daytime, evening and night time) for each day. It is determined by calculating the 10th percentile (lowest 10th percent) background level (LA_{90}) for each period.
BoM	Bureau of Meteorology
CEA	Clean Energy Act 2011
CEMP	Construction Environmental Management Plan
C&I	Commercial and Industrial Waste
C&D	Construction and Demolition Waste
CIV	Capital Investment Value
DP	Deposited Plan
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
EPBCA Act	Environment Protection and Biodiversity Conservation Act 1999
FEL	Front End Loader
FBA	Framework for Biodiversity Assessment
GHG	Greenhouse Gas
GLCs	Ground Level Concentrations
INP	Industrial Noise Policy
LA10	The LA_{10} level is the noise level which is exceeded for 10% of the sample period. During the sample period, the noise level is below the LA_{10} level for 90% of the time. The LA_{10} is a common noise descriptor for environmental noise and road traffic noise.
LA90	The LA_{90} level is the noise level which is exceeded for 90% of the sample period. During the sample period, the noise level is below the LA90 level for 10% of the time. This measure is commonly referred to as the background noise level.
LAeq	The equivalent continuous sound level (LA_{eq}) is the energy average of the varying noise over the sample period and is equivalent to the level of a constant noise which contains the same energy as the varying noise environment. This measure is also a common measure of environmental noise and road traffic noise.
LEP	Local Environmental Plan
OEMP	Operational Environmental Management Plan
OEH	NSW Office of Environment and Heritage
POEO Act	Protection of the Environment Operations Act 1997

RBL	The Rating Background Level for each period is the median value of the ABL values for the period over all of the days measured. There is therefore an RBL value for each period – daytime, evening and night time.
RCS	Respirable crystalline silica
RMS	NSW Roads and Maritime Services
SEARs	Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
SPL	Sound Pressure Level
tsp	Total Suspended Particles
vph	Vehicles per hour
vpd	Vehicles per day
WMP	Waste Management Plan

Part One

INTRODUCTION

1.1 Statement of the Proposal

This Environmental Assessment has been prepared on behalf of Camolaw Pty Ltd (**Camolaw**) in support of a State Significant Development Application.

Camolaw seeks the approval of the Minister for Planning to establish a Resource Recovery Facility at No.7 Montore Road, Minto (**the Site**).

Camolaw is a company fully owned and operated by Concrete Recyclers. Concrete Recyclers will be the company building and operating the Resource Recovery Facility.

Concrete Recyclers commenced business in 1988 and has grown to be Sydney's largest recycler of concrete and brick. Currently, Concrete Recyclers has recycling operations at the following locations:

- Camellia
- Kurnell
- Wetherill Park (contracting to Fairfield Council)
- Terrey Hills (Contracting to Northern Beaches Council).

Concrete Recyclers also operates a contract crushing business which utilises mobile crushing and screening plant which has been contracted to many NSW quarries and mining operations.

Work on government road and rail projects include the Pacific Highway widening, M2 widening, Hunter Expressway and SW rail corridor.

The objectives of the proposal are:

(a) To establish a commercially viable Resource Recovery Facility which is capable of recovering recyclable concrete, brick, asphalt, sandstone and sand from the waste stream for reuse.

(b) To assist the NSW State government in achieving its objectives for the recovery and recycling of waste as detailed in the *NSW Waste Avoidance and Resource Recovery Strategy 2014-2021*.

(c) To establish an environmentally responsible and sustainable industry which would create employment.

1.2 Description of the Site

The Site has an area of 2.35 hectares.

The legal description of the Site is:

Lot 52 , DP 618900
No.7 Montore Road
MINTO

Figure 1-1 shows the location of the Site.

The Site is located on the southern side of Montore Road to the west of the intersection of Montore Road with the Airds Road. An extract from an aerial photograph of the Site is at **Figure 1-2**.

Figure 1-3 shows an extract from the survey of the Site, a copy of which is at **Appendix 3**.

Figure 1-4 shows the cadastral details of the Site and surrounding lands.

Figure 1-5 in an extract from DP 618900.

Figure 1-6 shows distances to features in the locality of the Site.

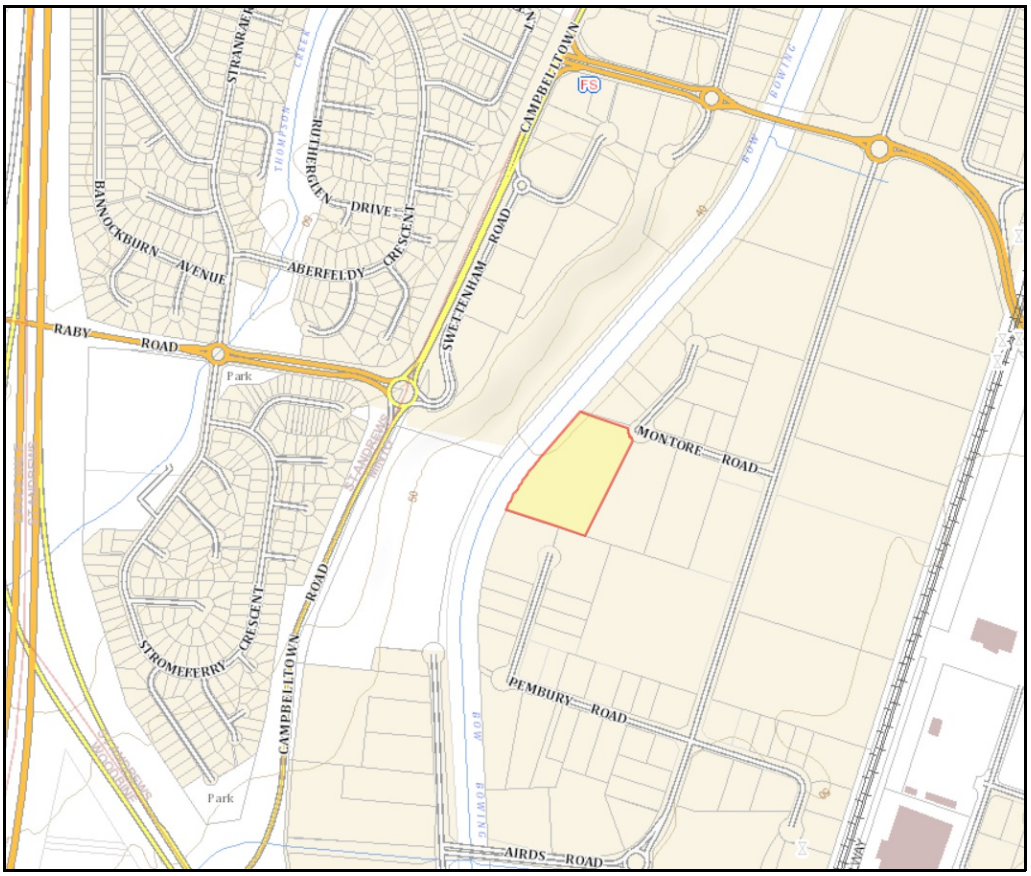


Figure 1-1: Site location map with the Site highlighted in yellow. © SIX Maps

Figure 1-2: Extract from an aerial photograph with the Site highlighted in yellow. © SIX Maps

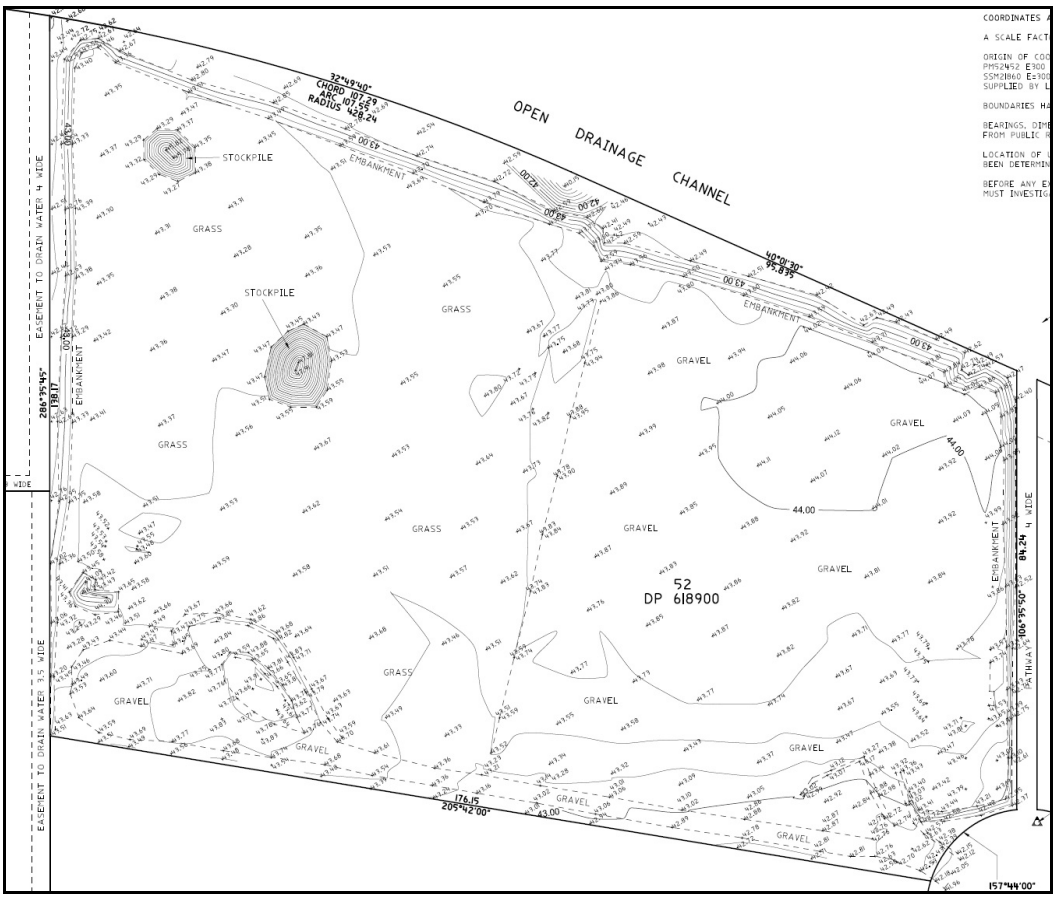


Figure 1-3: Extract from the detail survey of the Site (refer **Appendix 3**).

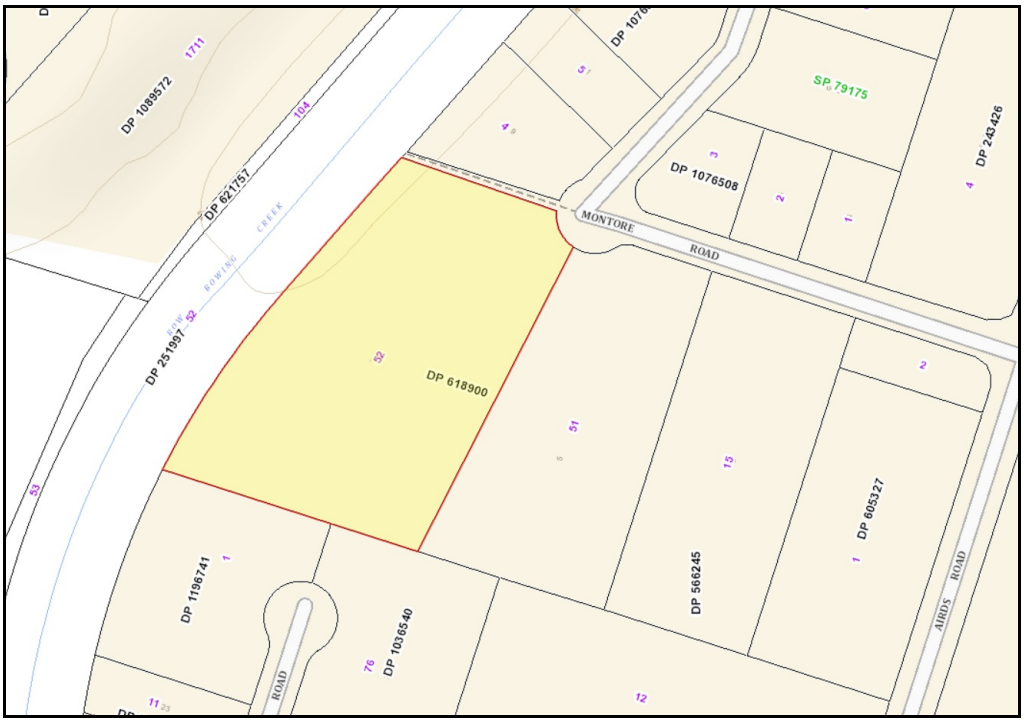


Figure 1-4: Cadastral details with the Site highlighted in yellow. © SIX Maps

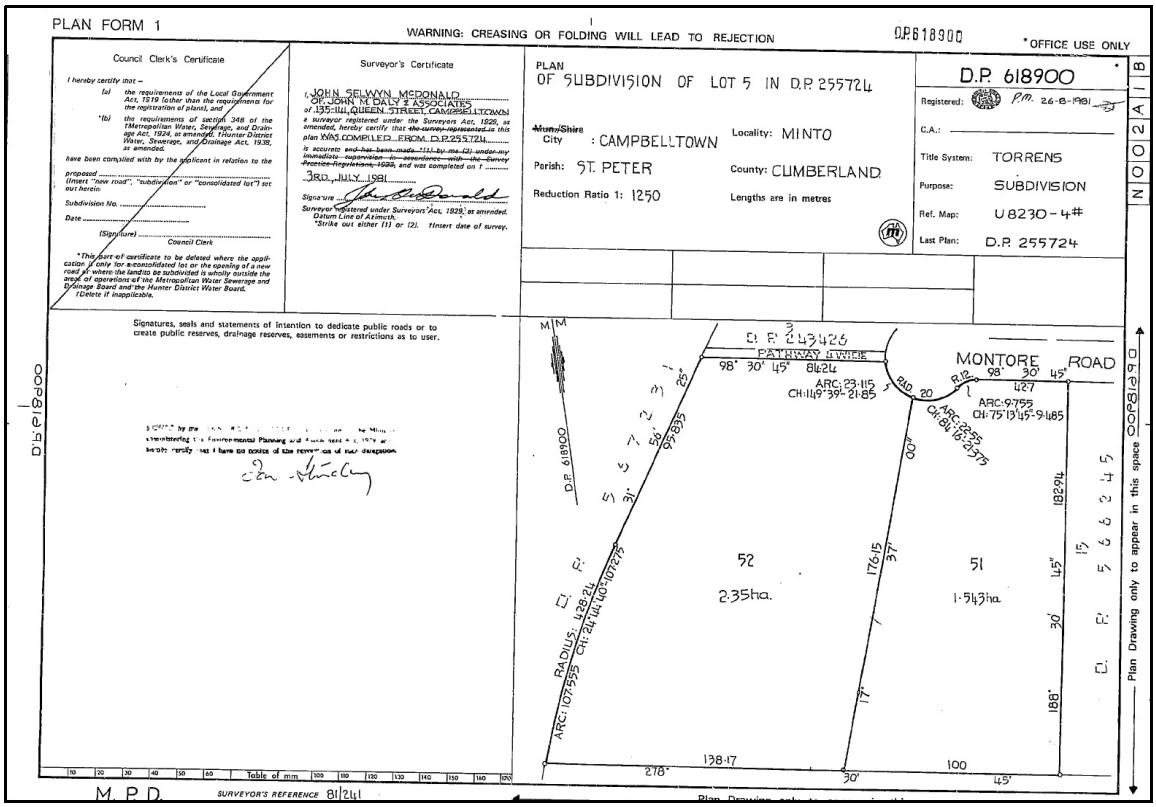


Figure 1-5: Extract from DP 618900.

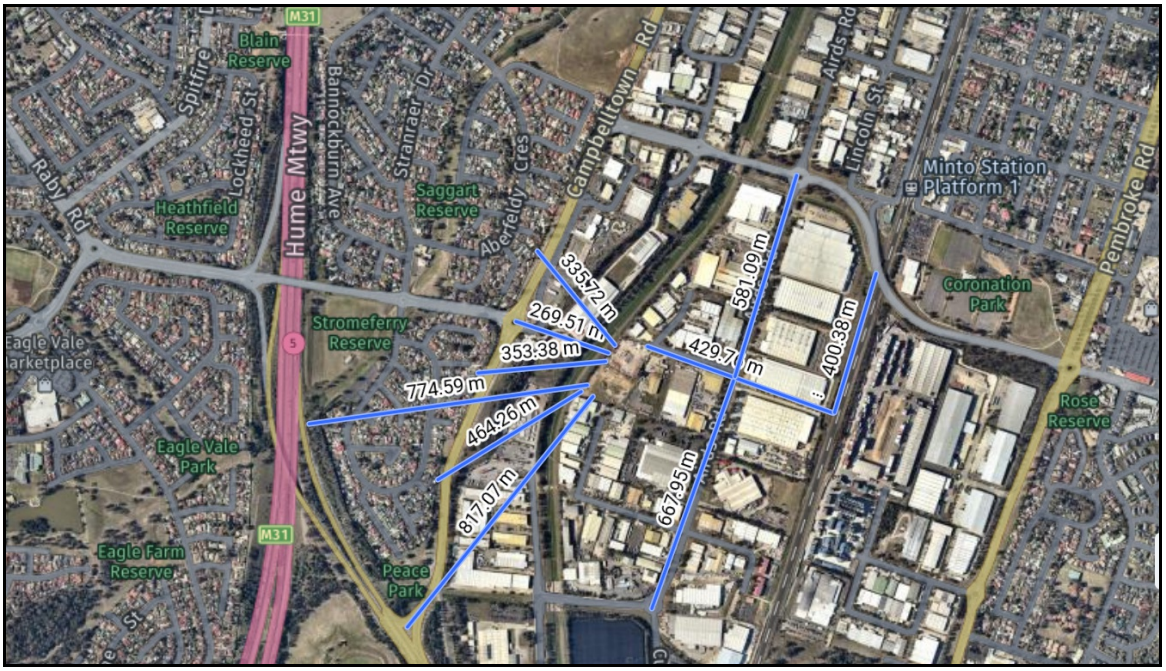


Figure 1-6: Aerial photograph showing distance from the Site to certain features in the locality. © NearMap

The following development is located either adjoining the Site or in the vicinity of the Site:

- Industrial and warehouse development with frontage to Montore Road.
- Bow Bowing Creek adjoining the Site to the west.
- Industrial development to the west of Bow Bowing Creek.
- Residential development to the west of the abovementioned industrial development and on the western side of Campbelltown Road.

Figure 1-7 is an extract from an aerial photograph of the Site and the immediate locality.

Numbers shown on **Figure 1-7** are detailed in **Table 1-1** which indicate the nature of the development in the immediate vicinity of the Site where that information is attainable.

Figure 1-7: Extract from an aerial photograph showing the surrounding land uses. Numbers referred to in the figure are described in the **Table 1-1** below.

Table 1-1: Details of the land uses in the locality of the Site.

Site Number	Land Use
1	Vacant industrial building
2	Industrial building - unidentified use
3	Industrial building - Austex Dies Phoenix
4	Industrial building - Chief Media Pty Ltd
5	Industrial building - Ingal Civil Products
6	Vacant land
7	Industrial building - unidentified user
8	Light industrial complex - 18 units
9	Industrial building - unidentified user

Site Number	Land Use
10	Industrial building - Crown Balloons
11	Industrial building - Circle-C Transformers
12	Industrial building - Impreglan Worldwide Quality Coatings
13	Industrial building - unidentified user
14	Industrial building - Rev Trans - transport and distribution
15	Industrial building - Rus Mining - rebuild machines and components
16	Industrial complex - Speed-e-gas
17	Foamco
18	Redox Chemicals
19	Unidentified contained storage yard

1.3 Operational History of the Site

A review of the site history information undertaken as part of the State Environmental Planning Policy 55 - Remediation of Land assessment of the Site has indicated the following:

1. The aerial photographs and land title records suggest that the Site has been used for a mixture of residential and commercial purposes from 1899 to the present day.

2. The historical business directories search did not identify any particular land uses within a buffer of 150m of the Site which were considered to have had the potential to result in contamination of the Site.

3. Council records indicate that consent was granted for the erection of a waste recycling depot on the Site in 1989 and for storage, processing, cutting, sawing and selling railway sleepers, timber and firewood in 1998.

4. A review of the SafeWork NSW records did not identify any licences to store dangerous goods on the Site.

5. NSW Environment Protection Authority records indicated that the Site was formerly licenced/regulated under the POEO Act for waste storage, transfer, separating or processing.

Figure 1-8 shows that the northern part of the Site is currently being used for storage of equipment by Coates Hire.

Figure 1-9 shows that the southern part of the Site is currently being used by the applicant to store a small amount of plant and equipment.

Figure 1-8: Extract from an aerial photograph showing the northern part of the Site. © NearMap

Figure 1-9: Extract from an aerial photograph showing the southern section of the Site. © NearMap

Coates Hire Section

There is approximately 7000m^2 of crushed concrete hardstand being used by Coates Hire to store large construction site equipment in between hire activities including items such as:

- Pumps
- Fans
- Shoring/propping
- Pipes

There is a maintenance structure on the northern end of the Site where some minor maintenance and checking of the returned items is completed. Adjacent to the maintenance structure there is a site office and amenities.

Concrete Recyclers Section

There is approximately 500m^2 of hardstand on the south eastern corner of the Site where Concrete Recyclers stores some long-term unused equipment. There are no activities performed on this equipment on site and it is accessed rarely.

A review of the Council files has determined the following history of the Site:

1. On 16 May 1989, a Development Application was lodged with Campbelltown City Council by M & C Pty Limited for:

   Construction and use of a waste recycling depot involving the delivery, sorting, treatment and storage of waste, including ancillary mechanical repairs and office uses.

   The Development Application was No.E3/89.

2. By letter dated 16 March 1990, Campbelltown City Council notified M & C Pty Limited that:

   The Development Application has been determined by the granting of Consent subject to conditions referred to in this Notice.

3. By letter dated 18 February 1993, Campbelltown City Council notified Appleyard, Forrest and Associates that Building Application No.B3157/91 Southern had been approved subject to conditions.

4. By letter dated 5 June 1998, Campbelltown City Council notified Mr S Vincent of Waste Drive that, among things:

   Development Consent E3/89 was granted approval by Council on 6 March 1990 for the erection of a waste recycling depot. A Building Approval was granted by Council for the construction of the buildings on the site on 18 February 1993.

   The development was commenced by construction of footings, however the works has never proceeded past this level.

5. Pursuant to Section 55 of the *Protection of the Environment Operations Act 1997*, Licence No.4615 was issued for the operation of the approved development. Licence 4516 was surrendered subject to conditions by notice 1011398 on 19 October 2001.

A copy of all of the above documents is provided as **Appendix 16**.

1.4 Land Tenure

The Site is owned by Camolaw Pty Ltd. A copy of the Title search for the Site is contained as **Appendix 12**.

1.5 Need for an Environmental Impact Statement

Pursuant to **Schedule 3** of the *Environmental Planning and Assessment Regulation 2000* (**the Regulation**), the proposed development is Designated Development being *Crushing, grinding or separating works* which are defined as:

Crushing, grinding or separating works

(1) Crushing, grinding or separating works, being works that process materials (such as sand, gravel, rock or minerals) or materials for recycling or reuse (such as slag, road base, concrete, bricks, tiles, bituminous material, metal or timber) by crushing, grinding or separating into different sizes:

(a) that have an intended processing capacity of more than 150 tonnes per day or 30,000 tonnes per year, or

(b) that are located:

(I) within 40 metres of a natural waterbody or wetland, or

(ii) within 250 metres of a residential zone or dwelling not associated with the development.

(2) This clause does not apply to development specifically referred to elsewhere in this Schedule.

Section 4.36 of the *Environmental Planning and Assessment Act 1979* deals with State Significant Development and states:

4.36 Development that is State significant development

(1) For the purposes of this Act, State significant development is development that is declared under this section to be State significant development.

(2) A State environmental planning policy may declare any development, or any class or description of development, to be State significant development.

(3) The Minister may, by order published in the Gazette, declare specified development on specified land that is not declared under subsection (2) to be State significant development, but only if the Minister has obtained and made publicly available advice from the Planning Assessment Commission about the State or regional planning significance of the development.

(4) A State environmental planning policy that declares State significant development may extend the provisions of the policy relating to that development to State significant development declared under subsection (3).

State Environmental Planning Policy (State and Regional Development) 2011 (**SEPP SRD**) has as its aims:

(a) to identify development that is State significant development,

(b) to identify development that is State significant infrastructure and critical State significant infrastructure,

(c) to confer functions on joint regional planning panels to determine development applications.

Clause 8 of SEPP SRD states:

8 Declaration of State significant development: section 4.36

(1) Development is declared to be State significant development for the purposes of the Act if:

(a) the development on the land concerned is, by the operation of an environmental planning instrument, not permissible without development consent under Part 4 of the Act, and

(b) the development is specified in Schedule 1 or 2.

(2) If a single proposed development the subject of one development application comprises development that is only partly State significant development declared under subclause (1), the remainder of the development is also declared to be State significant development, except for:

(a) so much of the remainder of the development as the Director-General determines is not sufficiently related to the State significant development, and

(b) coal seam gas development on or under land within a coal seam gas exclusion zone or land within a buffer zone (within the meaning of clause 9A of State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007), and

(c) development specified in Schedule 1 to State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007.

(3) This clause does not apply to development that was the subject of a certificate in force under clause 6C of State Environmental Planning Policy (Major Development) 2005 immediately before the commencement of this Policy.

Schedule 1 of SEPP SRD contains the following definition:

Waste and resource management facilities

(1) Development for the purpose of regional putrescible landfills or an extension to a regional putrescible landfill that:

(a) has a capacity to receive more than 75,000 tonnes per year of putrescible waste, or

(b) has a capacity to receive more than 650,000 tonnes of putrescible waste over the life of the site, or

(c) is located in an environmentally sensitive area of State significance.

(2) Development for the purpose of waste transfer stations in metropolitan areas of the Sydney region that handle more than 100,000 tonnes per year of waste.

(3) Development for the purpose of resource recovery or recycling facilities that handle more than 100,000 tonnes per year of waste.

(4) Development for the purpose of waste incineration that handles more than 1,000 tonnes per year of waste.

(5) Development for the purpose of hazardous waste facilities that transfer, store or dispose of solid or liquid waste classified in the Australian Dangerous Goods Code or medical, cytotoxic or quarantine waste that handles more than 1,000 tonnes per year of waste.

(6) Development for the purpose of any other liquid waste depot that treats, stores or disposes of industrial liquid waste and:

(a) handles more than 10,000 tonnes per year of liquid food or grease trap waste, or

(b) handles more than 1,000 tonnes per year of other aqueous or non-aqueous liquid industrial waste.

The proposed development would recycle more than 100,000 tonnes per annum of building and construction waste (approximately 450,000 tonnes per annum) and, as such, is a *State significant development* for the purposes of SEPP SRD. As such, an Environmental Impact Statement (**EIS**) is required to accompany the application for the proposed development.

1.6 Secretary's Environmental Assessment Requirements

The then Secretary of the Department of Planning and Environment has provided the requirements for the EIS. A copy of the Secretary's Requirements is at **Appendix 1**. A summary of the Secretary's Requirements is outlined in **Table 1-2** together with the relevant section of the EIS which addresses those matters.

Table 1-2: Summary of Secretary's Environmental Assessment Requirements

Issue	Summary of matters to be addressed in the EIS	Reference in EIS
Description of the Project	A detailed description of the project including: - need for the project. - justification for the proposed development. - likely staging of the development. - likely interactions between the development and existing, approved and proposed developments in the vicinity of the site. - plans of the proposed development. - an estimate of the jobs that will be created by the development during the construction and operational phases of the development.	Part 2, Part 17
Historical operations	A detailed description of the history of the site.	Part 1.3
Existing operations	A detailed description of existing and approved operations.	Part 1.3
Environmental Planning Instruments	Consideration of all relevant environmental planning instruments, including identification and justification of any inconsistencies with these instruments.	Part 3
Risk assessment	Risk assessment of the potential environmental impacts.	Part 11
Strategic context	- justification for the proposal and suitability of the site. - demonstration that the proposal is generally consistent with all relevant planning strategies, environmental planning instruments, and justification for any inconsistencies.	Part 3, Part 17
Waste management	- identify, classify and quantify the likely waste streams that would be handled/stored/disposed of at the facility. - describe how this waste would be treated, stored, used, disposed and handled on site, and transported to and from the site, and the potential impacts associated with these issues, including current and future offsite waste disposal methods. - details on the location and size of stockpiles of unprocessed and processed recycled waste at the site. - identify proposed sources of the waste. - the measures that would be implemented to ensure that the development is consistent with the aims, objectives and guidance in the NSW Waste Avoidance and Resource Recovery Strategy 2014-2021. - details of consistency with the EPA's Standards for	Part 2, Part 14, Appendix 4

		Managing Construction Waste in NSW (November 2018).	
Air quality and odour	-	a quantitative assessment of the potential air quality and odour impacts for the development on surrounding landowners and sensitive receptors.	Part 6, Appendix 7
	-	construction and operational impacts, including dust generation from the transport of materials.	
	-	details of the proposed management and monitoring measures.	
Traffic and transport	-	details of traffic types and volumes likely to be generated during construction and operation.	Part 10, Appendix 8
	-	plans demonstrating how all vehicles likely to be generated during construction and operation and awaiting loading, unloading or servicing can be accommodated on the site to avoid queuing in the street network.	
	-	an assessment of the predicted impacts of this traffic on the safety and capacity of the surrounding road network and a description of the measures that would be implemented to upgrade and/or maintain this network over time.	
	-	details of key transport routes, site access, internal roadways, infrastructure works and parking.	
	-	detailed plans of the proposed layout of the internal road network and parking on site in accordance with the relevant Australian standards.	
Noise and vibration	-	a quantitative assessment of the potential construction, operational and transport noise and vibration impacts.	Part 5, Appendix 6
	-	details of the proposed noise and vibration management and monitoring measures.	
Soil and water	-	a detailed water balance for the development outlining the measures that would be implemented to minimise the use of water on site and measures to ensure an adequate and secure water supply is available for the proposal.	Part 9, Appendix 5
	-	wastewater predictions, and the measures that would be implemented to treat, reuse and/or dispose of this water.	
	-	the proposed erosion and sediment controls during construction.	
	-	the proposed stormwater management system.	
	-	characterisation of water quality at the point of discharge to surface and/or groundwater against the relevant water quality criteria (including details of the contaminants of concern that may leach from waste into the wastewater and proposed mitigation measures to manage any impacts to receiving waters).	

	- an assessment of the potential impact of the development on Bow Bowing Creek and riparian areas. - consideration of the potential groundwater, salinity, contamination, flooding and acid sulfate soil impacts of the development.	
Fire and incident management	- identification of the aggregate quantities of combustible waste products to be stockpiled at any one time. - technical information on the environmental protection equipment to be installed on the premises such as air, water and noise controls, spill clean-up equipment and fire (including location of fire hydrants and water flow rates at the hydrant) management and containment measures. - details regarding the fire hydrant system and its minimum water supply capabilities appropriate to the site's largest stockpile fire load. - details of size and volume of stockpiles and their management and separation to minimise fire spread and facilitate emergency vehicle access. - consideration of consistency with NSW Fire & Rescue draft Fire Safety Guideline – Fire Safety in Waste Facilities (November 2018). - detailed information relating to the proposed structures addressing relevant levels of compliance with Volume One of the National Construction Code (NCC).	Part 11, Part 16
Greenhouse gas	- a quantitative assessment of the potential scope 1, 2 and 3 greenhouse gas emissions of the development, and a qualitative assessment of the potential impacts of these emissions on the environment. - a detailed description of the measure that would be implemented on site to ensure that the development is energy efficient.	Part 7, Appendix 10
Hazards	- including a Preliminary Hazard Analysis (PHA) of the development, and an assessment of the potential fire risks of the development.	Part 11
Visual	- an assessment of the potential visual impacts of the development on the amenity of the surrounding area. - a detailed description of the measures that would be implemented to minimise the visual impacts of the development, including the design features, landscaping and measures to minimise the lighting and signage impacts of the development as well as measures to manage graffiti.	Part 8
Heritage	- including Aboriginal and non-Aboriginal heritage.	Part 15, Appendix 17
Flora and fauna		Part 12, Appendix 9

Consultation	During the preparation of the EIS, you should consult with the relevant local, State and Commonwealth authorities, service providers, community groups and potentially affected landowners. In particular you must consult with: - Environment Protection Authority - Office of Environment and Heritage - Department of Primary Industries - NSW Roads and Maritime Service - Campbelltown City Council The EIS must describe the consultation process and the issues raised, and identify where the design of the development has been amended in response to these issues. Where amendments have not been made to address an issue, a short explanation should be provided.	Part 4, Appendix 2
A draft Statement of Commitments	Describe in detail how the environmental performance of the proposal would be monitored and managed over time.	Part 16
Capital Investment Value	A detailed calculation of the capital investment value (CIV) of the proposal as defined in clause 3 of the *Environmental Planning and Assessment Regulation 2000*, including details of all assumptions and components from which the CIV calculation is derived.	Appendix 11

1.7 Local Government, Government and Statutory Authority Consultation

In the preparation of this EIS, consultation was undertaken with:

- Campbelltown City Council.
- the NSW Office of Water.
- the NSW Department of Primary Industries.
- the NSW Office of Environmental and Heritage.
- the NSW Roads and Maritime Services.

Copies of the responses received are at **Appendix 2**.

1.8 Structure of the Environmental Impact Statement

The Environmental Impact Statement continues as follows:

Part 2 A description of the proposed development.

Part 3	The statutory planning controls which apply.
Part 4	Consultation undertaken.
Part 5	Acoustic impact assessment.
Part 6	Air quality impact assessment.
Part 7	Greenhouse Gas Assessment.
Part 8	Visual impact assessment.
Part 9	Water Quality Assessment.
Part 10	Traffic impact assessment.
Part 11	Hazard and Risk assessment.
Part 12	Flora and Fauna Impact Assessment.
Part 13	Site Contamination
Part 14	Waste Management Plan.
Part 15	Aboriginal and Cultural Heritage Assessment
Part 16	A draft Statement of Commitments.
Part 17	Justification of the proposed development and alternatives to that which is proposed.
Part 18	Conclusion to the Environmental Impact Statement.

1.9 Project Team

Nexus Environmental Planning	Town Planning and Project Management
McLaren Traffic Engineering	Traffic and Access
Martens and Associates Pty Ltd	Earthworks Design, Stormwater Management and Flooding
Wilkinson Murray Pty Ltd	Acoustics, Air Quality and Greenhouse Gas Emissions
Aquila Ecological Surveys	Flora and Fauna
Conzept Landscape Architects	Landscape Planning

Niche Environment and Heritage	Aboriginal and Cultural Heritage
EI Australia	Environmental Site Assessment and Remedial Action Plan
Environmental Investigation Services	Environmental Site Assessment

Part Two

THE PROPOSED DEVELOPMENT

2.1 Introduction

The NSW government and the NSW Environment Protection Authority has released the *NSW Waste Avoidance and Resource Recovery Strategy 2014-21* which states, among other things:

> *Effective waste management is a fundamental responsibility for the NSW community as well as the global community. Without it, we risk compromising our environment, our health and our economy.*
>
> *The NSW Waste Avoidance and Resource Recovery (WARR) Strategy 2014–21 is a key component of the Government's vision for the environmental, social and economic future of the state that will be supported financially by the Waste Less, Recycle More initiative.*
>
> *The primary goal of this strategy is to enable all of the NSW community to improve environment and community well-being by reducing the environmental impact of waste and using resources more efficiently.*
>
> *Using resources efficiently and keeping materials circulating in the productive economy can also help to create jobs and grow the NSW economy.*
>
> *WARR Strategy 2014–21 objectives and targets*
>
> ***Avoid and reduce waste generation***
>
> - *By 2021-22, reduce the rate of waste generation per capita.*
>
> ***Increase recycling***
>
> - *By 2021-22, increase recycling rates for:*
>   - *municipal solid waste from 52% (in 2010-11) to 70%*
>   - *commercial and industrial waste from 57% (in 2010-11) to 70%*
>   - *construction and demolition waste from 75% (in 2010-11) to 80%.*
>
> ***Divert more waste from landfill***
>
> - *By 2021-22, increase the waste diverted from landfill from 63% (in 2010-11) to 75%.*
>
> ***Manage problem wastes better***
>
> - *By 2021-22, establish or upgrade 86 drop-off facilities or services for managing household problem wastes statewide.*

Reduce litter

- *By 2016-17, reduce the number of litter items by 40% compared with 2011-12 levels and then continue to reduce litter items to 2021-22.*

Reduce illegal dumping

- *From 2013-14, implement the NSW Illegal Dumping Strategy 2014-16 to reduce the incidence of illegal dumping statewide.*

The proposed development would assist in achieving the above targets of the State government through the removal of concrete, brick, asphalt, sandstone and sand from the waste stream which might otherwise have been diverted to landfill.

2.2 The Proposed Resource Recovery Facility

It is proposed to establish a Resource Recovery Facility on the Site with intended capacity of 450,000 tonnes per annum.

The proposed facility would receive concrete, brick, asphalt, sandstone and sand from the building and construction industry as follows:

- Concrete and bricks would be sourced from the demolition industry. The maximum amount of processed material stored on the Site would be approximately 20,000 tonnes.
- Excavated sand would be sourced from sand extraction projects. The maximum amount of processed material stored on the Site would be approximately 5,000 tonnes.

Processed materials would include:

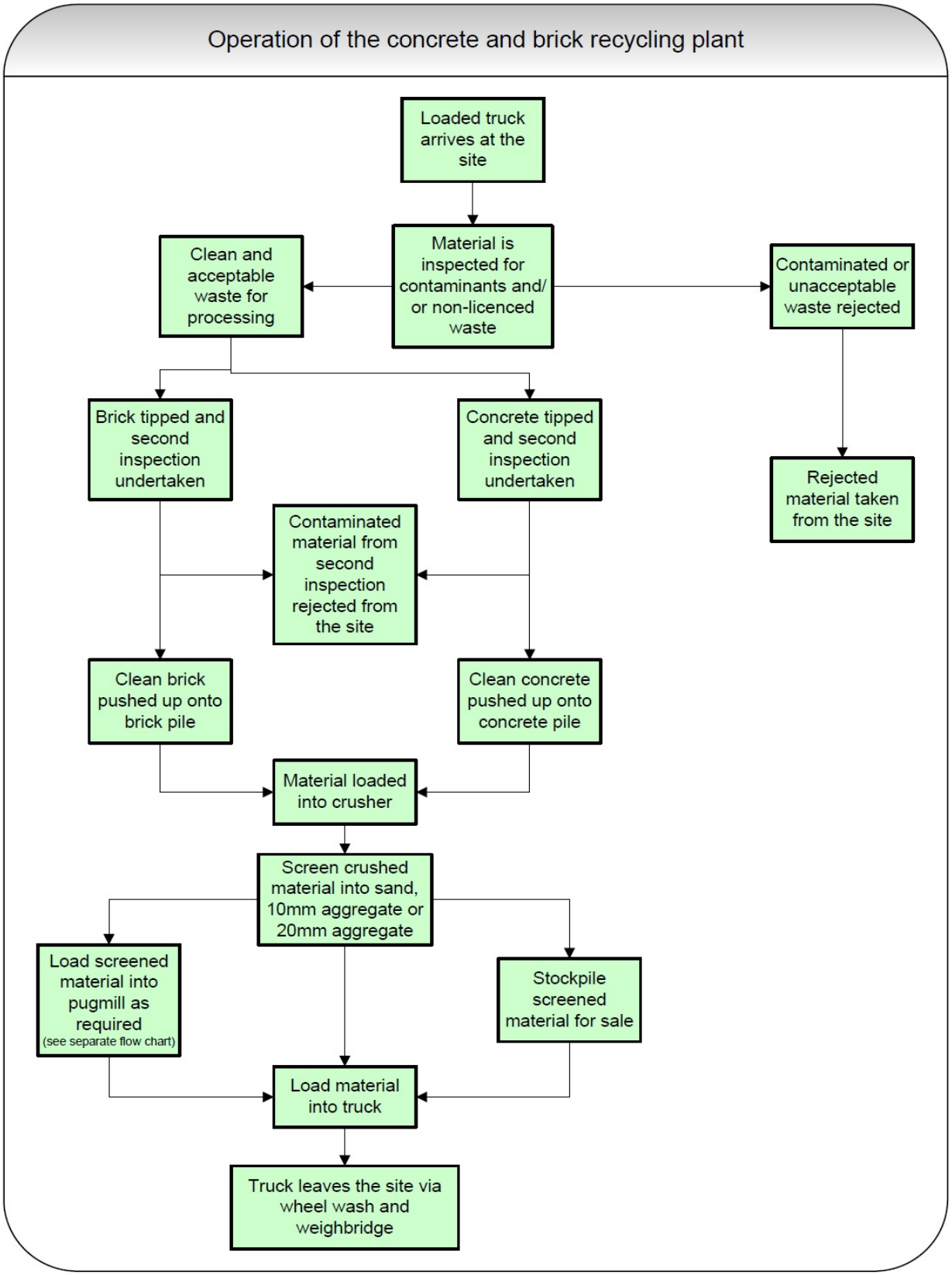
- Road base used in subdivisions, Council road works, main road upgrades and under slabs on factory construction sites.
- 20mm aggregate which is used in drainage and landscape works.
- 10mm aggregate which is used in drainage and landscape works.
- Brick sand which is used in drainage and landscape works.
- Washed excavation sand which is used in drainage, asphalt and concrete manufacture.

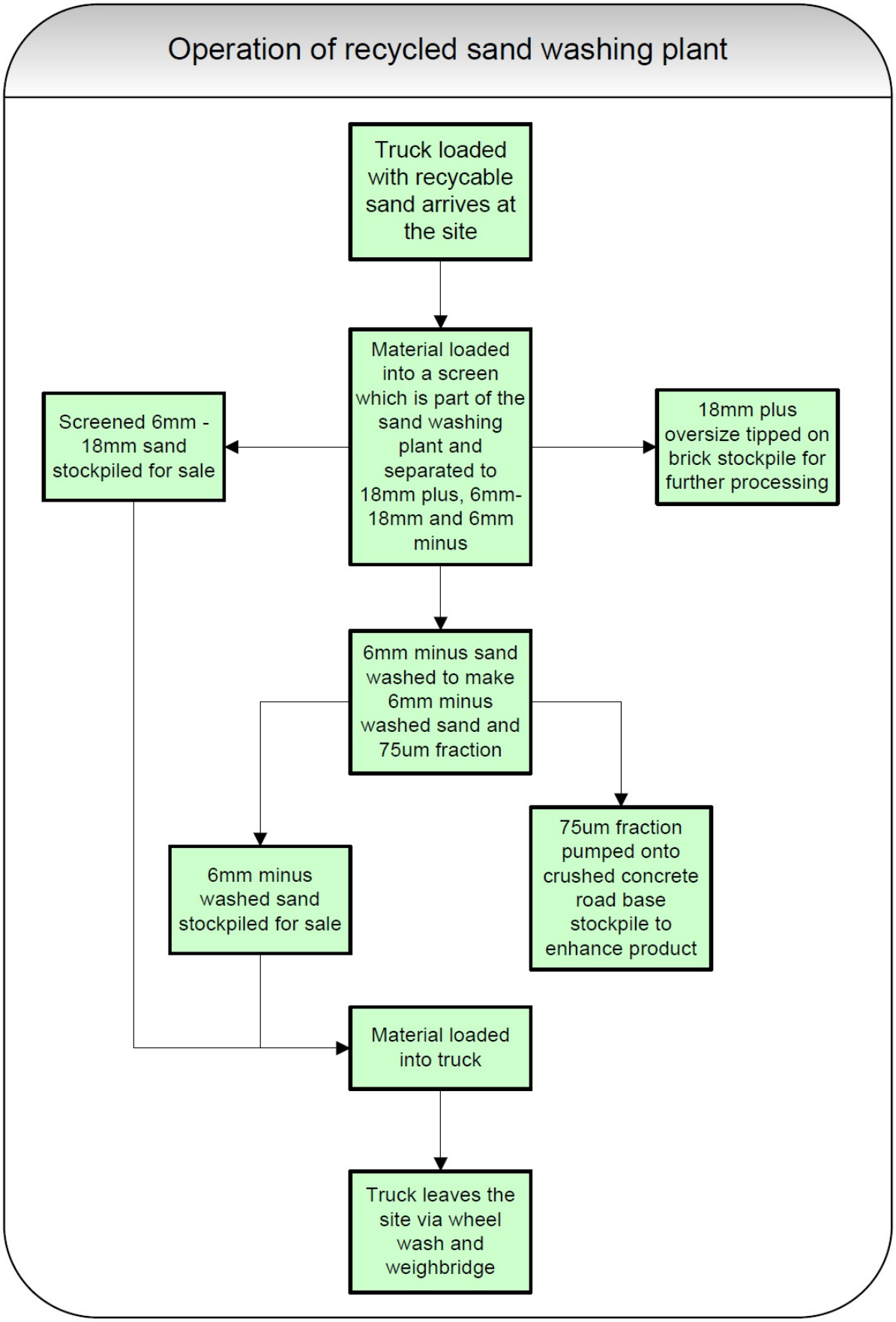
The maximum amount of unprocessed material stored on the Site would be approximately 50,000 tonnes.

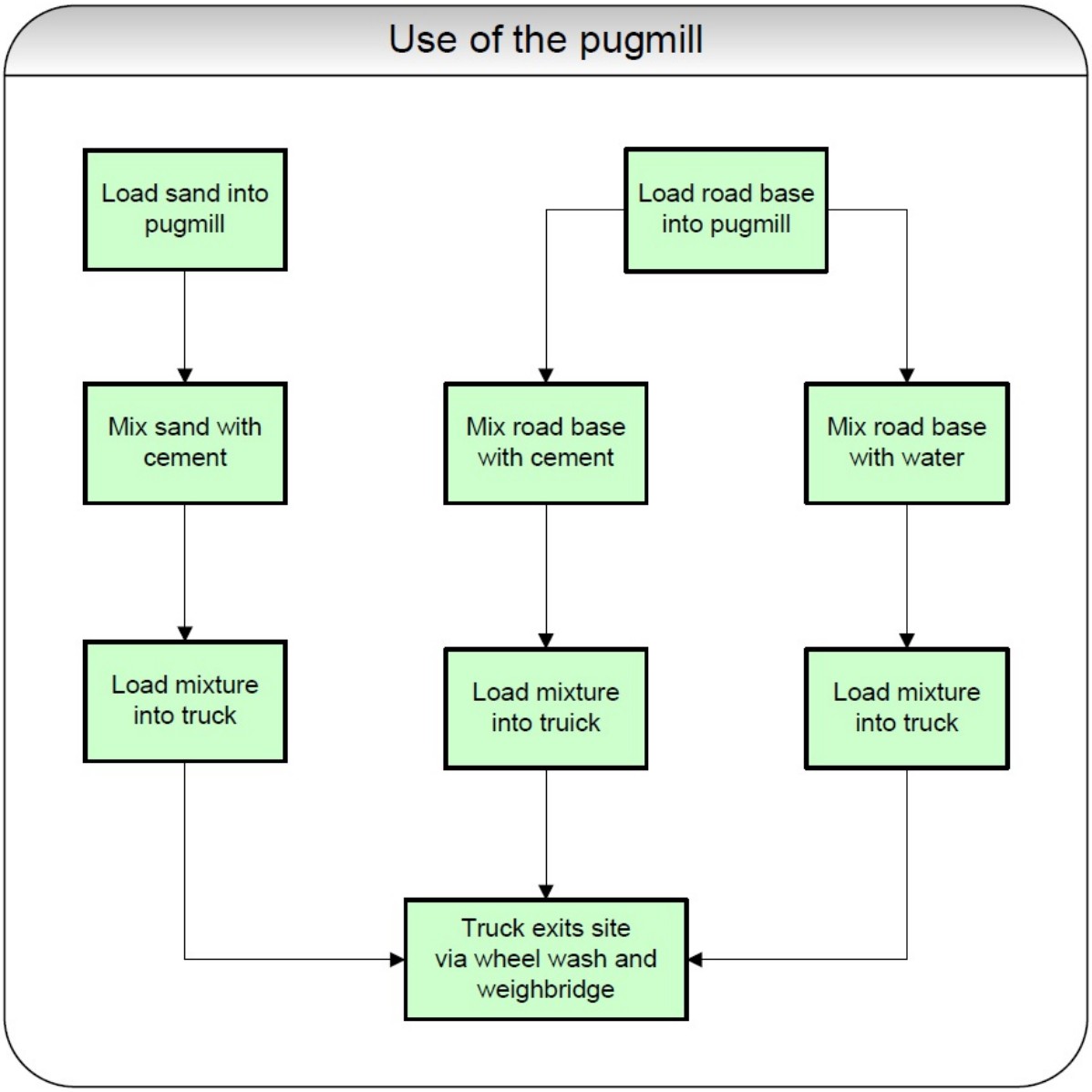
The following flow diagrams provide an overview of the proposed development:

- Operation of the concrete and brick recycling plant.

- Operation of the recycled sand washing plant.
- Operation of the Pugmill




Operation of recycled sand washing plant
Truck loaded with recycable sand arrives at the site
Material loaded into a screen which is part of the sand washing plant and separated to 18mm plus, 6mm-18mm and 6mm minus
Screened 6mm - 18mm sand stockpiled for sale
18mm plus oversize tipped on brick stockpile for further processing
6mm minus sand washed to make 6mm minus washed sand and 75um fraction
6mm minus washed sand stockpiled for sale
75um fraction pumped onto crushed concrete road base stockpile to enhance product
Material loaded into truck
Truck leaves the site via wheel wash and weighbridge



The following description of the proposed development should be read having regard to the plans of the proposed development, reduced copies of which are at **Appendix 4**.

An extract from the site layout plan is at **Figure 2-1**.

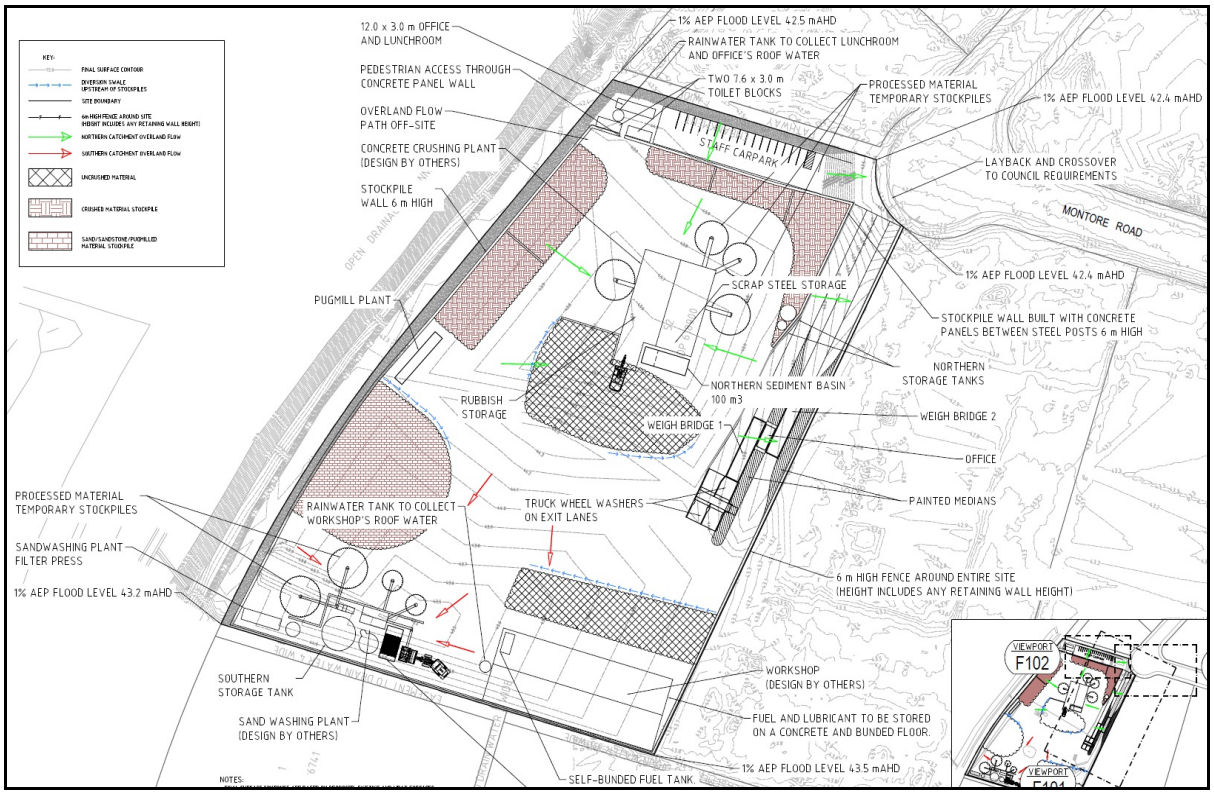


Figure 2-1: Extract from the Site layout plan (refer to **Appendix 4** for plans and flow diagrams).

Waste material would be delivered to the Site by truck, usually with an average capacity of 16 tonne. Product from the Site will be transported in vehicles of average capacity of 20 tonnes.

Incoming trucks would stop at a receival point where the load would be inspected to ensure loads comply with the materials which the facility is licenced to receive pursuant to the Environment Protection Licence.

If accepted, the driver would be instructed to proceed to the weighbridge office where a docket would be issued. Once a docket is issued, the truck driver would be directed to a designated stockpile depending on the type of waste the truck is carrying.

Stockpile heights (as shown on the plans at **Appendix 4**) range from:

- 6 to 8 metres for stockpiles of materials won from the crushing plant.
- 6 metres for the stockpiles adjacent to the boundary of the Site.
- 6 to 8 metres for stockpiles of materials won from the sand washing plant.

After the material is tipped, the loader spreads it for further inspection. If the load contains waste which the facility is not licenced to receive, the material is loaded back onto the truck and the driver would be instructed to turn around and leave the Site. The estimated average loading duration per truck is 65 seconds and two (2) trucks can be loaded at the same time. The estimated average unloading duration per truck is 180 seconds and there are six (6) locations to unload concurrently.

All trucks would leave the Site via the wheel wash.

A wheel loader would push the accepted waste up into the main stockpile awaiting processing.

If waste received is too large for the primary crusher, it would be broken down in size using a mechanical pulveriser fitted to an excavator or an hydraulic rock breaker prior to loading into the primary crusher. Sprinkler systems would be utilised to dampen the waste material in order to control dust.

Under **Part 8A** of the *Protection of the Environment Operations (Waste) Regulation 2014*, it is a condition of an Environment Protection Licence of a Construction and Demolition Waste Facility to comply with *Standards for managing construction waste in NSW*.

Table 2-1 provides the proposed response to the standards.

Table 2-1: Standards for managing construction waste in NSW

Requirement		Incoming waste plan and proposed waste recycling steps
Standard 1:	**Inspection requirements**	
1.1	Inspection point 1 – verified weighbridge inspection.	Incoming trucks would stop at a receival point where the load would be inspected to ensure loads comply with the materials which the facility is licenced to receive pursuant to the Environment Protection Licence. If accepted, the driver would be instructed to proceed to the weighbridge office where a docket would be issued.
1.2	Inspection point 2 – tip and spread inspection area.	After the material is tipped, the loader spreads it for further inspection.
1.3	Training requirements for personnel.	Environmental induction for all employees and contractors before starting work. Induction to cover the following issues: (i) requirements of the Environmental Management Plan; (ii) specific environmental issues on the Site and control measures; (iii) roles and responsibilities for environmental management, and (iv) environmental incident procedures.
1.4	Rejected loads register.	If the load contains waste which the facility is not licenced to receive, the material is loaded back onto the truck and the driver would be instructed to turn around and leave the Site.
Standard 2:	**Sorting requirements**	
2.1	Sorting.	Once a docket is issued, the truck driver would be directed to a designated stockpile depending on the type of waste the truck is carrying and the material would be unloaded and the front end loader would move the material up onto the stockpile.
Standard 3:	**No mixing of waste**	

Requirement		Incoming waste plan and proposed waste recycling steps
3.1	No mixing of inspected and sorted construction waste with waste that has not been inspected and sorted.	Inspected or sorted construction waste will not be mixed with waste that has not yet been inspected or sorted.
Standard 4:	**Waste storage requirements**	
4.1	Waste storage area.	Material processed will be stockpiled in segregated product bays or temporary stockpile areas prior to dispatch. Generally, stockpiles will be: • waste stockpiles (i.e. truck tipping / unloading area); • product stockpiles; • intermediate stockpiles; or • non-recyclable residues stockpiles. Intermediate stockpiles formed during sorting and transfer will be stockpiled in the unloading and processing area or within bins beneath processing equipment.
4.2	Inspection point 3 – waste storage area.	Employees will carry out regular inspections, including: • inspection of individual stockpiles to ensure stockpiles are not contaminated.
Standard 5:	**Transport requirements**	
5.1	Transport requirements.	Product and waste will not be transported from the Site unless it has been inspected, sorted, and stored in accordance with the EPA *Standards for Managing Construction Waste in NSW* (EPA 2019), or it has been rejected from the facility upon initial inspection.

2.2.1 Concrete and Brick Crushing Plant

The crushing plant is made up of a number of components. A plan of the layout of the crushing plant is contained in **Appendix 4**, an extract from which is at **Figure 2-2**.

The primary crusher would be contained within a purpose built building.

The crushing plant would be controlled by an employee in a control room on the primary crusher.

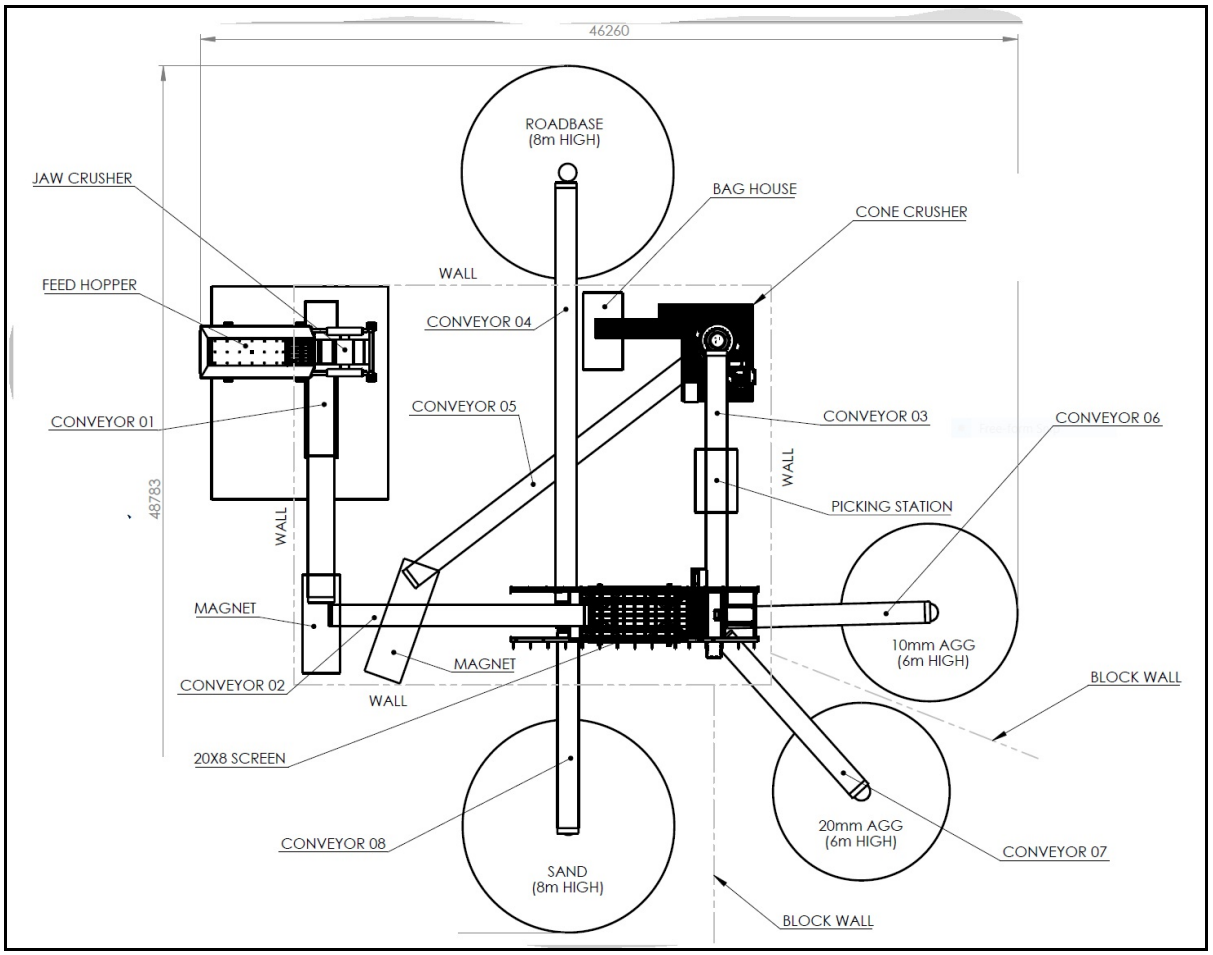


Figure 2-2: Plan showing the general layout of the proposed crushing plant.

Jaw Crusher

The demolition bricks and concrete are loaded into a hopper by an hydraulic excavator. The hopper conveys this material into the primary crusher with the use of a vibrating grizzly feeder. The grizzly feeder separates the fine material from the material stream by vibrating the bricks and concrete in an elliptical movement over the top of bars spaced with a 75mm opening which lets fine material fall onto the conveyor below, thereby by-passing the jaw crusher and lowering the energy required.

The primary crusher is designed to crush the incoming material down to a nominal 0-100mm product before downstream processing.

The jaw crusher (refer **Photograph 2-1**) reduces large size rocks by placing the rock under compression.

A fixed jaw, mounted in a "V" alignment, is the stationary breaking surface, while the swinging jaw exerts force on the rock by forcing it against the stationary plate. The swinging jaw is moved by an eccentric shaft which spins at low rpm with large counterweights to create a compression on the rocks.

The space at the bottom of the jaw plates is the crusher product size gap.

The rock remains in the jaws until it is crushed small enough to pass through the gap at the bottom of the jaws.

Photograph 2-1: Photograph of a typical jaw crusher used in the crushing process.

Overband Magnet

The crushed material is transferred by the first in a series of conveyors to the primary magnet.

The magnet lifts the steel reinforcing off the conveyor, and with the use a suspended conveyor, moves the steel to a chute for stockpiling of the steel. Steel is then sent to a recycling company for reuse.

Photograph 2-2 shows a typical Overband Magnet.

Photograph 2-2: Photograph of a typical Overband Magnet.

Screening of crushed material

A screen is used to screen the fines into large and small sized fractions.

The screening machine consist of a eccentric drive which induces vibration. Three separate sets of screening media of reducing aperture size causes particle separation. A deck holds the screen media.

Depending upon the setup of the crushing plant, the screen can separate the materials into four separate fractions with the largest material returning to the plant for further crushing and the material passing through the screening media making sand, 10mm aggregate and 20mm aggregate.

To make road base, the sand and aggregates are mixed back together before being discharged to a stockpile.

Photograph 2-3 shows the type of screening device to be utilised in the proposed development.

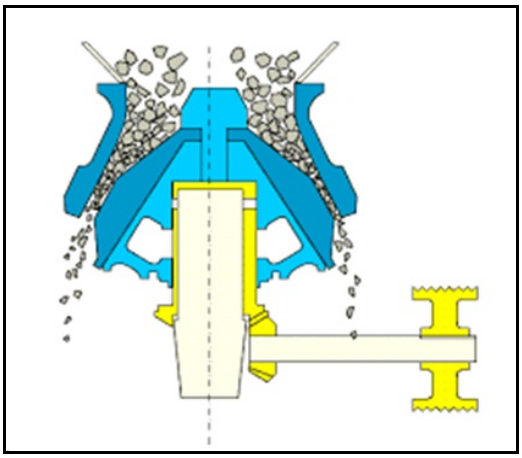
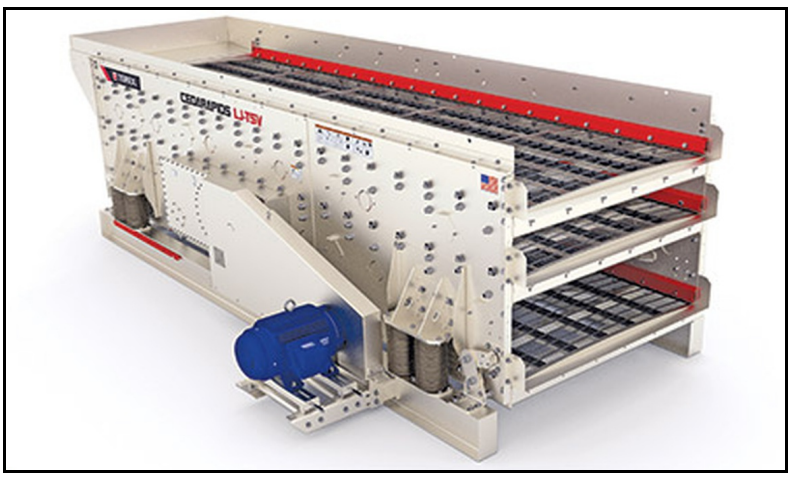


Figure 2-3: Figure showing the configuration of a typical cone crusher.

Secondary Crushing

The oversize material from the screening process is conveyed to the secondary cone crusher a diagram of which is at **Figure 2-3**.



Photograph 2-3: Photograph of the type of screening device to be used in the proposed development.

The cone crusher reduces the feed material by means of pressure. The adjustable gap width can be varied by an hydraulic piston, which is located in the lower part of the housing. The upper section of the housing accommodates the wedge-shaped crushing liner. The crusher drive is situated between these two sections. The crushing force is produced by an eccentric bush which moves the crushing cone towards the crushing shell in a circular oscillating movement. The variation of the gap width and resulting crushed product size is performed by the hydraulic piston.

After crushing by the cone crusher, the material in again conveyed to the vibrating screen to continue until it passes the aperture size in the "closed loop" crushing process.

Processed Products Stockpiling

Concrete block bays will contain the various products including road base, sand and aggregates. Crushed materials are discharged from the crushing plant by stockpile conveyors at a maximum of 8 metres to contain any dust produced.

The Site has been designed such that there is suitable area for trucks to enter and exit in a forward direction. The hardstand area adjacent to the storage bays has also been designed to drain dirty water into the site stormwater management system for treatment and re-use.

Discharge conveyors will all be fitted with hoods and water sprays to stop the creation of dust. Material is moved from the crushed material bays by front end loader to further stockpiles with a maximum height of 8 metres.

Dust Suppression in the Crushing Plant

Dust will be controlled in the processing facility with the use of water sprays and vacuum dust extraction into a baghouse. The principle of operation of the baghouse is that transfer points between conveyors are enclosed and a negative pressure is created to remove any nuisance dust. This dust is piped into a silo where the clean air can be filtered out and the dust settles for later addition into the crushed product. **Figure 2-4** shows a typical baghouse.

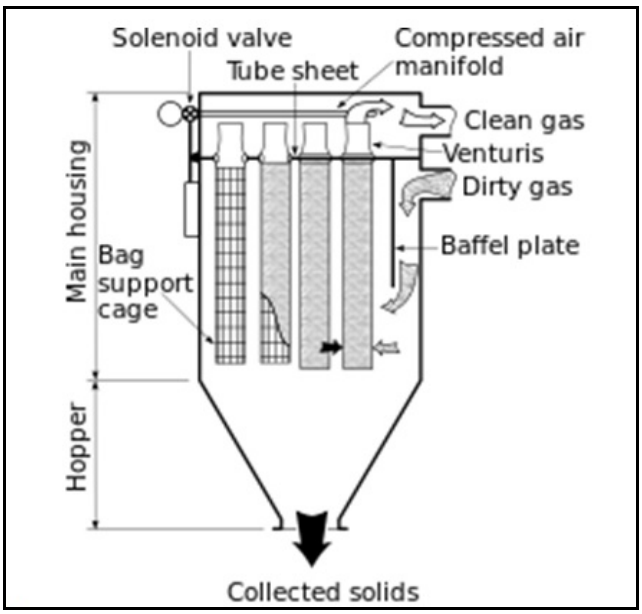


Figure 2-4: Typical baghouse dust suppression facility.

2.2.2 Sand Washing Plant

The sand washing plant would be used to produce washed free draining sand and aggregate. A plan of the layout of the crushing plant is contained in **Appendix 4**, an extract from which is at **Figure 2-5**.

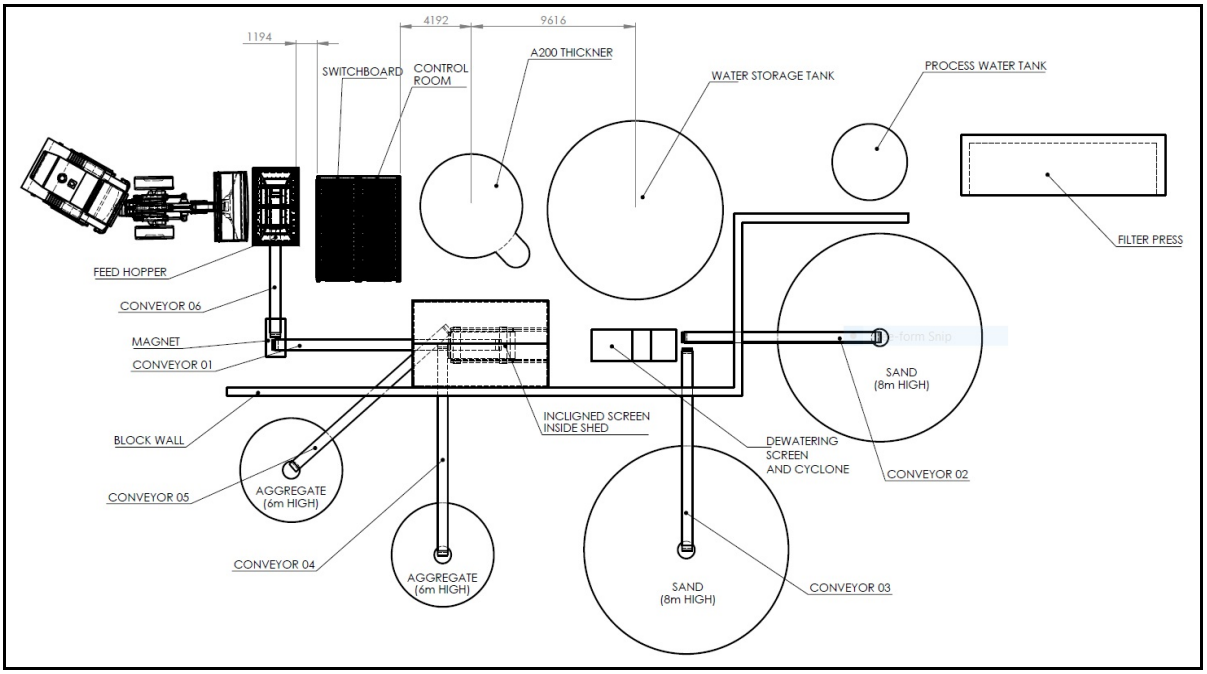


Figure 2-5: Plan showing the general layout of the proposed sand washing plant.

Wet Screening

Excavation sand would be loaded into a hopper by a front end loader. The hopper would discharge with the use of a conveyor belt to the wet screen.

As the material travels over the screening media it is sprayed with high pressure water which acts as its primary cleaning and grading.

The screen would remove two aggregates which are stockpiled adjacent to the plant for either loading into trucks for sale or moved to the crushing plant for further processing.

The slurry which passes through the apertures of the screen media flows with the wash water into a sump. The sump serves as a header tank for the second stage of washing.

Photograph 2-4 shows the typical wet screen.

Photograph 2-4: Photograph of a typical wet screen to be used on the Site.

Cyclonic separation

The slurry which has been collected in the sump is pumped under pressure into a hydro cyclone.

The feed slurry enters the feed chamber tangentially. The inlet velocity initiates a rotational pattern which creates a downward spiral in the feed chamber. The diameter of the cyclone decreases in the cone section below the feed chamber.

Centrifugal forces push the coarser material outward toward the cone wall which increases the percent of solids near the walls by displacing the water back toward the centre of the cone. The larger particles are then taken by gravity and discharged out of the bottom of the cyclone and onto a de-watering screen.

The operation of a typical cyclone is depicted in **Figure 2-6**.

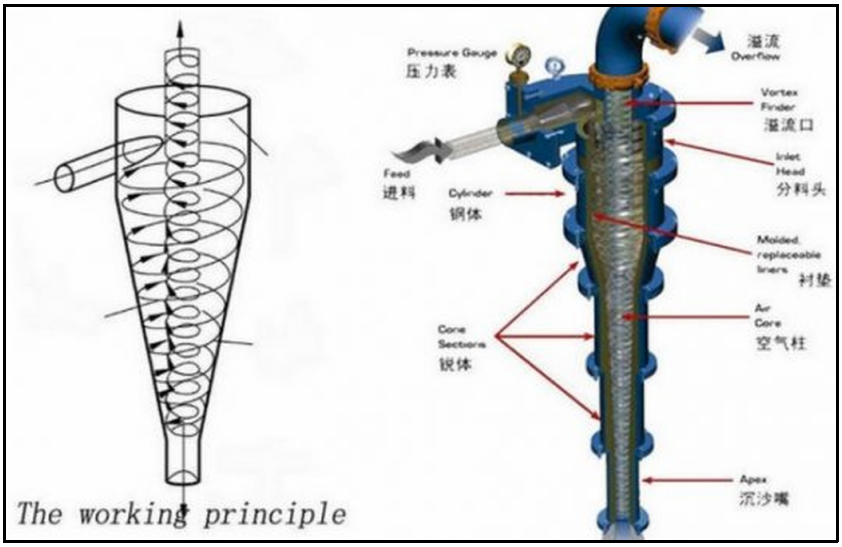


Figure 2-6: Diagram showing the workings of a typical cyclone.

Product would be loaded into delivery trucks by a wheeled loader. The delivery trucks would travel through the wheel wash and onto the weighbridge where the driver would receive a docket then leave the Site.

The overflow of the cyclone contains the silt which is required to be removed from the washed sand. This material flows through a pipe back to the sump. The excess water entering the system from the original screening process completes the final stage of washing by displacing water containing the excess silt over a weir in the sump.

Water Reuse

All of the water in the sand washing plant is reused, in that it is a closed loop system which only requires topping up to replace water lost as moisture in both the finished product and silt as well from evaporation.

The silt water (5% solids) is pumped from the weir overflow into a high rate thickener. The thickener's principle of operation is that the silt loaded water is treated with flocculant. Upon entry to the centre of the thickener, it rapidly loses velocity. With the decrease in velocity the silt is able to drop out of the water and settle on the floor of the thickener.

Mechanical rakes are then used to gather the solids in the centre of the thickener for further processing. The clarified water is sent to holding tanks for reuse in the sand washing process.

Figure 2-7 shows the configuration of a typical thickener.

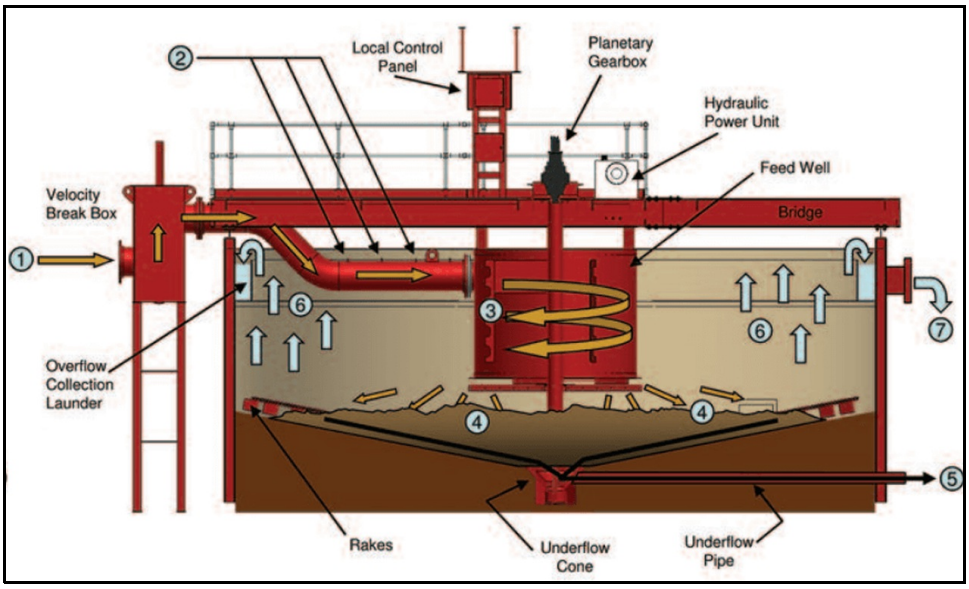


Figure 2-7: Diagram showing the typical layout and process of a thickener.

With reference to **Figure 2-7**, the following detail is provided having reference to the numbering on that figure:

1. Dirty water feed.
2. Flocculant dosing.
3. Mixing chamber.
4. Sediment overflow.

5. Outflow of the filter press.
6. Clean water.
7. Discharge to tanks for reuse.

The high underflow of the thickener and solids is pumped to a filter press. The operation of the filter press begins when the flocculated solids enter the retracted filter press.

Filtrate from the low pressure pumping is collected and piped into a drain system.

Rapid de-watering occurs as the solids are squeezed between two porous filters. The pressure increase begins once the filters are full of solids.

A large ram compresses the filters to push water out of the solids and though the filter into the drain system and back for reuse in the washing process.

The compression ram is then retracted and the dewatered solids are then discharged onto the stockpile by the opening up of the filters.

The principal operation of the filter press is shown in **Figure 2-8**.

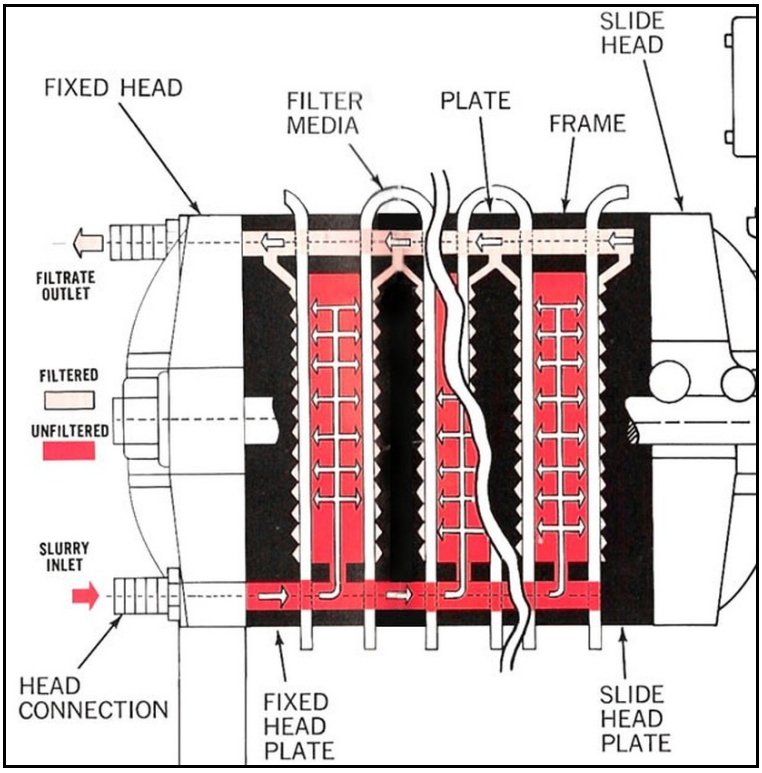


Figure 2-8: Diagram showing the process performed in the filter press during the compression cycle.

Water Storage

Water tanks with a total capacity of 500 kL will be located on the Site. The tanks will be topped up with mains water when required.

2.2.3 Pug Mill

Pug mills are industrial mixing devices capable of conditioning and mixing processed materials.

The pug mill will be used to mix sand and road base with cement binder products and/or water to produce stabilised sand and road base.

Pug mills use dual counter-rotating shafts with affixed pitched paddles to create a kneading and folding over motion in the mixer. The counter-rotating mixing paddles pull the material through the machine to mix it and discharge onto the belt.

A receiving hopper is fed by a wheel loader or excavator with processed sand or road base. Cement is stored in a 40 tonne silo above the unit and is metered into the mixing chamber with a calibrated drum conveyor. Water is also added into the mixer at this point to minimise dust and condition the material.

Cement will be loaded into the silo from a bulk tanker. The pug mill silo is fitted with a baghouse filter system.

After mixing, a discharge conveyor moves the material out and into a stockpile for loading to a truck with a wheel loader. Mixed material will be stockpiled in the stockpile area on the southern side of the pug mill for loading onto trucks.

An example of the type of pug mill to be used on the Site is provided as **Photograph 2-5**.

Photograph 2-5: Photograph of the type of pug mill to be used as part of the proposed development.

2.3 Component Requirements

The use of the Site as a Resource Recovery Facility would require the use of a number of related

components. The key elements of the proposal are typically as follows:

- 3 x 35 tonne class wheel loaders.
- 1 x 45 tonne excavator.
- 2 x 30 tonne excavators.
- stormwater storage tanks.
- 1 x water cart.
- 1 x 20,000 litre capacity self-bunded fuel tank.
- 2 x Weighbridge.
- Wheel wash.
- Workshop for general repairs.
- Staff lunch room and associated amenities.
- Car park.

Weighbridges

Two weighbridges will operate at the access point to the Site to weigh both loaded incoming vehicles and outbound delivery vehicles.

The weighbridges are designed to accommodate vehicles up to 19 metres in length, the weighbridge structure consists of a reinforced concrete foundation, steel sub-structure, and concrete deck which will be raised above the surrounding pavement.

Truck queuing has been allowed for on the approach to the incoming weighbridge for six (6) articulated or rigid trucks. A load compliance area will be provided on the approach to the weighbridge. Light vehicle access will be provided at the same entry/exit point, however, light vehicle parking will be along the northern boundary.

An office will adjoin the weighbridge to house the weighbridge staff, which will house a small amenities section for these staff.

2.4 Site Layout

Site layout plans have been prepared by Martens & Associates, reduced copies of which are at **Appendix 4**. An extract from those plans is at **Figures 2-1 and 2-2**.

The Site boundary will be designed such that a 6m high fence including the height of any retaining walls

will be constructed around the entire site. Details of the proposed fencing are seen on Drawing PS02-F201 in **Appendix 4**.

There will also be a landscape batter around a large section of the Site as detailed in the landscape plans at **Appendix 18** an extract from which is at **Figures 2-9 and 2-10** detailing the buffer landscaping.

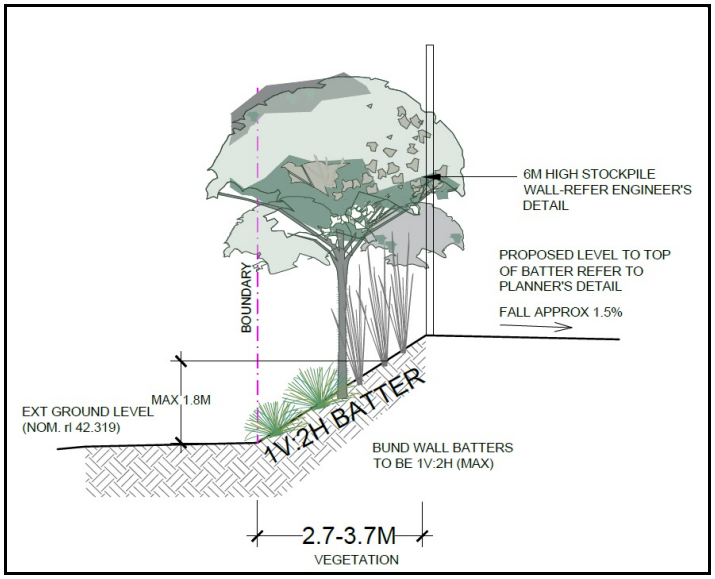


Figure 2-9: Extract from the landscape plan showing boundary planting.

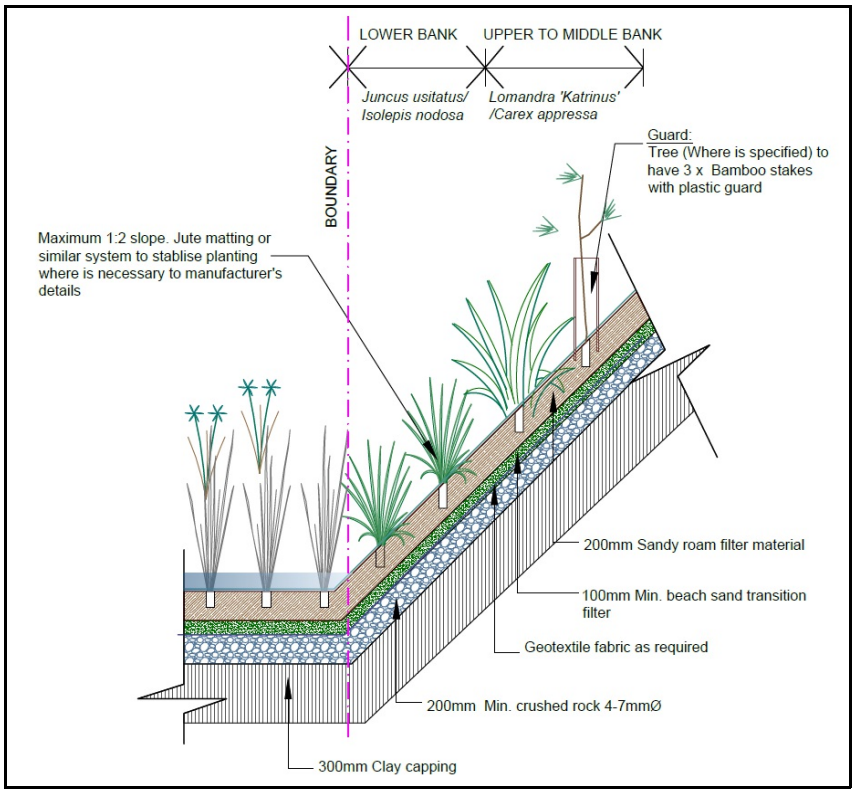


Figure 2-10: Planting for buffer setbacks and embankments with 1v:2h grade.

2.5 Hours of Operation

The proposed hours of operation would be:

Monday to Friday	6:00 am to 7:00 pm
Saturday	7:00 am to 4:00 pm

The facility would not operate on public holidays or on Sunday.

2.6 Employees

Typically, there would be fifteen (15) employees on site comprising:

- One (1) Site Foreman.
- Three (3) Loader Drivers.
- Three (3) Excavator Drivers.
- Two (2) Weighbridge Attendants.
- Two (2) Fitters.
- Four (4) Labourers.

2.7 Waste

Little waste would be generated in the operation of the proposed development. The proposed development has been designed such that the vast majority of materials delivered to the Site are recycled. Approximately 0.1% of the material delivered to the Site is material which cannot be recycled.

Material is either:

- processed on-site for reuse,
- placed in a bin in the case of waste metal and wood, and transported off-site for recycling, or
- in the case of general waste, stored in an appropriate waste bin for either recycling or transportation off-site for disposal at landfill.

During the processing of bricks and concrete the following waste streams are created:

- **Plastic and timber** Approximately 0.012% by weight of processed material which is disposed of at a licenced landfill. The material will be stored in hook lift bins in the crushing shed before removed from the Site. A maximum storage on-site of 15 tonne.

- **Metals** Ferrous and non ferrous metal of approximately 1% by weight of material processed. Metals are disposed of at a licenced scrap metal processing facility for further recycling. The metals are stored on the south eastern corner of the crushing shed. There will be a maximum storage of 60 tonne on the Site.

2.8 Stormwater Management

A stormwater retention system is proposed for the Site to collect and treat runoff, preventing off-site migration of sediment contaminated stormwater. On-site tanks will be utilised to store and supply captured stormwater to satisfy dust suppression and sand washing demands.

Design of this system is in accordance with NSW Landcom (2004) Soils and Construction Handbook.

2.8.1 Water Quality Targets

Landcom (2004) notes that to ensure pollution of downslope receiving waters does not occur, treated discharge waters from sedimentation basins should not exceed 50 ppm of total suspended solids (**TSS**).

Although overflow from the basins and on-site tanks is generally not expected during normal operation, it may occur during extended periods of wet weather where dust suppression and sand washing are not required or during extreme rainfall events. Under these circumstances, overflow would be monitored and managed.

2.8.2 Sediment Basin Description

A concept sediment basin design has been developed for the proposed Resource Recovery Facility as follows:

- The Site is graded to direct all surface runoff to site basins prior to reuse or discharge from the Site to meet water quality objectives. The driveway and the entry section of the car park are excluded from capture.

- Sedimentation basins are located to the north and south of the Site. Both basins are below ground concrete pits.

- A floating pump will be located in each basin for extraction of clean water to on-site

tanks for reuse in dust suppression and sand washing.

- Detailed design of the proposed basins is to be undertaken in accordance with Landcom (2004) during the construction certificate stage.

2.8.3 Sedimentation Basin Design

Sedimentation basins are sized based on design procedures set out in the Landcom Handbook (2004) as summarised below in **Table 2-2**.

Element	Design Parameter
90th percentile 5-day rainfall Campbelltown	43 mm
Runoff coefficient	0.83
Catchment area	20,143 m^2
5-day runoff volume (m^3)	**720 m^3**

Table 2-2: Total site sediment basin minimum design specifications summary.

The total 5-day runoff volume stored on-site, split between both site basins and above ground tanks, is outlined below in **Table 2-3**.

Parameter	Southern Sediment Basin	Northern Sediment Basin	Onsite Above Ground Tank
Volume[1]	100 m^3	100 m^3	520 m^3
Footprint	5 m x 10 m	5 m x 14 m	
Basin invert level	41.00 mAHD	41.00 mAHD	-
Overflow discharge weir level	43.00 mAHD [2]	43.30 mAHD	
Emergency overflow weir level [3]	43.55 mAHD	43.82 mAHD	-

Table 2-3: Sediment basin details.

Notes:
[1] Total volume of sediment basins = 200 m^3.
[2] In the southern basin, overflow discharge weir is designed to convey minor storm event, tailwater condition in the major storm event prevents discharge being conveyed in the pipe.
[3] Emergency overflow weirs formed in western site batter.

Runoff captured by both basins will be pumped to above-ground tanks and used for stockpile watering, general Site dust control and sand washing.

The basin will have a series of custom pits which work as describe below:

- Incoming site runoff is directed firstly to a sedimentation pit, capturing coarse sediments. Water is pumped from this pit to holding tanks for reuse on-site.

- Flows unable to be pumped to on-site tanks due to holding tank capacity being reached or incoming flows exceeding basin storage volume are directed to an overflow pit which flows to Bow Bowing creek.

- Outlet pipes from the two basins shall discharge to Bow Bowing Creek via existing

headwalls. In the northern basin, pit/pipes have been sized to carry all storms up to and including the 100 year ARI storm. In the southern basin, pit/pipes have been sized for the 10 year ARI storm. Flows exceeding the pipe capacity will be directed to Bow Bowing Creek via the emergency overflow weir. The emergency overflow weir is designed to convey the 100 year ARI storm. Preliminary stormwater outlet designs are provided in the Martens Report at **Appendix 5**.

2.8.4 Management and Monitoring

The sediment basins will be managed by pumping the collected rainfall runoff to on-site holding tanks. If all storage tanks are full and water remains in the sedimentation basin, water will be monitored to ensure water quality objectives are met prior to discharging to Bow Bowing Creek.

Emergency overflow weirs are provided in the earth bund along the western portion of the Site for the controlled release of ponded water from the Site in the rare case of site pit or pipe blockage.

The water quality monitoring system will be:

- A site calibrated 50ppm water sample kept on-site.
- In the event that water needs to be discharged from the basin, a water sample will be taken daily from the basin settling zone.
- Water samples will be compared to the calibrated sample.
- Discharge may occur from the basin once water samples match the calibrated sample (i.e. water quality objectives have been achieved).
- The calibrated water sample will be recalibrated every 12 months by laboratory analysis for total suspended solids to ensure accuracy.

2.8.5 Stormwater Quantity

The developed site will have well compacted, unsealed surfaces which will be largely impervious and consist of crushed recycled concrete and aggregates.

Volume 2 of Campbelltown City Council's (Sustainable City) Development Control Plan 2015 requires that On Site Detention (**OSD**) be provided on sites where impervious area is increasing and upgrading downstream stormwater systems are not possible, however, in correspondence with Council, Council noted there is no requirement for OSD to be provided for the proposed development.

The objective for stormwater quality is:

- To ensure adequate site drainage is provided by the concept drainage design.

2.8.6 Concept Site Drainage Network

The proposed pit and pipe network is provided in Attachment A of the Martens Report (**Appendix 5**) as follows:

- A large portion of stormwater runoff from the Site will be directed to two (2) sedimentation basins located in the north and south of the Site.
- Water from each basin is pumped to storage tanks via floating pumps.
- Once the storage tanks are full, pumping ceases and water collects in the sedimentation basins. Water stored in tanks will be used for dust suppression and sand washing.
- An overflow pit is located within each sedimentation basin. In the northern basin, overflow from the sedimentation basin will discharge into the overflow pit during the minor and major storm event, prior to discharging to Bow Bowing Creek. In the southern basin, flows will discharge to the overflow pit during the minor storm event. Once the pipe capacity is exceeded, water will overtop the basin and discharge to Bow Bowing Creek via the emergency overflow weir.
- Runoff from the driveway and the entry section of the car park will be captured by the proposed pit and pipe network and discharge to Council's kerb and gutter system.
- Runoff from vegetated batters discharges directly to Bow Bowing Creek.

2.9 Traffic Generation

At full capacity, the plant would process 1,600 tonnes per day.

The estimated number of truck movements per day between 7:00 am and 6:00 pm Monday to Friday is provided in **Table 2-4**.

Variations would occur depending on the day to day movements of trucks based upon an average load of 18 tonnes and 250 working weekdays per annum.

Table 2-4: Daily estimated truck movements

Product	In	Out
Raw waste materials	89 loaded	89 empty
Processed product from site	80 empty	80 loaded
Other materials for off-site recycling	1 empty	1 loaded
Residual waste to landfill	1 empty	1 loaded
Total	**171**	**171**

The estimated weekend movement are show in **Table 2-5** based on production of 1,000 tonnes per day and 50 working weekend days per annum.

Table 2-5: Daily estimated weekend movements

Product	In	Out
Raw waste materials	56 loaded	56 empty
Processed product from site	50 empty	50 loaded
Total	**106**	**106**

Table 2-6 breaks down the proposed arrival / departure rates of inbound and outbound trucks over a typical weekday (operating hours 6:00am to 7:00pm).

The total number of daily truck trips (entering and exiting the Site) will, therefore, be 342 on any given weekday.

Period	Inbound	Outbound
6:00-8:00am	20	51
8:00-10:00am	37	51
10:00am-12:00pm	37	33
12:00-2:00pm	37	26
2:00-5:00pm	40	10
Daily Total	**171**	**171**

Table 2-6: Truck Traffic Generation

The traffic assignment for the proposed development and associated vehicle trips will be similar to that described below:

Inbound 90% from the north feeding from the M5 and M7.

10% will travel from the local streets in the precinct.

Outbound 30% of outbound trips will travel to the north.

30% will travel to the south.

30% will travel to the west.

10% will travel throughout the local streets.

The masses of the trucks are expected to be:

- All empty vehicles will be less than 32-tonnes.
- 45% of full trucks will be greater than 40-tonnes.
- 55% of full trucks will be less than 32-tonnes.

The routes for different sized trucks both inbound and outbound depending on the tonnage of the individual truck are provided in **Figures 2-11 to 2-15**.

Figure 2-11: Inbound trucks less than 32 tonne.

Figure 2-12: Inbound trucks between 32 tonne and 40 tonne

Figure 2-13: Inbound trucks over 40 tonne

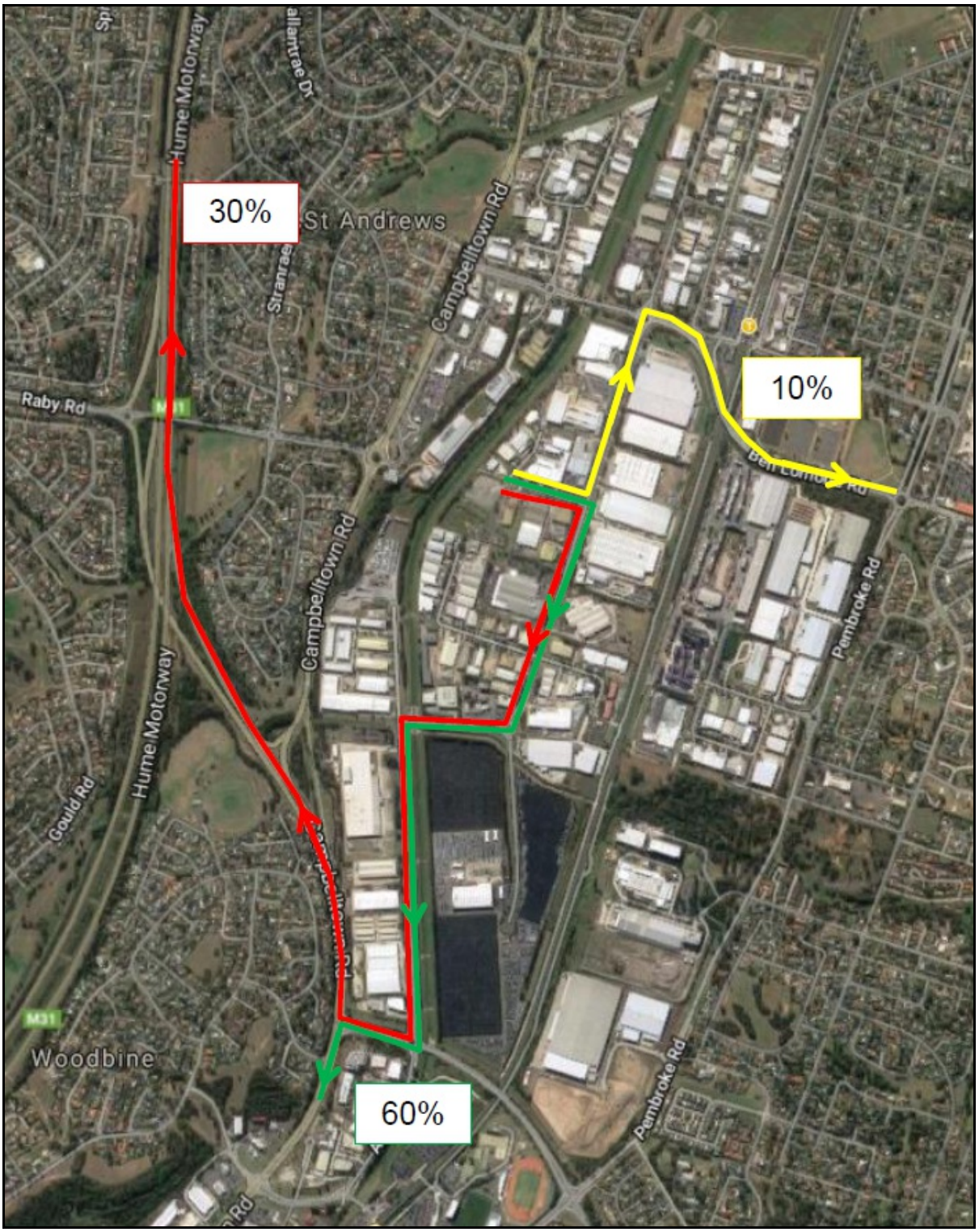


Figure 2-14: Outbound trucks under 32 tonne

Figure 2-15: Outbound trucks between 32 tonne and 40 tonne

2.10 Access and Parking

The Site will have access for vehicles up to and including 19m semi-trailers which will adhere to the following requirements:

- Provision will be made for all loading and unloading to take place wholly within the designated loading area.
- No loading or unloading will be carried out across parking spaces, landscaped areas, pedestrian aisles or on roadways.

Campbelltown (Sustainable City) Development Control Plan 2015 – Part 6 Industrial Development provides car parking rates based on storage and office units on-site, however, it is considered that the operation of the Resource Recovery Facility, which has small office space and large storage facilities for bulk materials, should be based on a merit assessment.

The proposed development is expected to have a total of 25 employees, 15 of whom will require the provision of car parking (as the remaining 10 contract drivers will arrive in trucks). It is, therefore, more feasible to provide a parking rate of 1 space per 1 employee on-site at any one time which will equate to 15 staff car spaces.

Similar developments see approximately 10 visitor trips per day. Parking provision for visitors to the Site would be 1 to 2 car spaces as visitors tend to stay for less than 1-2 hours which gives a suitable on-site provision of 16 to 17 car parking spaces.

At least 1 car parking space should be a dedicated disabled space with adjacent shared zone as per AS2890.6:2009.

The proposed layout shows a total of 18 car parking spaces complying with the above recommendations, including 1 disabled space.

Campbelltown (Sustainable City) Development Control Plan 2015 does not provide bicycle or motorcycle parking rates for industrial land uses and, as such, no on-site parking for bicycles and motorcycles has been provided. If necessary, there is adequate space within the car parking area to provide bicycle or motorcycle facilities.

Campbelltown (Sustainable City) Development Control Plan 2015 requires accessible parking to comply with the minimum standards of the Building Code of Australia (**BCA**). The BCA does not specify a building class or parking requirement for industrial land uses such as resource recovery facilities. A provision of 1 disabled parking space is, therefore, considered adequate provision which achieves compliance with Campbelltown (Sustainable City) Development Control Plan 2015.

There will be a requirement for upgrading of the existing access to the Site to accommodate the additional heavy vehicle movements.

Details of the existing and proposed layback to the Site in Montore Road are provided in Figures 4 & 5 of the McLaren Report and extract from which is provided as **Figures 2-16 and 2-17**.

Figure 2-16: Existing driveway access to the Site.

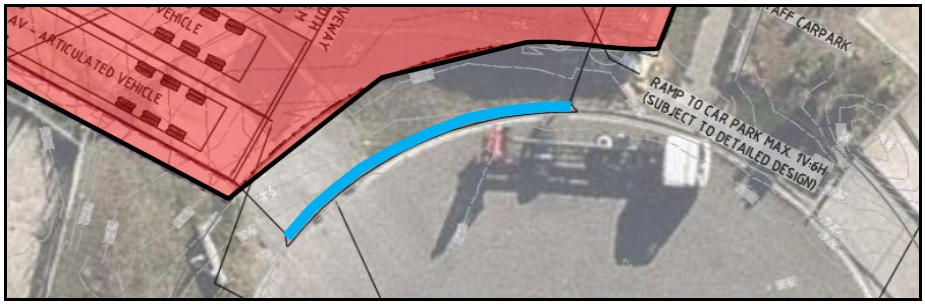


Figure 2-17: Proposed modification to the site access which will be designed and constructed in accordance with Council Standards.

2.11 Fire Control

Fire control facilities on the Site would be installed to meet the requirements of the Building Code of Australia. In this regard, Martens & Associates has undertaken a Sydney Water Tap In enquiry with the following results:

- The modelled minimum pressure in the 150mm potable water main located in the Montore Road reserve is 61m head (610 kPa). The maximum modelled pressure in this main is 70m head (700 kPa).
- Two (2) fire hose reels operating simultaneously at the Site would discharge 0.66 L/s at 610 kPa.
- There is sufficient capacity in the main to operate up to five (5) external hydrants at 10 L/s as attack hydrants (i.e. hose directly connected to the hydrant) or up to six (6) hydrants at 10 L/s as feed hydrants (i.e. hose connected to booster pump on a NSW Fire Brigade or NSW Rural Fire Service vehicle).

Flows and pressures are considered sufficient to operate the minimum number of simultaneous hydrants for both the main buildings on-site and also the yard areas in accordance with AS 2419.1 (2017). **Figure 2-18** is an extract from the proposed fire services and fire hydrant system to service the proposed development, a copy of which is included in **Appendix 20**.

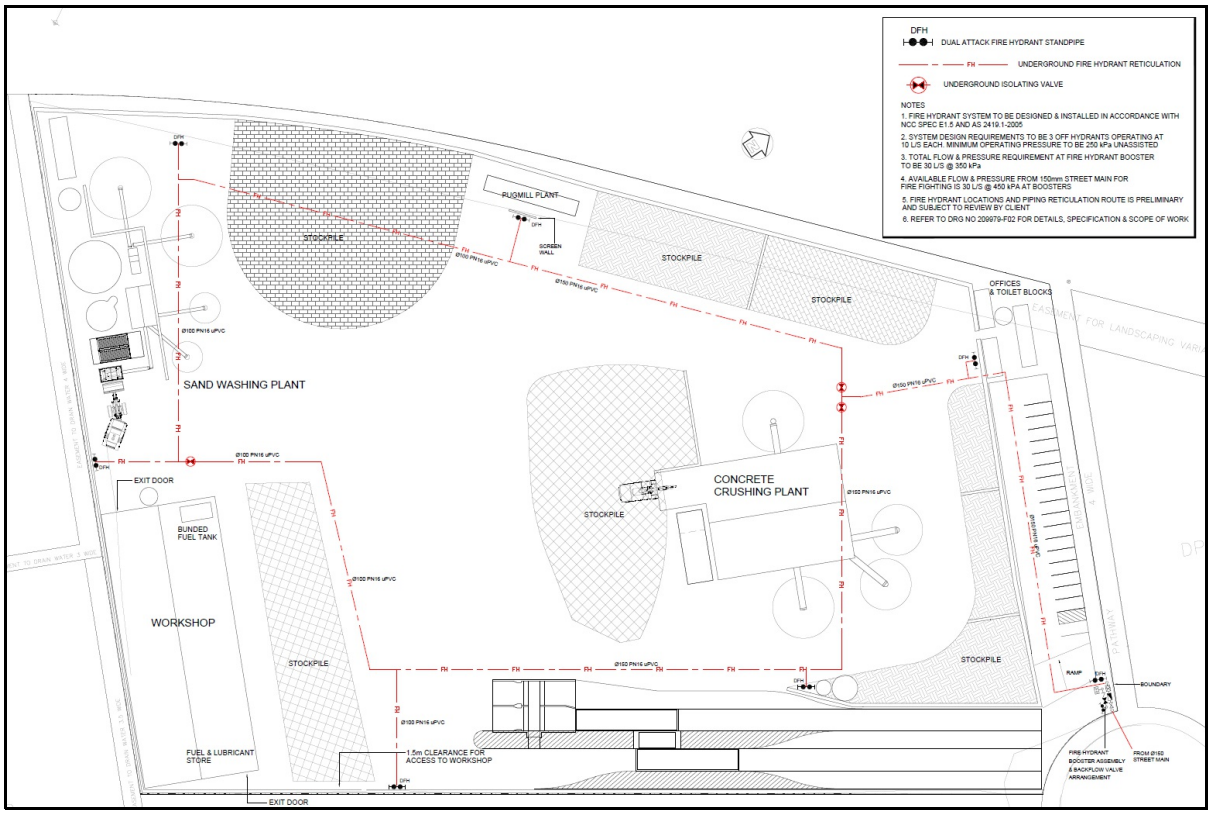


Figure 2-18: Extract from the fire services system diagram which is included in **Appendix 20.**

- The fire hydrant system is to be designed and installed in accordance with NCC spec E1.5 and AS 2419.1-2005.
- The system design requirements are to be three (3) hydrants operating at 10 L/s each. A minimum operating pressure will be 250 kPa unassisted.
- Total flow and pressure requirement at the fire hydrant booster is to be 30 L/s @ 350 kPa.
- Available flow and pressure from the 150mm street main for fire fighting is 30 L/s @ 450 kPa at boosters.
- The fire hydrant locations and piping reticulation route is preliminary and subject to review by client.
- Refer to drawing No. 209979-F02 (Appendix 20) for details, specification and scope of work.

Fire Safety Guideline. Fire Safety in Waste Facilities (the Guideline)

Fires at waste facilities may pose special problems for firefighting, including:

- large amounts of combustible waste.
- poor storage and separation, creating fire risks and reducing firefighting access.

- inadequate hydrants, fire water management, fire suppression systems and smoke hazard management.

The Guideline helps waste facilities reduce and manage the risk of fires starting and spreading, to protect employees, emergency services, the community, businesses and the environment. The Guideline will also be considered by consent authorities in determining development applications and can be used by regulatory authorities in licensing.

The Guideline outlines standard approaches for fire risk management, fire safety systems, storage, stockpiles and planning at waste facilities.

The Guideline applies to any premises (existing or proposed) used for the storage, treatment, processing, sorting or resource recovery of combustible waste material.

Combustible waste material is any solid waste material which can readily ignite and burn under normal conditions including:

- wood and wood-based products
- paper and cardboard
- plastic
- textiles
- rubber
- waste-derived fuels such as refuse derived fuels, solid recovered fuels and processed engineered fuels
- metal with combustible contaminants
- any other waste material that may pose a notable fire risk.

The Guideline does not apply to sites with less than $50m^3$ of combustible waste or areas of a waste facility used for:

- composting and green waste
- liquid waste treatment
- special and hazardous waste treatment
- waste tyre treatment
- sites that are landfills only.

The proposed Resource Recovery Facility will not accept combustible waste for processing on the Site. As such, the Guideline does not apply to the proposed development.

Firefighting Water Containment Measures

Both of the proposed sediment basins/tanks (Northern and Southern) will be fitted with a manual shut-off valve on the outlet pipe. In the event of a firefighting emergency, the shut-off valve will activated, preventing water being released from the sediment basins/tanks and ensuring no release of fire hydrant water from the Site. The proposed site storage volume of 200 kl is sufficient to contain 108 kl of fire hydrant water based on a hydrant flow rate 20L/sec (two hydrants simultaneously) for 90 minutes. Fire hydrant water stored within the site basins/tanks is to be collected by a licensed wastewater contractor following a fire event.

2.12 Water Requirements

The proposed water reuse scheme for the Site has been developed to achieve significant reduction in the town water demands of the Site. Non-potable site water uses include dust suppression, sand washing and toilet flushing. The proposed site water reuse scheme will supply recycled stormwater for these purposes.

2.12.1 Water Demand

The water cart for dust suppression has capacity of 12 kL and sprinklers on crushers and stockpiles are used to supplement the water cart.

During winter, the cart is used on average 3 times a day (36 kL/day) and total sprinkler water consumption is approximately 15 kL/day. In summer, water cart usage increases to 8 times a day (96 kL/day) and sprinkler water consumption doubles (i.e. to 30 kL/day).

The sand washing facility is considered to be a "closed" system, where wastewater is recollected and reused within the facility. A certain amount of water loss is expected, mainly due to moisture within the washed product and evaporative loss. The amount of water required to supplement the loss is approximately 75 KL/day.

Water demand for toilets will be approximately 20 L/person/day.

In summary, water demands to be supplied by stormwater reuse are:

- Winter dust suppression - 51 kL/day.
- Summer dust suppression – 126 kL/day.
- Sand washing – 75 kL/day.
- Toilet flushing – 0.3 kL/day.

2.12.2 Water Supply

Dust suppression and sand washing demands will be satisfied through reuse of stormwater runoff sourced from 200 kL sedimentation basins.

Captured runoff will be transferred to storage tanks for use on demand.

Approximately 500 kL of tank storage will be available on-site to provide 2 days of operational demand (based on 6 operational days per week) for dust suppression and 5 operational days per week for sand washing.

Water demand for toilet flushing will be supplied from a 5 kL roof water tank adjacent to the workshop building.

Mains water supply is available at the Site to provide water once site storages are exhausted.

2.13 Infrastructure Services

All infrastructure services are available to the Site.

2.14 Fuel Storage

A 30,000 litre capacity diesel fuel tank will be established on the Site. The fuel tank would be self bunded and fully baffled in accordance with relevant Australian Standards. An example of the self bunded facility is provided as **Figure 2-19** below.

Figure 2-19: Example of a self bunded fuel tank similar to that to be used on the Site.

2.15 Buildings on Site

As seen on the plans of the proposed development at **Appendix 4**, a number of buildings will be erected on the Site as follows:

Concrete Crushing Shed

The crushing shed will be a steel frame building with dimensions of 22.5m x 27m for the main section and an extension of 7m x 7m on the south western corner to cover the jaw crusher and feeder. The height of the eaves is 9m and the ridge is 11m.

The southern wall of the 7m extension is open to enable the crusher to be loaded with the excavator.

There is an opening 7m x 7m high on the southern end of the eastern wall to enable the steel to be discharged by the magnet.

There is a maintenance access by means of a roller door on the western side of the shed.

The shed will be clad in shale grey Colorbond or similar and the lower 3m will be clad with precast concrete panels.

Workshop Shed

The workshop shed will be a steel frame building with dimensions of 54.3m x 22.8m wide. The height of the eaves is 9.3m and the ridge is 11.3m.

There will be a 5.4m wide roller door access point across the northern wall.

The shed will be clad in shale grey Colorbond.

Sand Washing Shed

The sand washing shed will be a steel frame building with dimensions of 5.3m x 8.3m wide. The height of the eaves is 8.3m and the ridge is 9.1m.

There will be a maintenance access 6m x 3.6 on the western end of the building which will be closed in with a roller door.

The shed will be clad in shale grey Colorbond.

Weighbridge Office

The weighbridge office is a transportable office 3m x 9m clad in white Colorbond.

Site Office/Lunch room

The office / lunch room building is 3m x 12m portable building clad in white Colorbond.

Toilets

Two toilet / shower blocks 3m x 7.2m are portable buildings clad in white Colorbond.

2.16 Sequence of Construction of the Proposal

The approximate sequence of construction activities to establish the proposed development will include:

- Set up temporary site access and sediment controls
- Site Remediation
- Cut and fill to design
- Construction of retaining walls
- Installation of stormwater and drainage system
- Electrical services installation
- Driveway layback and permanent site access
- Road base laying and compaction
- Shed footings / foundations
- Shed construction
- Installation of permanent site fencing and noise walls
- Installation of weighbridges
- Installation of crushing and sand washing plant.

The initial earthworks volume has a fill balance of approximately 80m^3. The imported fill will be excavation or tunnel sandstone which will be supplied with VENM certificates. The imported hardstand material - 6,432m^3 - will be crushed concrete under the EPA recovered aggregate exemption 2014.

2.17 Approvals Required

Section 43 of the *Protection of the Environmental Operations Act 1997* (**POEO Act**) requires an Environment Protection Licence to be obtained for the carrying out of *"scheduled development works"* which would enable a *"scheduled activity"* to be carried out.

Schedule 1 of the POEO Act defines the following scheduled activities for which an Environment Protection Licence is required:

34 Resource recovery

(1) This clause applies to the following activities:

***recovery of general waste**, meaning the receiving of waste (other than hazardous waste, restricted solid waste, liquid waste or special waste) from off site and its processing, otherwise than for the recovery of energy.*

....

(2) However, this clause does not apply to any of the following:

(a) materials separation and sorting of less than 60 tonnes per year of waste lead acid batteries,

(b) the treatment of sewage within a sewage treatment system (whether or not that system is licensed),

(c) the recovery of stormwater.

(3) Each activity referred to in Column 1 of the Table to this clause is declared to be a scheduled activity if:

(a) it meets the criteria set out in Column 2 of that Table, and

(b) either:

(I) less than 50% by weight of the waste received in any year requires disposal after processing, or

(ii) an exemption granted under Part 9 of the Protection of the Environment Operations (Waste) Regulation 2014 exempts the person carrying out the activity from the requirements of section 48 (2) as they apply to waste disposal (application to land), waste disposal (thermal treatment), waste processing (non-thermal treatment) and waste storage.

Table

Column 1	***Column 2***
Activity	***Criteria***
Recovery of general waste	*if the premises are in the regulated area:* *(a) involves having on site at any time more than 1,000 tonnes or 1,000 cubic metres of waste, or* *(b) involves processing more than 6,000 tonnes of waste per year* *if the premises are outside the regulated area:* *(a) involves having on site at any time more than*

2,500 tonnes or 2,500 cubic metres of waste, or

(b) involves processing more than 12,000 tonnes of waste per year.

The proposed development would fall within the above category of *"Recovery of general waste"* and, as such, an Environment Protection Licence is required to operate the proposed activity.

The Site lies partly within 40m of the right bank of Bow Bowing Creek and is classified as *"waterfront land"* and the development will be integrated development under the *Water Management Act 2000*.

Part Three

STATUTORY PLANNING CONTROLS

3.1 Introduction

The Secretary's Environmental Assessment Requirements includes a requirement for:

- *consideration of all relevant environmental planning instruments, including identification and justification of any inconsistencies with these instruments;*

The following planning documents are relevant to the proposed development:

- Commonwealth Environment Protection and Biodiversity Conservation Act 1999.
- NSW Protection of the Environment Operations Act 1997.
- NSW National Parks and Wildlife Act 1974.
- NSW Heritage Act 1977.
- Contaminated Land Management Act.
- State Environmental Planning Policy (State and Regional Development) 2011.
- State Environmental Planning Policy No.33 - Hazardous and Offensive Development.
- State Environmental Planning Policy No.55 - Remediation of Land.
- State Environmental Planning Policy No.44 - Koala Habitat Protection.
- State Environmental Planning Policy (Infrastructure) 2007.
- NSW Framework for Biodiversity Assessment.
- Campbelltown Local Environmental Plan 2015.
- Campbelltown (Sustainable City) Development Control Plan 2015.

3.2 Commonwealth Legislation

The *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (**EPBC Act**) came into force from 16 July 2000. The EPBC Act requires actions which are likely to have a significant impact on matters of National Environmental Significance, or which have a significant impact on Commonwealth land, to be referred to the Commonwealth Minister for the Environment for approval.

The Site is not listed as a national heritage place and the proposed development would not impact on any national heritage places.

The proposed development would not impact on any threatened species and communities.

No National Environmental Significance matters would be impacted by the proposed development. As such, the proposed development has not been referred to the Commonwealth Minister for the Environment and approval pursuant to the EPBC Act is not required.

3.3 NSW Protection of the Environment Operations Act 1997

Section 43 of the *Protection of the Environmental Operations Act 1997* (**POEO Act**) requires an Environment Protection Licence to be obtained for the carrying out of *"scheduled development works"* which would enable a *"scheduled activity"* to be carried out.

Schedule 1 of the POEO Act defines the following scheduled activities for which an Environment Protection Licence is required:

34 Resource recovery

(1) This clause applies to the following activities:

***recovery of general waste**, meaning the receiving of waste (other than hazardous waste, restricted solid waste, liquid waste or special waste) from off site and its processing, otherwise than for the recovery of energy.*

....

(2) However, this clause does not apply to any of the following:

(a) materials separation and sorting of less than 60 tonnes per year of waste lead acid batteries,

(b) the treatment of sewage within a sewage treatment system (whether or not that system is licensed),

(c) the recovery of stormwater.

(3) Each activity referred to in Column 1 of the Table to this clause is declared to be a scheduled activity if:

(a) it meets the criteria set out in Column 2 of that Table, and

(b) either:

(i) less than 50% by weight of the waste received in any year requires disposal after processing, or

(ii) the regulations under section 286 exempt the person carrying out the activity from the requirements of section 48 (2) as they apply to waste disposal (application to land), waste disposal (thermal treatment), waste processing (non-thermal treatment) and waste storage.

Table

Column 1	***Column 2***
Activity	***Criteria***
Recovery of general waste	*involves having on site at any time more than 2,500 tonnes or 2,500 cubic metres, whichever is the lesser, of waste* *involves processing more than 120 tonnes of waste per day or 30,000 tonnes of waste per year*
....	....

The proposed development would fall within the above category of *"Recovery of general waste"* and, as such, an Environment Protection Licence is required to operate the proposed activity.

3.4 NSW National Parks and Wildlife Act 1974

The *National Parks and Wildlife Act 1974* (**NPW Act**) provides statutory protection for Aboriginal objects by making it illegal to harm Aboriginal objects and Aboriginal places. The NPW Act provides two tiers of offence against which individuals or corporations who harm Aboriginal objects or Aboriginal places can be prosecuted. The NPW Act defines Aboriginal objects and Aboriginal places as:

> ***Aboriginal object*** *means any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains.*
>
> ***Aboriginal place*** *means any place declared to be an Aboriginal place under section 84.*

Under Section 89A of the NPW Act, a person who is aware of the location of an Aboriginal object and does not, in the prescribed manner, notify the Secretary thereof within a reasonable time is guilty of an offence, unless the person believes, on reasonable grounds, that the Secretary is aware of the location of that Aboriginal object.

Under Section 85 of the NPW Act, the Chief Executive of the NSW Office of Environment and Heritage (as the delegate of the Secretary of the Department of Premier and Cabinet) is the authority for the proper care, preservation and protection of Aboriginal objects and Aboriginal places in NSW. This

legislative responsibility applies to Aboriginal objects and Aboriginal places as defined under the NPW Act.

The *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* sets out a process for individuals and organisations to follow to determine whether an Aboriginal object will be harmed by an activity.

The Site has gone through an extensive stage of ground surface clearing and earthworks, significantly in 2013 and likely prior to 1961. The surrounding area has changed significantly with the development of industries within the area.

It is highly unlikely that Aboriginal objects have survived within the Site.

3.5 NSW Heritage Act 1977

Archaeological features and deposits are afforded statutory protection by the "relics provisions" of the NSW Heritage Act 1977. A relic is defined as:

> ***relic*** *means any deposit, artefact, object or material evidence that:*
>
> *(a) relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and*
>
> *(b) is of State or local heritage significance.*

Land disturbance or excavation which will or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed is prohibited under the provisions of the Act, unless carried out in accordance with a permit issued under s.140 or s.139 of the Act.

There are no items within the Site.

3.6 Contaminated Land Management Act

Sub-section 60(1) of the *NSW Contaminated Land Management Act* (**CLM Act**) states:

> *60 Duty to report contamination*
>
> *(1) A person whose activities have contaminated land must notify the EPA in writing in accordance with this section that the land has been so contaminated.*

There has been no reporting of contamination on the Site.

3.7 State Environmental Planning Legislation

3.7.1 State Environmental Planning Policy (State and Regional Development) 2011

Sub-section 8(1) of *State Environmental Planning Policy (State and Regional Development) 2011* states:

> *(1) Development is declared to be State significant development for the purposes of the Act if:*
>
> *(a) the development on the land concerned is, by the operation of an environmental planning instrument, not permissible without development consent under Part 4 of the Act, and*
>
> *(b) the development is specified in Schedule 1 or 2.*

The proposed development is for the purpose of a resource recovery or recycling facility which handles more than 100,000 tonnes per year of waste. As such, the proposed development is State Significant Development.

Sub-clause 11(1) of the Policy states:

> ***11 Exclusion of application of development control plans***
>
> *Development control plans (whether made before or after the commencement of this Policy) do not apply to:*
>
> *(a) State significant development, or*
>
> *(b) development for which a relevant council is the consent authority under section 4.37 of the Act.*

3.7.2 State Environmental Planning Policy No.33 - Hazardous and Offensive Development

State Environmental Planning Policy No.33 - Hazardous and Offensive Development (**SEPP 33**) aims, among other things:

> *(d) to ensure that in determining whether a development is a hazardous or offensive industry, any measures proposed to be employed to reduce the impact of the development are taken into account; and*
>
> *(e) to ensure that in considering any application to carry out potentially hazardous or offensive development, the consent authority has sufficient information to assess*

whether the development is hazardous or offensive and to impose conditions to reduce or minimise any adverse impact.

The proposed development is not a *Hazardous Industry*, *Potentially Hazardous Industry* or *Hazardous Storage Establishment* as defined in SEPP 33 as it would not pose a significant risk in relation to the locality to human health, life or property, or to the biophysical environment.

The proposed development is, however, *Potentially Offensive Industry*.

When determining an application for Potentially Offensive Industry, the consent authority must, pursuant to **clause 13** of SEPP 33, consider:

(a) current circulars or guidelines published by the Department of Planning relating to hazardous or offensive development; and

(b) whether any public authority should be consulted concerning any environmental and land use safety requirements with which the development should comply; and

(c) ....., and

(d) any feasible alternatives to the carrying out of the development, and the reasons for choosing the development the subject of the application (including any feasible alternatives for the location of the development and the reasons for choosing the location of the subject application); and

(e) any likely future use of the land surrounding the development.

With regard to current circulars and guidelines, the Department of Planning has prepared the publication *Hazardous and Offensive Development Application Guidelines. Applying SEPP 33. January 2011* (**the Guidelines**).

The Guidelines state:

SEPP 33 applies to any proposals which fall under the policy's definition of 'potentially hazardous industry' or 'potentially offensive industry'. Certain activities may involve handling, storing or processing a range of substances which in the absence of locational, technical or operational controls may create an off-site risk or offence to people, property or the environment. Such activities would be defined as potentially hazardous or potentially offensive. (p1)

SEPP 33 ensures that only those proposals which are suitably located, and able to demonstrate that they can be built and operated with an adequate level of safety and pollution control, can proceed. (p1)

For developments identified as 'potentially offensive industry', the minimum test for such developments is meeting the requirements for licensing by the DECCW or other relevant authority. If a development cannot obtain the necessary pollution control licences or other permits, then it may be classified as 'offensive industry', and may not be permissible in most zonings. (p2)

With regard to *Potentially Offensive Industry*, the Guidelines, at page 5, give guidance with regard to the

information which should be provided with a Development Application and state:

> *In deciding if a proposal is potentially offensive industry consent authorities need to determine whether, in the absence of safeguards, the proposal would emit a polluting discharge which would cause a significant level of offence.*
>
> *It is recommended the following be considered:*
>
> - *Does the proposal require a licence under any pollution control legislation administered by the DECCW or other public authority? If so, the proposal should be considered potentially offensive.*

As indicated in the guidelines, if a licence is required by the Environment Protection Authority, then it is safe to assume that the proposed development is *Potentially Offensive Industry*.

The proposed development would fall within the category of *"Recovery of general waste"* of the *Protection of the Environment Operation Act 1997* and, as such, an Environment Protection Licence is required to operate the proposed activity.

Notwithstanding, as required by the Secretary's Environmental Assessment Requirements, a Hazard and Risk Assessment is contained in **Part 11** of this Environmental Impact Statement.

3.7.3 State Environmental Planning Policy No.55 - Remediation of Land

State Environmental Planning Policy No.55 - Remediation of Land (**SEPP 55**) aims:

> *.... to promote the remediation of contaminated land for the purpose of reducing the risk of harm to human health or any other aspect of the environment.*

Clause 7 of SEPP 55 states:

> *7. (1) A consent authority must not consent to the carrying out of any development on land unless:*
>
> *(a) it has considered whether the land is contaminated, and*
>
> *(b) if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and*
>
> *(c) if the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.*
>
> *(2) Before determining an application for consent to carry out development that would involve a change of use on any of the land specified in subclause (4), the*

consent authority must consider a report specifying the findings of a preliminary investigation of the land concerned carried out in accordance with the contaminated land planning guidelines.

(3) The applicant for development consent must carry out the investigation required by subclause (2) and must provide a report on it to the consent authority. The consent authority may require the applicant to carry out, and provide a report on, a detailed investigation (as referred to in the contaminated land planning guidelines) if it considers that the findings of the preliminary investigation warrant such an investigation.

(4) The land concerned is:

(a) land that is within an investigation area,

(b) land on which development for a purpose referred to in Table 1 to the contaminated land planning guidelines is being, or is known to have been, carried out,

(c) to the extent to which it is proposed to carry out development on it for residential, educational, recreational or child care purposes, or for the purposes of a hospital land:

(i) in relation to which there is no knowledge (or incomplete knowledge) as to whether development for a purpose referred to in Table 1 to the contaminated land planning guidelines has been carried out, and

(ii) on which it would have been lawful to carry out such development during any period in respect of which there is no knowledge (or incomplete knowledge).

3.7.4 State Environmental Planning Policy No.44 - Koala Habitat Protection

State Environmental Planning Policy No.44 - Koala Habitat Protection (**SEPP 44**) applies in the Campbelltown Local Government Area.

SEPP 44 aims to encourage the proper conservation and management of areas of natural vegetation which provide habitat for koalas to ensure a permanent free-living population over their present range and reverse the current trend of koala population decline. The aims and objectives of SEPP 44 are:

... to encourage the proper conservation and management of areas of natural vegetation that provide habitat for koalas to ensure a permanent free-living population over their present range and reverse the current trend of koala population decline:

(a) by requiring the preparation of plans of management before development consent can

be granted in relation to areas of core koala habitat, and

(b) by encouraging the identification of areas of core koala habitat, and

(c) by encouraging the inclusion of areas of core koala habitat in environment protection zones.

Clause 6 of SEPP 44 states:

This Part applies to land:

(a) that is land to which this Policy applies, and

(b) that is land in relation to which a development application has been made, and

(c) that:

(i) has an area of more than 1 hectare, or

(ii) has, together with any adjoining land in the same ownership, an area of more than 1 hectare,

whether or not the development application applies to the whole, or only part, of the land.

The Site has an area of greater than 1 hectare. An assessment of the Site was undertaken to ascertain its suitability as Koala habitat (refer **Appendix 9**). The procedures involved in such an assessment are outlined in SEPP 44.

Step 1 - Is the land potential Koala habitat? - **Yes**

Ribbon Gum, which is listed as a Koala feed tree in the schedule to the SEPP, occurs on the Site and constitutes more than 15% of the trees, therefore, the land is potential Koala habitat.

Step 2 - Is the land core Koala habitat - **No**

No signs of the Koala inhabiting the Site were detected during the field survey. The Site is disjunct from the known population of the Koala in the east of the Campbelltown LGA, therefore, the development application may proceed without a Plan of Management being prepared for the Koala.

3.7.5 State Environmental Planning Policy (Infrastructure) 2007

State Environmental Planning Policy (Infrastructure) 2007 (**SEPP Infrastructure**) has as its aim:

... to facilitate the effective delivery of infrastructure across the State by:

(a) improving regulatory certainty and efficiency through a consistent planning regime for

infrastructure and the provision of services, and

(b) providing greater flexibility in the location of infrastructure and service facilities, and

(c) allowing for the efficient development, redevelopment or disposal of surplus government owned land, and

(d) identifying the environmental assessment category into which different types of infrastructure and services development fall (including identifying certain development of minimal environmental impact as exempt development), and

(e) identifying matters to be considered in the assessment of development adjacent to particular types of infrastructure development, and

(f) providing for consultation with relevant public authorities about certain development during the assessment process or prior to development commencing.

Clause 104 of SEPP Infrastructure states:

104 Traffic-generating development

(1) This clause applies to development specified in Column 1 of the Table to Schedule 3 that involves:

(a) new premises of the relevant size or capacity, or

(b) an enlargement or extension of existing premises, being an alteration or addition of the relevant size or capacity.

(2) In this clause, relevant size or capacity means:

(a) in relation to development on a site that has direct vehicular or pedestrian access to any road—the size or capacity specified opposite that development in Column 2 of the Table to Schedule 3, or

(b) in relation to development on a site that has direct vehicular or pedestrian access to a classified road or to a road that connects to a classified road where the access (measured along the alignment of the connecting road) is within 90m of the connection—the size or capacity specified opposite that development in Column 3 of the Table to Schedule 3.

(3) Before determining a development application for development to which this clause applies, the consent authority must:

(a) give written notice of the application to the RTA within 7 days after the application is made, and

(b) take into consideration:

(i) any submission that the RTA provides in response to that notice within 21 days after the notice was given (unless, before the 21 days have passed, the RTA advises that it will not be making a submission), and

(ii) the accessibility of the site concerned, including:

(A) the efficiency of movement of people and freight to and from the site and the extent of multi-purpose trips, and

(B) the potential to minimise the need for travel by car and to maximise movement of freight in containers or bulk freight by rail, and

(iii) any potential traffic safety, road congestion or parking implications of the development.

(4) The consent authority must give the RTA a copy of the determination of the application within 7 days after the determination is made.

Schedule 3 of SEPP Infrastructure includes *"Landfill, recycling facilities, waste transfer station"* of any capacity in both Column 2 and Column 3. As such, the Transport for NSW Roads and Maritime must be consulted as part of the assessment of the proposed development.

3.7.6 NSW Framework for Biodiversity Assessment

The NSW Government has developed a NSW Biodiversity Offsets Policy for Major Projects (**the Policy**). Major projects include State Significant Development and State Significant Infrastructure.

The policy:

(a) Establishes a set of offsetting principles for Major Projects.

(b) Defines key thresholds for when offsetting is required.

(c) Adopts an assessment methodology to quantify and describe the offset required.

(d) Defines mechanisms required to establish offset sites.

(e) Provides a range of flexible options which can be used in lieu of providing offsets, including rehabilitation actions and supplementary measures.

The Framework for Biodiversity Assessment (**FBA**) underpins the Policy. It contains the assessment methodology which is adopted by the Policy to quantify and describe the impact assessment requirements and offset guidance which apply to Major Projects.

Section 2.1.1.2 of the FBA sets out:

> *(a) requirements for a reliable and transparent assessment of biodiversity values on land in order to:*
>
> *(i) identify the biodiversity values subject to a proposed major development.*
>
> *(ii) determine the impacts of Major Projects on biodiversity as part of an application for approval to undertake the Major Project under NSW planning legislation.*
>
> *(iii) quantify and describe the biodiversity offsets required for the unavoidable impacts of Major Projects on biodiversity values.*
>
> *(b) types of conservation measures which are available to offset the unavoidable impacts of Major Projects, and how they may be used by a proponent to prepare a Biodiversity Offset Strategy as part of an application for approval to undertake the Major Project.*

Section 2.3.1.2 of the FBA states:

> *.... the FBA does not assess the direct impacts of a project that are not associated with clearing of vegetation.*

Section 3.3.1.3 of the FBA states:

> *If, during the assessment of biodiversity values of a vegetation zone, the assessor determines that:*
>
> *(a) it does not contain native vegetation; or*
>
> *(b) ....*
>
> *(c)*
>
> *then for that vegetation zone:*
>
> *(d) assessment of native vegetation is not required beyond Subsection 5.3.3; and*
>
> *(e) an assessment of threatened species habitat according to Sections 6.2 and 6.3 is not required.*

The Site is currently operating as a storage facility for Coates Hire and for the storage of plant and equipment owned by the applicant.

A list of flora species detected at the Site is provided in Appendix A of the AES Report at **Appendix 9**. No threatened flora species were found at the Site.

Under the *Biosecurity Act 2015*:

> *"all plants are regulated with a general biosecurity duty to prevent, eliminate or minimise any biosecurity risk they may pose. Any person who deals with any plant, who knows (or ought to*

> *know) of any biosecurity risk, has a duty to ensure the risk is prevented, eliminated or minimised, so far as is reasonably practicable."*

Of those species recorded, the following are priority weeds in the Greater Sydney Area:

- African Olive (*Olea europaea subsp cuspidata*)
- Chilean Needle Grass (*Nassella neesiana*)
- Cape Broom (*Genista monspessulana*)
- Fireweed (*Senecio madagascariensis*).

In the core infestation area of African Olive (which includes the Campbelltown LGA), land managers have a duty under the Act to prevent spread from their land where feasible and reduce impacts from the plant on priority assets. The plants on Site would be removed as part of the redevelopment of the Site.

No fauna species listed as threatened on the *TSC Act* or the *EPBC Act* were detected during the survey.

Under **Section 7.9** of the *Biodiversity Conservation Act 1999*, an application for development consent under **Part 4** of the *Environmental Planning and Assessment Act 1979* for State Significant Development is to be accompanied by a Biodiversity Development Assessment Report (**BDAR**) unless the Planning Agency Head and the Environment Agency Head determine that the proposed development is not likely to have any significant impact on biodiversity values.

The proposed Resource Recovery Facility is not likely to have a significant effect on biodiversity values. An application for a BDAR waiver has been prepared in accordance with the requirements of NSW Department of Planning and Environment *Biodiversity development assessment report waiver determinations for SSD and SSI applications 2018*. The BDAR waiver was granted in November 2019 a copy of which is attached to the AES Report at **Appendix 9**.

3.8 Local Environmental Planning Instruments

3.8.1 Campbelltown Local Environmental Plan 2015

The Site is within the IN1 General Industrial zone of the Campbelltown Local Environmental Plan 2015 (**LEP 2015**).

An extract from the LEP 2015 Map is at **Figure 3-1**.

The proposed development is a *"general industry"* which is defined in LEP 2015 as:

> ***general industry*** *means a building or place (other than a heavy industry or light industry) that is used to carry out an industrial activity.*

A *"general industry"* is permitted in the IN1 General Industrial zone with consent. An extract from the

Land Use Table is provided as **Table 3-1**.

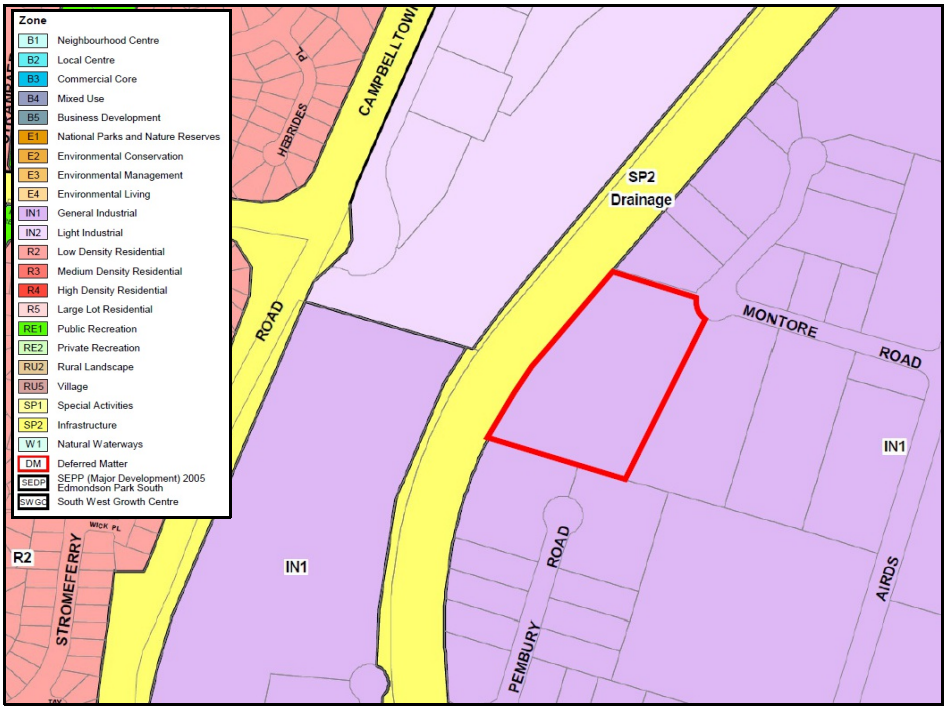


Figure 3-1: Extract from the LEP 2015 Map with the Site outlined in red.

Table 3-1: Extract from the Land Use Table of LEP 2015

IN1 General Industrial Zone	
Permitted without consent	*Nil*
Permitted with consent	*Animal boarding or training establishments; Boat building and repair facilities; Car parks; Depots; Environmental facilities; Environmental protection works; Flood mitigation works; Freight transport facilities; Garden centres; General industries; Hardware and building supplies; Helipads; Highway service centres; Industrial retail outlets; Industrial training facilities; Kiosks; Landscaping material supplies; Light industries; Mortuaries; Neighbourhood shops; Passenger transport facilities; Places of public worship; Roads; Rural industries; Rural supplies; Service stations; Sex services premises; Signage; Storage premises; Take away food and drink premises; Transport depots; Truck depots; Vehicle body repair workshops; Vehicle repair stations; Veterinary hospitals; Warehouse or distribution centres*
Prohibited	*Any development not specified in item 2 or 3*

Clause 4.3 of LEP 2015 deals with the height of buildings and states:

> ***4.3 Height of buildings***
>
> *(1) The objectives of this clause are as follows:*

(a) to nominate a range of building heights that will provide a transition in built form and land use intensity across all zones,

(b) to ensure that the heights of buildings reflect the intended scale of development appropriate to the locality and the proximity to business centres and transport facilities,

(c) to provide for built form that is compatible with the hierarchy and role of centres,

(d) to assist in the minimisation of opportunities for undesirable visual impact, disruption to views, loss of privacy and loss of solar access to existing and future development and to the public domain.

(2) The height of a building on any land is not to exceed the maximum height shown for the land on the Height of Buildings Map.

The Height of Buildings Map of LEP 2015 indicates that a maximum height of building of 12 metres applies to the Site.

No part of the proposed development would exceed the 12 metre development standard.

Clause 7.1 of LEP 2015 deals with earthworks and states:

7.1 Earthworks

(1) The objective of this clause is to ensure that earthworks for which development consent is required will not have a detrimental impact on environmental functions and processes, neighbouring uses, cultural or heritage items or features of the surrounding land.

(2) Development consent is required for earthworks unless:

(a) the earthworks are exempt development under this Plan or another applicable environmental planning instrument, or

(b) the earthworks are ancillary to development that is permitted without consent under this Plan or to development for which development consent has been given.

The establishment of the Site for the proposed development would require earthworks to be undertaken as detailed in the following plans provided in **Appendix 4**:

PS 02 - C100, Issue G
PS 02 - C105, Issue D
PS 02 - C600, Issue G
PS 02 - C700, Issue E
PS 02 - C701, Issue E
PS 02 - C705, Issue A

The required earthworks are ancillary to the proposed development and, as such, are permitted without consent. Notwithstanding, the earthworks proposed form part of the development application.

Clause 7.2 of LEP 2015 deals with flood planning and states:

> ***7.2 Flood planning***
>
> *(1) The objectives of this clause are as follows:*
>
> *(a) to minimise the flood risk to life and property associated with the use of land,*
>
> *(b) to allow development on land that is compatible with the land's flood hazard, taking into account projected changes as a result of climate change,*
>
> *(c) to avoid significant adverse impacts on flood behaviour and the environment.*
>
> *(2) This clause applies to land at or below the flood planning level.*
>
> *(3) Development consent must not be granted to development on land to which this clause applies unless the consent authority is satisfied that the development:*
>
> *(a) is compatible with the flood hazard of the land, and*
>
> *(b) will not significantly adversely affect flood behaviour resulting in detrimental increases in the potential flood affectation of other development or properties, and*
>
> *(c) incorporates appropriate measures to manage risk to life from flood, and*
>
> *(d) will not significantly adversely affect the environment or cause avoidable erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses, and*
>
> *(e) is not likely to result in unsustainable social and economic costs to the community as a consequence of flooding.*
>
> *(4) A word or expression used in this clause has the same meaning as it has in the Floodplain Development Manual (ISBN 0 7347 5476 0) published by the NSW Government in April 2005, unless it is otherwise defined in this clause.*
>
> *(5) In this clause:*
>
> ***land at or below the flood planning level** means land at or below the level of a 1:100 ARI (average recurrent interval) flood event plus 0.5 metre freeboard.*

The Site is within the catchment of the 1 in 100 year flood event. This aspect of the Site and the

proposed means by which stormwater on the Site would be managed is discussed in the Soil Water Management Plan at **Appendix 5** of this EIS.

In order to ascertain the potential impact of the proposed development on the flood regime of the catchment, Martens & Associates has prepared a report titled *Preliminary Flood Assessment: Minto Resource Recovery Facility 7 Montore Road, Minto, NSW* (**the Flood Report**) a copy of which is at **Appendix 19**.

The objectives of the Flood Report are to:

- Prepare an hydrologic model (**RAFTS**) for the Site to determine the peak flow of the 1% annual exceedance probability (**AEP**) flood.
- Prepare an hydraulic model (**TUFLOW**) for the Site under existing and proposed conditions and calibrate to available flood data.
- Prepare relevant flood maps including flood extents, depths, levels, velocities, hazards and impacts.
- Comment on flood characteristics and model outcomes in existing and proposed conditions.

The catchment upstream of the Site comprises:

- The Site is located within the Bow Bowing Bunbury Curran (**BBBC**) Creek catchment.
- The Site is located on the banks of the Bow Bowing Creek.
- The upstream catchment is primarily urban residential and rural landscape areas, with some industrial areas, and includes the suburbs of Minto, Kentlyn, Leumeah, Ruse, Kentlyn, Airds, Bradbury, Campbelltown, Englorie Park, Ambarvale, Glen Alpine, Menangle Park, Gilead, Mount Annan, Blair Athol, Blairmount, Gregory Hills, Claymore, Woodbine, Eagle Vale, Eschol Park, Kearns, Raby and St Andrews.
- The total catchment area is approximately 4,110 ha.

Site Flood Mechanisms

The Site is likely affected by the following flood mechanisms:

- Overland flows from the local upstream catchment being conveyed by an existing 9.5m wide swale along the common boundary of the Site and Nos.26 and 27 Pembury Road running in a westerly direction. The swale contains a 750mm underground stormwater pipe within a 4m wide easement on the southern side of the common boundary (within Nos.26 and 27 Pembury Road) draining towards Bow Bowing Creek.
- Overland flows from the local upstream catchment being conveyed by the existing footpath and turning head of Montore Road north of the Site. Along the northern boundary of the Site, there is a 4m wide footpath falling in a westerly direction outside of the Site. The Site is approximately 1m higher than the footpath levels.

- Flood overbank flows from Bow Bowing Creek. The existing Site surface along the western boundary is approximately 4.5m higher than the invert of the creek.

Previous Flood Studies

A review of previous flood investigations was undertaken to assess likely local flood behaviour and characteristics for the Site and the BBCC catchment. The review identified two previous flood studies which would be relevant to this assessment.

Campbelltown City Council (2009) BBBC Creek Flood Study

Council conducted a flood assessment for this catchment and summarised the assessment in the report *Bow Bowing Bunbury Curran Creek Flood Study (2009)*. As part of its study, Council used RAFTS for hydrologic modelling and TUFLOW for hydraulic modelling.

The flood model was updated in 2011 by Catchment Simulation Solutions (**CSS**) on behalf of Council. Concurrently, there were a series of coordinated flood studies for each of the twelve sub-catchments of BBBC Creek which were completed between 2010 and 2014 and then refined in 2016 by CSS to create a single water surface across the whole BBCC Creek catchment for each design event. This was further revised in 2018. Collectively, these flood studies will hereafter be referred to as the CSS flood study.

Council has not provided the CSS flood study report or the TUFLOW, however, site flood data have been acquired from Council which is assumed to be based on the CSS flood study and includes flood levels on the Site. The model has been used as the basis for undertaking detailed hydraulic modelling at the Site.

J.Wyndham Prince (2010) Minto/McBarron Creek Flood Study

J.Wyndham Prince developed a flood model including the suburb of Minto and McBarron Creek. The model was included in the series of coordinated flood studies for the twelve sub catchments of BBBC Creek as mentioned above, and was later revised by CSS in 2018. A copy of the flood model or report were not able to be obtained for this flood study.

Hydraulic Modelling

The TUFLOW hydraulic model was used to determine flood characteristics including flood extents, levels, depths, velocities and hydraulic hazard for the critical 1% AEP flood event for existing and proposed conditions.

Hydrology Modelling

The DRAINS software package (version 2019.03 - 17 May 2019) was used with the RAFTS hydrological engine to assess the 1% AEP flood peak flow rates for a range of storm durations between 5 minutes and 168 hours.

Hydrology Results

The critical storm duration was determined to be 2 hours for the 1% AEP flood event. The peak flow rate for catchments arriving at the Site for the critical duration 1% AEP flood event was determined to be 375m^3/s.

Validation

The peak flow rate for the catchments was determined by calibrating the Martens & Associates 1% AEP flood levels on the Site to the Council 1% AEP flood levels.

Comparison between Council flood data and Martens & Associates peak flood levels for the 1% AEP flood event is given in Table 2 of the Flood Report, a copy of which is at **Table 3-2**.

	Point C [1]				Point A [1]			
	Peak Flood Level (mAHD)		Difference		Peak Flood Level (mAHD)		Difference	
Flood Event	Council [2]	MA	(m)	(%)	Council [2]	MA	(m)	(%)
1% AEP	43.20	43.12	0.08	-0.19	42.50	42.60	0.10	+0.24

Notes

1. Calibration locations shown in Attachment C.
2. Peak flood levels from the Council flood data (Attachment C).

Table 3-2: Comparison between Council flood levels and Martens & Associates (2019) modelled peak water levels.

Comparison is made for the peak flood levels at Points A and C as shown in Attachment C of the Flood Report, an extract from which is at **Figure 3-2**.

Figure 3-2: Council Flood Data Locations.

The comparison shows flood levels as modelled by Martens & Associates agree well with Council flood levels, and differences are ≤± 100 mm. Martens & Associates modelled flood levels are slightly lower than Council flood levels at Point C, but slightly higher at Point A. This can be attributed to a number of factors due to the differences in the method of modelling the creek, such as the smaller grid cell size Martens & Associates has adopted, which increases channel capacity and, thereby, decreases local water levels, or the CSS flood study modelling Bow Bowing Creek as a 1D channel in a 2D domain.

It is, therefore, considered that the Martens & Associates model closely matches the Council adopted flood characteristics and is considered adequate for the purposes of detailed site modelling.

The hydraulic model was setup to represent the following flood condition scenarios:

1. **Existing condition:** the catchment and site in their current state.

2. **Proposed condition:** the catchment in its current state and the Site in its proposed state after development.

The hydraulic model was used to assess flooding for the 1% AEP 2 hour (critical duration) event.

In summary, a total of two (2) scenarios were modelled as part of this assessment (2 flood condition scenarios and 1 flood event each).

Results

Flood mapping results (flood levels, depths, velocities and provisional hazard categories) for the critical duration 1% AEP flood event in existing and proposed conditions are summarised in Table 4 of the Flood Report, a copy of which is at **Table 3-3**.

Flood Condition Scenario	Critical Duration Flood Event	Water Level & Depth	Water Velocity	Provisional Hydraulic Hazard Categories [2]	Water Level Impact
Existing Conditions	1% AEP	K100	K101	K102	–
Proposed Conditions	1% AEP	K200	K201	K202	K300

Notes

1. Flood results have been filtered to show areas of greater than 50 mm depth.
2. Provisional hydraulic hazard categories are based on NSW Floodplain Development Manual (2005) definitions and are shown in Figure 1.

Table 3-3: Flood map drawing references in Attachment E of the Flood Report.

Comparisons between Council peak flood levels and Martens & Associates peak flood levels were found to be closely matching, and, thus, adequate for the purposes of detailed site modelling.

Discussion

The Flood Report notes the following regarding modelled flood behaviour:

Existing Conditions

1. The majority of the Site is elevated above the 1% AEP flood level and thus is flood free. A small portion of areas along the western boundary of the Site which slopes down to Bow Bowing Creek is affected by flood waters from the creek.

2. Along the southern boundary, the Site slopes down to the drainage easement on Nos.26 and 27 Pembury Road. The easement is affected by flood waters from the creek as well as local overland flow with depths of up to 780mm.

3. Along the northern boundary of the Site, the Site slopes down to the footpath connecting Bow Bowing Creek and Montore Road. The 1% AEP flood water is contained on the footpath and turning head of Montore Road outside of the Site with depths of up to 900mm. The Site entrance is inundated by flood waters of up to 500mm.

4. The 1% AEP flood levels range from 43.12m AHD to 42.60m AHD from the south-western corner of the Site to the north-western corner of the Site.

5. Flood velocities on-site are generally low, below 1.0 m/s in the 1% AEP event.

6. Hydraulic hazards on-site in the 1% AEP flood event are all low, with the exception of an approximately 20m^2 area on the western end of the Site due to a 1.5m drop in the grid elevation at that location.

Proposed Conditions

1. Proposed flood characteristics are largely consistent with existing conditions, and differences due to the proposed development are negligible.

2. The western and southern portion of the Site has been elevated which renders the Site completely flood free from Bow Bowing Creek in the 1% AEP event.

3. There is some flood affectation on the northern end of the driveway ramp due to flood water ponding up in the turning head on Montore Road. The flood water reaches depths of up to 500mm which is largely unchanged from the existing condition.

4. The 1% AEP hydraulic hazard at the entrance is low hazard.

5. Council requires a minimum freeboard of 500mm above the predicted 1% AEP flood level for industrial areas in relation to any creek or major stormwater line. The 1% AEP flood level is 43.12m AHD at the south-western boundary and 42.60m AHD at the north-western boundary. The proposed earthworks raises the Site to be 1.0m to 1.5m above the 1% AEP flood level in Bow Bowing Creek, and, therefore, complies with Council freeboard controls.

Offsite Flood Impacts

1. The proposed development has negligible changes to flows and water levels in Bow Bowing Creek in the 1% AEP flood event.

2. The proposed filling of the Site has minor off-site impacts of up to 70mm, however, they are contained to a small area within the drainage easement south of the Site. These impacts are considered to be immaterial as they are contained within the drainage easement which are designated as overland flow paths and are unlikely to represent an increased risk to people or property, thus, they are considered acceptable.

3. Along the southern boundary of the Site, the proposed upgrade of the pipe in the easement on the southern adjacent property has effectively accommodated the swale capacity lost due to the proposed retaining wall and earthworks at the Site boundary. Without the pipe upgrade, offsite impacts on water levels to the south of the Site would

occur.

Conclusion

A detailed hydrologic and hydraulic model has been developed for the Site consistent with Council's provided flood levels to assess local flood characteristics. The hydraulic model accurately replicates Council adopted flood characteristics.

The models were used to determine the existing and proposed flood conditions in the 1% AEP flood event. Modelling concluded that:

1. Proposed flood characteristics are largely consistent with existing conditions, and differences due to the proposed development are negligible.

2. The proposed fill pad effectively renders the Site development area flood free in the 1% AEP flood, except for the Site entrance which is inundated by low hazard flood water.

3. The proposed development would have no material off-site flood impacts.

4. Compliance with Council flood planning level requirements for industrial developments is achieved.

Clause 7.3 of LEP 2015 deals with riparian land and watercourses.

(1) The objective of this clause is to protect and maintain the following:

(a) water quality within watercourses,

(b) the stability of the bed and banks of watercourses,

(c) aquatic and riparian habitats, including those with key fish habitat value as mapped by NSW Fisheries,

(d) ecological processes within watercourses and riparian areas,

(e) groundwater systems.

Bow Bowing Creek is a major tributary of Bunbury Curan Creek which joins the Georges River approximately 10km north east of the Site. Aside from its headwaters, the creek channel is concrete lined to its confluence with Bunbury Curan Creek.

In the vicinity of the Site, this concrete channel is approximately 300mm deep and approximately 3.5 metres wide.

Downstream of the headwaters, the riparian corridor is either absent with industrial development on the right and left bank of the concrete channel or consists of grassed batters of approximately 20 metres either side of the channel.

Screen planting along industrial lot boundaries is typical as seen at the Site.

Stormwater from industrial areas is discharged to the creek at numerous locations via stormwater pipes with concrete lined flow paths.

The Site lies partly within 40 metres of the right bank of Bow Bowing Creek and is classified as *"waterfront land"* and the development will be integrated development under the *Water Management Act 2000*.

Proposed site works are approximately 25 metres from the top of bank and are consistent with uses on adjacent sites. The proposal includes measures to mitigate potential impacts including water quality and quantity with residual impacts considered negligible.

Development includes the removal of some trees and grass within 40 metres of the bank of Bow Bowing Creek. Given the low ecological value of screen planting, the impacts are considered low.

A detailed impact assessment is provided in Table 10 of the Martens Report (**Appendix 5**) which is reproduced below as **Table 3-4**.

Table 3-4: Impact assessment on nearby riparian environment.

Element	Impact	Comment
Channel stability	Negligible	Proposed development is more than 25m from the right top of bank. The low flow channel is concrete lined and high flow banks will be grassed. Proposed development attenuates post development flows to pre development level. No significant impact is anticipated.
Riparian zone	Low	The proposed development will involve the removal of existing screen planting along the western boundary. These trees have been assessed as non-significant by the Flora and Fauna Assessment (REF).
Sediment movement	Negligible	Bow Bowing Creek is concrete lined in the vicinity of the site. Development measures are provided to insure increases in sediment flux to the creek do not occur. Impacts on sediment movement are therefore not considered significant.
Water quality	Negligible	Proposed sediment basin (Section 3) will capture all sediment-laden runoff and treat it prior to reuse or discharge. Management and monitoring of discharge waters (Section 3.5) will ensure water is of a suitable quality and will have negligible environmental impact.
Hydraulic regime	Negligible	Hydrological regime is acceptable. No site OSD is required as indicated by Council.

Table 3-4 details proposed measures to mitigate actual and potential environmental disturbances and consequences which are summarised as:

- Capture and treat site runoff to prevent sediment-laden runoff discharging into the creek.
- Inclusion of sedimentation basins sized in accordance with Landcom (2004).
- Reuse of captured stormwater to limit the amount of stormwater discharge.
- Water quality monitoring regime to ensure water discharged is of an appropriate quality.

- Development outside of creek channel.

Clause 7.10 of LEP 2015 deals with essential services and states:

7.10 Essential services

Development consent must not be granted to development unless the consent authority is satisfied that any of the following services that are essential for the development are available or that adequate arrangements have been made to make them available when required:

(a) the supply of water,

(b) the supply of electricity,

(c) the disposal and management of sewage,

(d) stormwater drainage or on-site conservation,

(e) suitable road and vehicular access,

(f) telecommunication services,

(g) the supply of natural gas.

All essential services are available at the Site. Some augmentation of the existing service infrastructure may be required to accommodate the proposed development.

Part Four

CONSULTATION

4.1 Local Government, Government and Statutory Authority Consultation

The Secretary's Environmental Assessment Requirements includes a requirement for consultation as follows:

> *During the preparation of the EIS, you should consult with the relevant local, State and Commonwealth authorities, service providers, community groups and potentially affected landowners. In particular you must consult with:*
>
> - *Environmental Protection Authority;*
> - *Office of Environment and Heritage;*
> - *Department of Primary Industries;*
> - *NSW Roads and Maritime Service;*
> - *Campbelltown City Council.*

In the preparation of this Environmental Impact Statement, consultation was undertaken with:

- Campbelltown City Council.
- the NSW Environment Protection Authority.
- NSW Office of Environment and Heritage.
- NSW Department of Primary Industries.
- NSW Roads and Maritime Services.

Copies of responses from the above authorities are provided in **Appendix 2**.

Campbelltown City Council

Campbelltown City Council requested that the following issues be discussed in the EIS:

- *Dust and Odour Study with appropriate mitigation measures.*
- *Noise Study with appropriate mitigation measures. Restriction on the hours of operation if noise attenuation measure are considered ineffective.*
- *Detailed landscape plan using native species selection of minimum depth of 3m to screen the 8m high masonry screen walls proposed.*
- *Waste Water Management Plan.*
- *Details of secondary boundary fencing in a recessive colour to prevent access to the site and reduce graffiti of the masonry screen wall.*
- *The northern side of the subject site is a an overland flow path which must not be*

obstructed.
- *Graffiti Management Plan.*
- *Visual analysis to examine visual impact of the proposal to stock pile materials up to 10m in height.*
- *Traffic study.*
- *Location of the weighbridge so that trucks waiting to dump concrete do not queue on public roads.*

All issues raised by Campbelltown City Council have been addressed in the EIS.

Department of Primary Industries

The Department of Primary Industries requested that the following Key Issues be addressed in the EIS:

- *Compliance with the rules in any relevant Water Sharing Plan (WSP) and legislation;*
- *An assessment of the impact of the proposal on Bow Bowing Creek and riparian areas, and groundwater sources; and*
- *Adequate mitigating and monitoring requirements to address impacts to surface water and groundwater sources.*

The above Key Issues have been addressed in the EIS.

Environment Protection Authority

There has been no response from the Environment Protection Authority, however, a detailed response from the Environment Protection Authority forms part of the Secretary's Environmental Assessment Requirements. The issues raised by the Environment Protection Authority have been addressed in the EIS.

Roads and Maritime Services

There was no response from the then Roads and Maritime Services, however, a detailed response is included in the Secretary's Environmental Assessment Requirements. The issues raised by Roads and Maritime Services have been addressed in the EIS.

Office of Environment and Heritage

The Office of Environment and Heritage has responded as follows:

> *It does not appear that of [sic] the Office of Environment and Heritage (OEH) had input into the SEARs for this project which were issued in July 2017. However, if DPE seeks OEH input into SEARs OEH will advise, as for all major projects, that the environmental assessment must identify and describe the Aboriginal cultural heritage values that exist across the whole area that will be affected by the development and document these in an Aboriginal Cultural Heritage Assessment Report (ACHAR). This may include the need for surface survey and test excavation. The identification of cultural heritage values must be conducted in accordance with the Code of Practice for Archaeological Investigations of Aboriginal Objects in NSW (OEH 2010), and guided by the Guide to investigating, assessing and reporting on Aboriginal Cultural Heritage in NSW (DECCW, 2011). It is important to note that surface disturbance does not exclude the existence of subsurface Aboriginal objects.*

Consultation with Aboriginal people must be undertaken and documented in accordance with the Aboriginal cultural heritage consultation requirements for proponents 2010 (DECCW). The significance of cultural heritage values for Aboriginal people who have a cultural association with the land must be documented in the ACHAR.

Impacts on Aboriginal cultural heritage values are to be assessed and documented in the ACHAR. The ACHAR must demonstrate attempts to avoid impact upon cultural heritage values and identify any conservation outcomes. Where impacts are unavoidable, the ACHAR must outline measures proposed to mitigate impacts. Any objects recorded as part of the assessment must be documented and notified to OEH.

As the SEARs did not articulate these requirements, you need to ask DPE, as the relevant planning authority, what its expectation was for the EIS. Please note that OEH does not have an approval role for major projects and instead provides advice to DPE.

The required assessments have been included as **Appendix 17** to the EIS.

4.2 Community Consultation

Community consultation was undertaken as part of the preparation of the Environmental Impact Statement.

The scope of consultation undertaken included:

- A consultation process undertaken in accordance with the Director-General's requirements and the then NSW Department of Planning Guidelines for Major Project Community Consultation October 2007.
- Demonstration that the applicant understands the issues already identified as well as any new issues which arise during consultations.
- Ensuring that relevant stakeholders are satisfied that their concerns have been adequately heard and, to the extent possible within the Environmental Assessment, addressed.

A document outlining the preliminary assessment information for the proposed development was prepared and distributed to all potentially affected landowners and/or occupiers in the locality of the Site. A copy of the consultation letter is at **Appendix 2**.

Two (2) responses were received, copies of which are at **Appendix 2**.

Mr Brad Harris

Mr Harris provided the following comments:

Knowing that Industrial developments regard themselves as "out of sight, out of mind" and rarely fully comply with conditions of consent, I encourage you to ensure the impact on residential

properties in St. Andrews to the west of the site is carefully addressed and hours of operation recommended to reflect the potential for noise impacts associated with truck movements and crushing of materials. A Plan of Management should be prepared which requires post-approval monitoring of noise levels (at least for a period of time) to ensure anticipated noise levels are complied with.

In relation to traffic impacts the route of trucks exiting the site and intending to travel north on the Hume Motorway should be carefully assessed. If these trucks head north along Airds Road, west along Ben Lomond Road, south along Campbelltown Road and then west along Raby Road in order to access the Motorway, they will contribute to the increasingly heavy traffic flows on Raby Road resulting from traffic westbound toward newly developed residential estates in the South West Growth Sector. The constant stream of traffic heading west on Raby Road during the PM peak makes it almost impossible for cars wishing to turn right at the roundabout at the Motorway entry/Campbelltown Road exit point to find a break in traffic. This roundabout is hopelessly inadequate because of its location and the imbalance in traffic flows. One reason is that there is only one entry point onto Raby Road and this does not result in enough breaks in the east-west flow of traffic to enable cars entering from the Campbelltown Road off-ramp. Cars travelling west on Raby Road do not even slow down presuming (incorrectly) that they have right of way.

The roundabout at Raby Road/Stromeferry Crescent/Stranraer Drive is also problematic having regard to the imbalance of east-west and north-south traffic. Again, Raby Road traffic assumes it has right of way and there is little chance for local St. Andrews residents to break into the stream of traffic in Raby Road.

In my opinion, trucks from the proposed facility, should by way of an adopted Management Plan, require drivers travelling north on the Hume Motorway to exit south along Airds Road in order to enter Campbelltown Road (and then onto the Motorway) via Rose Paten Drive.

With regard to the acoustic impact of the proposed development, this aspect of the submission has been addressed in the Acoustic Impact Assessment prepared by Wilkinson Murray Pty Limited as discussed in **Part 5** and **Appendix 6** of the EIS.

With regard to traffic, a consultation meeting was undertaken on Monday 26 November 2018 at the residence of Mr and Mrs Harris. Those in attendance were Mr and Mrs Harris, Mr Brent Lawson (Applicant) and Mr Craig McLaren (Traffic Engineer).

In response to the resident concerns outlined above, the applicant and traffic consultant illustrated that a natural restriction by large articulated trucks exists by the existing load limits on bridges on Ben Lomond Road (40 tonne limit) and Airds Road (32 tonne limit). Light vehicles and rigid trucks which are generated by the proposed Resource Recovery Facility which could use Raby Road will be low in quantity and will have no discernible impact on Raby Road, particularly the roundabout intersection of Raby Road / Stromeferry Crescent / Stranraer Drive and the roundabout off ramp immediately to the west of Hume Motorway.

Mr Angharad Anderson

Mr Anderson is General Manager of Swaffham Logistics Park No.1 Pty Ltd, located as No.19 Swaffham Road, Minto, which is to the south west of the Site. Mr Anderson raised the following concerns:

Disposal of fill generated

What will happen to the building material deemed unsuitable for recycling? Will this material contain any harmful or hazardous substances? If so, how will risks to human health in the surrounding areas be eliminated?

Dust

What is the composition of the dust generated on site? At what levels are those particles considered harmful to humans? What is the maximum concentration of any harmful or hazardous substance stored on site? How does this compare to the maximum concentrations permitted under regulations?

Asbestos

Will asbestos be received on site?

If not, what measures will be instituted to ensure asbestos is not received on site?

If asbestos is received on site, even unlawfully, how will that asbestos be identified, treated and relocated? How will the effects of asbestos on any stockpiles be remediated?

If asbestos is to be received on site,

Wind

How much dust will spread to the surrounding areas?

Flooding

Propensity of the canal to flood due to weather events commensurate with those experienced in the last 12 months

– *what would happen if the site was flood. Provide information on any ability of flood water to spread of material stored on site. How will this be mitigated?*

Risk to human health

Does any material received on site pose a risk to human health?

Impact on surrounding zoning

Will any or all of the proposed operations restricted future use of surrounding sites?

With regard to material received on-site which cannot be recycled on-site, that material would be separated from the recyclable material and either sent to other recyclers or disposed of to landfill. There would be no risk to human health as part of this process.

With regard to dust and wind, a comprehensive assessment is provided in **Part 6** and **Appendix 7** of the EIS which concludes that the proposed development would not have significant impact to the locality.

Potential flooding of the Site has been addressed in the Soil and Water Management Plan for the Site as discussed in **Part 3** and **Appendix 19** of the EIS.

The Environmental Management Plan to be prepared as part of the proposed development would contain details of the methods by which asbestos was excluded from waste entering the Site and also the means by which waste received at the Site would be tested to ensure no asbestos was received on the Site.

Although there are aspects of the proposed development which have potential to cause harm, the mitigation measures detailed in the EIS and the Plan of Management are such that, once those measures are adopted, there would be minimal risk to human health resulting from the operation of the proposed development.

The use of the Site as proposed would not preclude any use of surrounding land.

Part Five

ACOUSTIC IMPACT ASSESSMENT

5.1 Introduction

The Secretary's Environmental Assessment Requirements includes a requirement for:

- *a quantitative assessment of the potential construction, operational and transport noise and vibration impacts; and*

- *details of the proposed noise and vibration management and monitoring measures.*

In order to ascertain the potential impact of the proposed development on the acoustic environment of the locality, Wilkinson Murray Pty Ltd has prepared a report titled *Materials Recycling Facility, Minto Noise Assessment* (**the Wilkinson Murray Report**) a copy of which is at **Appendix 6**.

The Wilkinson Murray Report:

- Considers existing residences within St Andrews.
- Details the assessment of the potential impacts upon the acoustic amenity of the residential development.
- Outlines in-principle noise mitigation strategies where required.

5.2 Noise Criteria

The noise and vibration impact assessment has been prepared to address the relevant Secretary's Environmental Assessment Requirements. The assessment was conducted in general accordance with the following NSW Government guidelines:

- NSW Noise Policy For Industry (EPA, 2017);
- Noise Guide for Local Government (EPA, 2013);
- NSW Road Noise Policy (DECCW, 2011), and
- Interim Construction Noise Guideline (DECC, 2009).

Long-term unattended noise monitoring was initially performed in 2012 and then repeated in 2016 to determine any change in the background and ambient noise level in the area, primarily as a result of new industrial developments and/or changes in traffic volumes on Campbelltown Road.

Further short-term monitoring was conducted in November 2018. The noise monitoring is described as

follows:

Period 1: between 14 and 26 June 2012 in the backyard of 12 Kintyre Place, St Andrews at approximately 3m from a 2m high Colorbond fence.

Period 2: between 14 and 23 November 2016 in the backyard of 14B Gleneagles Place, St Andrews at approximately 5m from a 1.5m high timber fence.

Period 3: 30 November 2018 in the backyard of 10 Kintyre Place, St Andrews at approximately 7m from a 2m high Colorbond fence.

The noise monitoring locations are shown in **Figure 5-1**.

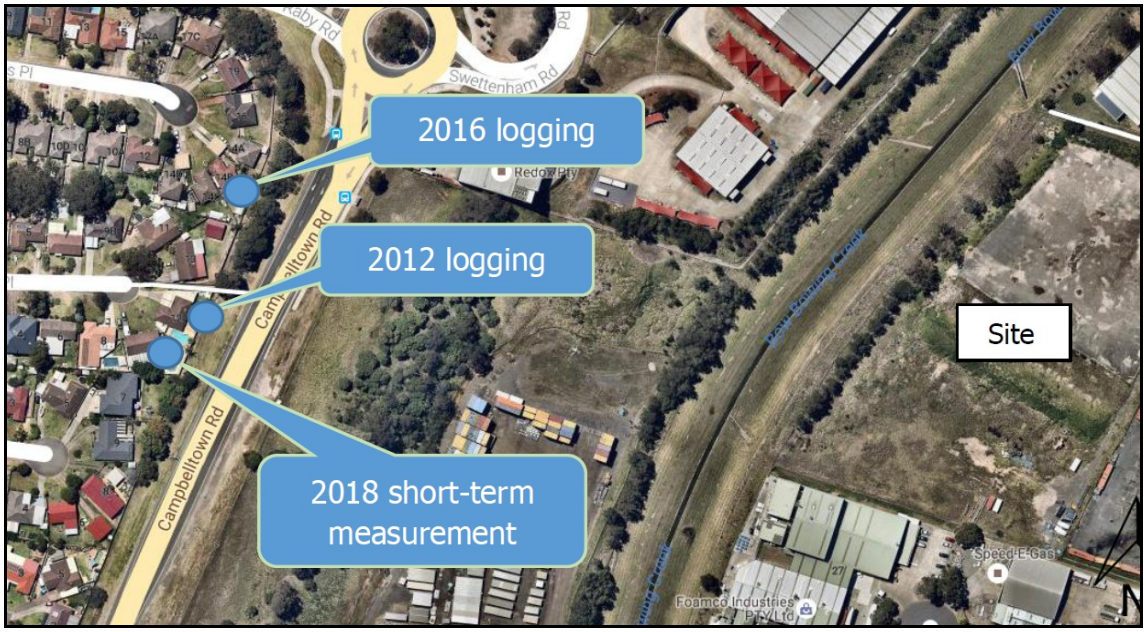


Figure 5-1: Location of acoustic monitors.

Additionally, attended monitoring was conducted next to the noise logger and at the top of the fence in order to ascertain background noise levels at receiver locations either shielded or unshielded from traffic noise.

Table 5-1 and **Table 5-2** present a summary of the background and ambient noise levels for the daytime, evening and night time as defined by the EPA Noise Policy for Industry (**NPfI**).

Additionally, the background noise levels for the 6:00am to 7:00am shoulder period have been included. Any data affected by adverse weather conditions has been discarded according to the requirements of the NPfI.

The combined data measured in 2012 and 2016 have been considered representative of the background and equivalent sound pressure levels of the area and are, therefore, suitable for use in the noise impact assessment.

Monitoring Year	Daytime (7am-6pm)	Evening Shoulder Period (6pm-7pm)	Evening (6pm-10pm)	Night Time (10pm-7am)	Early Morning Shoulder Period (6am-7am)
2012	48	48	45	40	49
2016	47	46	45	38	48
Combined Data	**48**	47	45	39	**48**

Note: bold value indicates relevant noise level in this assessment.

Table 5-1: Measured Rating Background Levels (RBL), dBA

Monitoring	Daytime (7am-6pm)	Evening Shoulder Period (6pm-7pm)	Evening (6pm-10pm)	Night Time (10pm-7am)	Early Morning Shoulder Period (6am-7am)
2012	58	57	56	52	54
2016	57	62	63	51	56
Combined Data	58	60	60	52	55

Table 5-2: Measured Ambient Noise Levels (LAeq), dBA

Table 5-3 presents a summary of attended measurements carry out next to the noise loggers.

According to the previous 2016 long-term noise measurement, the average hourly $L_{Aeq\ 1hr}$ noise level between 3:00pm and 4:00pm was 57dB.

The 2018 short-term measurement is found to be the same, therefore, the previous noise measurement is still considered valid.

Noise levels at the nearest residences were typical of a suburban residential area which borders a busy arterial road, and no continuous existing industrial noise was audible. The ambient noise levels were dominated by traffic noise from Campbelltown Road.

Date	Time	L_{A90}	L_{Aeq}	Comments
2012 14 June	5.15pm to 5.30pm	53	59	Measurement carried out next to the noise logger. Background noise levels influenced by traffic on Campbelltown Road.
2012 14 June	5.45pm to 6.00pm	56	64	Measurement carried out at the top of the fence. Background noise levels influenced by traffic on Campbelltown Road. Based on the measured noise levels, the fence provides a 3dB insertion loss at the logger location. **Hence, a conservative difference of 2 dB will be used for establishing criteria for any unshielded locations (top floor of 2-storey houses).**
2016 14 November	11.30am to 11:45am	49	56	Measurement carried out next to the noise logger Background noise levels influenced by traffic on Campbelltown Road.
2018 30 November	3.30pm to 3.45pm	52	57	Measurement carried out in the backyard of 10 Kintyre Place, St Andrews. Background noise levels influenced by traffic on Campbelltown Road.

Table 5-3: Summary of Attended Measurements (dBA)

5.3 Operational Noise Criteria

The NPfI recommends two noise criteria, "Intrusiveness" and "Amenity", both of which are relevant for the assessment of noise at residences. In most situations for continuous noise, one of these is more stringent than the other and is the controlling noise criteria for assessment purposes. The noise criteria are based on the L_{Aeq} descriptor, which is the energy average of the varying noise over the sample period and is equivalent to the level of a constant noise which contains the same energy as the varying noise environment.

5.3.1 Intrusive Noise Criterion

The intrusiveness noise criterion requires that the L_{Aeq} noise level from the source being assessed, when measured over 15 minutes, should not exceed the Rating Background Noise Level (**RBL**) by more than 5dBA. The RBL represents the "background" noise in the area, and is determined from measurement of L_{A90} noise levels, in the absence of noise from the source.

The NPfI takes into account the need for assessing different periods. For example, where early morning periods are proposed (i.e. 6:00am - 7:00am), it may be unduly stringent to assess such operations against night time criteria – especially if the existing background noise levels are steadily rising during the early hours of the morning.

5.3.2 Shoulder Period Noise Criterion

The NPfI states that where early mornings (5:00am - 7:00am) operations are proposed, it may be unreasonable to expect such operations to be assessed against the night-time project noise trigger levels.

As a rule of thumb, and for the purpose of deriving the intrusiveness noise level only, it may be appropriate to assign a shoulder period rating background noise level based on:

- The lowest 10th percentile of $L_{AF90,15min}$dB measurements for the equivalent of one week's worth of valid data taken over the shoulder period (that is, all days included in a single data set of shoulder period); or
- The $L_{AF90(shoulder\ period)}$dB value (that is, the lowest 10th percentile value of aggregate data for the equivalent of one week of valid data taken over the shoulder period).

The objective of this methodology is to achieve environmental amenity in a feasible and reasonable manner. Because the Site only operates one (1) hour within the night time (10:00pm - 7:00am), the night-time amenity criteria is considered unduly stringent as amenity criteria are derived from an average noise level of the whole night (9 hours). As such, intrusive noise criterion should only be considered to address noise within a shoulder period.

A similar approach is also applied to an evening shoulder period between 6:00pm and 7:00pm.

5.3.3 Amenity Noise Criteria

The amenity noise criteria set a limit on the total noise level from all industrial noise sources affecting a receiver. Different criteria apply for different types of receiver (e.g. residence, school classroom). different areas (e.g. rural, suburban) and different time periods, namely daytime (7:00am - 6:00pm), evening (6:00pm - 10:00pm) and night time (10:00pm - 7:00am).

The noise level to be compared with this criterion is the L_{Aeq} noise level, measured over the time period in question, due to all industrial noise sources, but excluding non-industrial sources, such as transportation.

Where a new noise source is proposed in an area with negligible existing industrial noise, the amenity criterion for that source may be taken as being equal to the overall amenity criterion, however, if there is significant existing industrial noise, the criterion for any new source must be set at a lower value.

If existing industrial noise already exceeds the relevant amenity criterion, noise from any new source must be set well below the overall criterion to ensure that any increase in noise levels is negligible. Methods for determining a source-specific amenity criterion where there is existing industrial noise are set out in the NPfI.

A summary of the $L_{Aeq,15min}$ daytime amenity noise level for the surrounding receivers is presented in **Table 5-4**.

Noise Amenity Area	Time of Day	Recommended Amenity Noise Level L_{Aeq} (dBA)
Residential – Suburban	Day	**53** (55 – 5 + 3)
Industrial	Day	70

Table 5-4: Amenity Noise Level (dBA)

5.3.4 Sleep Disturbance Noise Criterion

Noise sources of short duration and high level which may cause disturbance to sleep if occurring during the night time need to be considered.

The approach recommended by the NPfI is to apply the following initial screening noise levels:

- $L_{Aeq,15min}$ 40dBA or the prevailing RBL + 5dB, whichever is the greater, and/or
- L_{AFmax} 52dBA or the prevailing RBL + 15dB, whichever is the greater.

The sleep disturbance screening noise levels apply outside bedroom windows during the night time period. It should be noted that the sleep disturbance criteria do not apply to industrial receivers.

Where the screening noise levels cannot be met, a detailed maximum noise level event assessment should be undertaken. It may also be appropriate to consider other guidelines including the NSW Road Noise Policy (**RNP**) which contains additional guidance relating to potential sleep disturbance impacts.

A review of research on sleep disturbance in the RNP indicates that, in some circumstances, higher noise levels may occur without significant sleep disturbance. Based on currently available research results, the RNP concludes that:

- *Maximum internal noise levels below 50dBA to 55dBA are unlikely to cause awakening reactions.*
- *One or two noise events per night, with maximum internal noise levels of 65dBA to 70dBA, are not likely to affect health and wellbeing significantly.*

5.4 Site-Specific Noise Criteria

Table 5-5 presents the relevant noise criteria for this project for shielded and unshielded locations.

Time Period	Floor	RBL	Intrusiveness $L_{Aeq,15min}$	Amenity $L_{Aeq, period}$	Sleep Disturbance L_{Amax}
Daytime (7am–6pm)	Ground Floor (shielded)	48	53	Residences 53 Industrial 70	-
	First Floor (unshielded)	50	55	Residences 53 Industrial 70	-
Shoulder Period (6pm-7pm)	Ground Floor (shielded)	47	52	-	-
	First Floor (unshielded)	49	54	-	-
Shoulder Period (6am-7am)	Ground Floor	48	53*	-	63
	First Floor	50	55*	-	65
*The noise criteria are also considered to be the NPfI's sleep disturbance noise criteria for continuous noise from the site.					

Table 5-5: Summary of Noise Criteria (dBA)

At all times, the intrusiveness criterion is the more stringent of the criteria when assessing over a 15-minute period. Hence, the project-specific criteria would be 53dBA for typical worst-case 15-minute period at ground floor and 55dBA at any unshielded first floor locations.

As the only activity which falls into this category is the truck movements between 6:00am and 7:00am, the background noise levels from the shoulder period have been used to establish the sleep disturbance criterion. Hence, the sleep disturbance criterion would be 63dBA at ground floor and 65dBA at the first floor.

5.5 Assessment of Operational Noise

Wind roses from a nearby weather station are shown in **Figures 6-1 to 6-6**.

The potentially most affected residential receivers are in a westerly direction. Wind conditions likely to enhance noise propagation to the west only occur a small proportion of the time and less than 30% in any season so these adverse conditions are not required to be assessed under the NPfI, however, for completeness, noise predictions have been presented under these adverse wind conditions.

5.5.1 Operational Noise Sources

For assessment purposes, truck pick-up and deliveries, crushing and screening, pugmill and sand washing operations are assumed to occur simultaneously.

The crushing plant is located within a shed, which has several conveyers protruding and 6 metre high openings on the eastern and southern facades. The opening on the southern facade is partially screened in the direction of residences by a 4m permanent bund which an excavator sits on to feed the crusher.

The sand washing plant is also within a shed and includes a generator, screens and a M2500 – AGGMAX unit, which has several external conveyors. A 6m high wall will be placed along the northern and western boundary of the Site.

Measurement of the existing crushing plant and noise from mobile plant was conducted at the existing Camellia Plant. Data of the sand washing plant were provided by the manufacturer (**CDE**) and the pugmill sound power level was provided by Concrete Recyclers Group Pty Ltd.

The sound power levels used to predict noise levels of the operations of the proposed facility are shown in **Table 5-6**.

Plant	Description	Sound Power Level $L_{Aeq,15min}$ (dBA)
Crushing & Screening Shed	Internal Reverberant Level	95 (SPL)
3 External Conveyers	Associated with crushing plant	95 each
Sand Washing Plant	A frequency dependant insertion loss up to 15dB has been considered for shed effects resulting in SWL 97dBA.	107
3 External Conveyers	Associated with sand washing plant	90 each
1 Excavator	Loading primary crusher (20 tonne)	105
1 Excavator	Loading primary crusher (20 tonne)	105
1 Excavator	Pulveriser mounted in excavator (20 tonne)	105
1 Water Cart	-	107
1 Front End Loader	Feeding sand washing plant	108
1 Front End Loader	Near the north boundary of the site	108
1 Front End Loader	Loading trucks or managing stockpiles	108
Pugmill	Situated on the west boundary of the site	109
Trucks	4 deliveries including material tipping load and 4 pick-ups in a 15-minute period	108
Trucks	Tipping load (Maximum Noise Level)	L_{Amax} 117

Table 5-6: Plant Sound Power Levels (SWL) – dBA

The following two operational scenario were considered in the noise assessment:

- **Daytime 7:00am - 6:00pm – Site fully operational**. Typical truck movements include 4 inbound trucks unloading recycling materials onto the stockpile and leaving the Site, 4 outbound trucks transporting processed materials from the Site, crushing and screening plant operational, pugmill, sand washing plant operational, 3 excavators, 3 front end loaders and 1 water cart.

- **Shoulder 6:00am-7:00am – Truck deliveries and pick-ups**. Typical truck movements include 4 inbound trucks unloading recycling materials onto the stockpile and leaving the Site, 4 outbound trucks transporting processed materials from the Site and 1 front end loader.

The works between 6:00pm and 7:00pm will comprise of truck deliveries and tidying up of the facility. Noise emissions are likely to have a lower impact compared to the scenarios outlined above, however, for the purpose of assessing the worst-case scenario, the operational scenario for the morning shoulder

period is assessed against the evening shoulder period criteria as well.

5.5.2 Predicted Operational Noise Levels at Residences

5.5.2.1 Intrusiveness Assessment

Table 5-7 presents the predicted operational noise levels at the potentially most affected residences to the west of the Site.

Levels are presented for both a ground floor (shielded) location and a first floor (unshielded location) allowing for a conservative 1.5 metre Colorbond fence at the residential boundary.

Residence	Period	Floor	Operational Noise Criterion, $L_{Aeq,15min}$	Predicted Operational Noise Level, $L_{Aeq,15min}$	
				Neutral Conditions	Easterly Wind
Campbelltown Road (between Troon Place & Gleneagles Place)	7am-6pm	Ground Floor	53	49	53
		First Floor	55	50	53
	Shoulder Period (6am-7am & 6pm-7pm)	Ground Floor	6am-7am: 53 6pm-7pm: 52	47	52
		First Floor	6am-7am: 55 6pm-7pm: 54	48	53

Table 5-7: Predicted LAeq Operational Noise Levels at Residences – dBA

The predicted noise levels indicate compliance with the intrusiveness criterion at ground and first floors for both day time and evening and early morning shoulder period operations under neutral weather conditions. The noise levels are expected to increase up to 53dBA under an easterly wind blowing from the Site towards residences.

5.5.2.2 Sleep Disturbance Assessment

Outbound and inbound truck movements will occur between 6:00am and 7:00am. Trucks will enter the Site, unload materials onto the stockpile, then leave the Site. Trucks would also be loaded by a front end loader and leave the Site. The maximum noise event is caused by the trucks tipping their load onto the stockpile. These noise levels have been used to predict possible sleep disturbance.

Table 5-8 presents the predicted maximum noise levels associated with trucks tipping their load which

indicates compliance with the Sleep Disturbance Criteria. The L_{Aeq} noise contribution from the Site has also been added to the L_{Amax}.

Residence	Floor	Sleep Disturbance Criterion, L_{Amax} (dBA)	Predicted Maximum Noise Level, L_{Amax}	
			Neutral Conditions	Easterly Wind
Campbelltown Road (between Troon Place & Gleneagles Place)	Ground Floor	63	50	55
	First Floor	65	51	56

Table 5-8: Predicted Maximum Operational Noise Levels (dBA)

5.5.3 Predicted Operational Noise Levels at Industrial Receivers

Noise from various parts of the Site will be intermittent depending on operations that day. Allowing for the 6 metre high perimeter wall along the western boundary, the following noise levels are predicted at neighbouring premises based on a typical busy 15-minute period, noting the NPfI criterion of 70dBA applies to an 11-hour assessment whereby noise levels 2-3dB lower would be expected.

- Northern 53dBA
- Eastern 67dBA
- Southern 70dBA
- Western 58dBA.

5.6 Noise From Construction Activities

5.6.1 Noise Criteria for Construction Noise Activities

The NSW EPA Interim Construction Noise Guideline (**ICNG**) presents the process to assess construction in NSW.

The ICNG provides noise goals which assist in assessing the impact of construction noise.

For residences, the basic daytime construction noise goal is that the $L_{Aeq,15min}$ noise levels should not exceed the background noise by more that 10dBA for standard hours Monday to Friday 7:00am - 6:00pm and Saturday 8:00am - 1:00pm.

The ICNG presents the following noise management levels for non-residential premises:

- Active recreation areas (such as parks) external $L_{Aeq,15min}$ 65dBA
- Passive recreation areas external $L_{Aeq,15min}$ 60dBA
- Industrial premises external $L_{Aeq,15min}$ 75dBA
- Offices, retail outlets external $L_{Aeq,15min}$ 70dBA
- Classrooms, hospitals, places of worships external $L_{Aeq,15min}$ 45dBA

The construction noise criteria at the closest residences are listed in **Table 5-9**.

Residence	Level	Construction Noise Criteria $L_{Aeq,15min}$ (dBA)
Campbelltown Road (between Troon Place & Gleneagles Place)	Ground	58
	First	60

Table 5-9: Construction Noise Criteria

5.6.2 Predicted Construction Noise Levels

The construction stage of the proposed development will consist of 3 stages. The breakdown of plant for each stage is based on information which has been provided by Concrete Recyclers (Group) Pty Ltd. The construction stages, construction plant which will be used for each stage along with the total L_{Aeq} sound power levels are presented in **Table 5-10**.

Construction Stage	Plant	Total $L_{Aeq,15min}$ Sound Power Level
Earthworks / Drainage	15t Roller, 30t Excavator & Trucks	112
Foundation / Hardstand	Bored Pile, Concrete Truck	111
Superstructure	Franna Crane / Mobile Crane & Trucks	107

Table 5-10: Construction Stage Sound Power Levels (SWL – dBA)

Predicted noise levels for each construction stage are summarised in **Table 5-11**.

Residence	Noise Management Level	Predicted $L_{Aeq,15min}$ Noise Levels (dBA)		
		Earthworks	Foundation Works	Superstructure
Campbelltown Road (between Troon Place & Gleneagles Place)	58-60	48	47	43-47

Table 5-11: Predicted Construction Noise Levels (dBA)

The predicted noise levels clearly show that noise levels from construction will comply with the Noise Management Levels.

5.7 Conclusion

The proposed Resource Recovery Facility within an existing industrial area at Minto has been assessed based on the relevant guidelines from the NSW Environment Protection Authority.

The predicted operational noise levels indicate noise from the proposed facility will comply with the L_{Aeq} and L_{Amax} criteria between 6:00am and 6:00pm under neutral weather conditions at all considered receivers.

The predicted noise levels from the construction of the facility have been assessed against the NSW Interim Construction Noise Guidelines. The predicted noise levels indicate that the construction works will readily comply with the relevant criteria.

Trucks from the proposed facility would access the major arterial road network via Airds Road, Ben Lomond Road and Rose Payten Drive. None of these sub-arterial roads have residential receivers. No traffic noise impact is expected.

Part Six

AIR QUALITY IMPACT ASSESSMENT

6.1 Introduction

The Secretary's Environmental Assessment Requirements includes a requirement for:

- *a quantitative assessment of the potential air quality and odour impacts for the development on surrounding landowners and sensitive receptors;*
- *construction and operational impacts, including dust generation from the transport of materials; and*
- *details of the proposed management and monitoring measures.*

In order to ascertain the potential impact of the proposed development on the air quality of the locality, Wilkinson Murray Pty Limited has prepared a report titled *Concrete Recyclers Air Quality Impact Assessment* (**the Wilkinson Murray Report**) a copy of which is at **Appendix 7**.

6.2 Air Quality Criteria

The NSW EPA *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (**the Approved Methods**) sets out applicable impact assessment criteria for a number of air pollutants.

Air quality criteria are benchmarks set to protect the general health and amenity of the community in relation to air quality.

6.2.1 Pollutants of Interest

Potential air pollutants associated with the proposed development comprise dust and particulate matter. Specifically, the following pollutants are identified:

- Total Suspended Particulates (**TSP**);
- Particulate Matter (**PM_{10}** and **$PM_{2.5}$**), and
- Respirable crystalline silica (**RCS**).

6.2.2 Impact Assessment Criteria

The EPA Approved Methods specifies air quality assessment criteria for assessing impacts from dust generating activities which are consistent with the National Environment Protection Measures for Ambient Air Quality.

Table 6-1 summarises the relevant air quality goals for dust and particulate matter. The air quality goals relate to the total concentrations of dust and particulate matter in the air and not just that from the proposed. Some consideration of background levels, therefore, needs to be made when using these goals to assess impacts.

Pollutant	Averaging period	Impact	Criteria
Total suspended particulates (TSP)	Annual	Total	90 µg/m³
Particulate matter ≤10 µm (PM_{10})	Annual	Total	25 µg/m³
	24-hour	Total	50 µg/m³
Particulate matter ≤2.5 µm ($PM_{2.5}$)	Annual	Total	8 µg/m³
	24-hour	Total	25 µg/m³

Table 6-1: Impact Assessment Criteria – Dust and Particulate Matter

The Approved Methods does not include impact assessment criteria for RCS. Accordingly, goals from the Victoria Environmental Protection Agency (**Vic EPA**) have been adopted. The Vic EPA criterion for RCS is presented in **Table 6-2**.

Pollutant	Averaging period	Impact	Criteria
Respirable crystalline silica (as $PM_{2.5}$)	Annual	Total	3 µg/m³

Table 6-2: Impact Assessment Criterion – Respirable Crystalline Silica

6.3 Existing Environment

6.3.1 Local Meteorology

Meteorological conditions strongly influence air quality. Most significantly, wind speed, wind direction, temperature, relative humidity, and rainfall affect the dispersion of air pollutants, and are key inputs into dispersion models.

Long-Term Climate

Long-term meteorological data for the area surrounding the Site is available from the Camden Airport automatic weather station (**AWS**) operated by the Bureau of Meteorology (**BoM**) since 1943. The Camden Airport AWS is located approximately 13 km west of the Site.

Long-term climate statistics are presented in **Table 6-3**.

Obs.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
9am Mean Observations													
Temp (°C)	21.6	20.9	19.6	16.9	13.0	9.6	8.6	10.7	14.6	17.7	18.7	20.9	16.1
Hum (%)	72	78	77	77	81	82	81	73	66	64	69	68	74
3pm Mean Observations													
Temp (°C)	27.7	26.9	25.4	22.5	19.3	16.5	16.0	17.7	20.3	22.4	24.3	26.8	22.2
Hum (%)	49	52	52	52	52	53	50	43	44	47	50	46	49
Daily Minimum and Maximum Temperatures													
Min (°C)	16.9	16.8	14.9	11.1	7.0	4.6	2.9	3.9	6.8	10.0	13.0	15.3	10.3
Max (°C)	29.7	28.7	26.8	23.9	20.7	17.7	17.4	19.1	22.0	24.3	26.3	28.6	23.8
Rainfall													
Rain (mm)	79.8	97.3	89.6	67.1	53.0	66.6	35.5	40.7	38.3	61.8	75.4	57.9	782.1
Rain (days)	4.8	4.9	4.7	4.1	3.5	3.5	2.9	2.9	3.2	4.2	4.7	4.3	47.7

Table 6-3: Climate Averages for Camden Airport AWS Obs.

Temperature data recorded at the Camden Airport AWS indicates that January is the hottest month of the year, with a mean daily maximum temperature of 29.7°C.

July is the coolest month with a mean daily minimum temperature of 2.9°C. February is the wettest month with an average rainfall of 97 mm falling over 5 days.

There are, on average, 48 rain days per year, delivering 782 mm of rain.

Wind

Figures 6-1 to Figure 6-6 present annual and seasonal "wind rose" plots for the Campbelltown West NSW Office of Environment and Heritage (**OEH**) meteorological station for the period 2014 to 2018 inclusive.

The plots show similar patterns of wind speed and wind direction over the five-year period, with north-easterly winds being somewhat prevalent in summer and spring, south westerly winds being prevalent all year round.

Wind speed and wind direction during 2017 are generally representative of the five-year period and have, therefore, been adopted for assessment purposes.

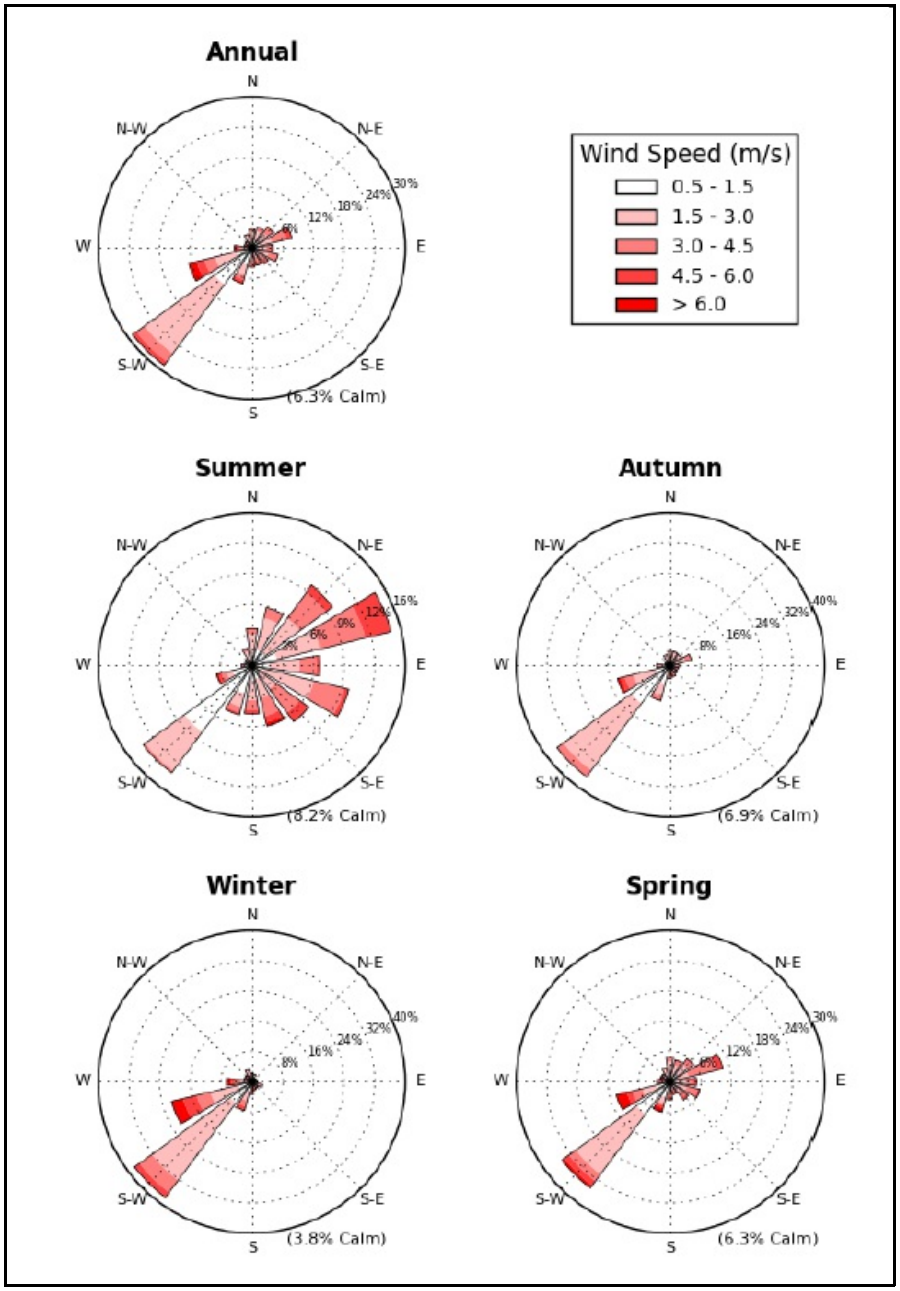


Figure 6-1: OEH Campbelltown West Wind Roses, 2014

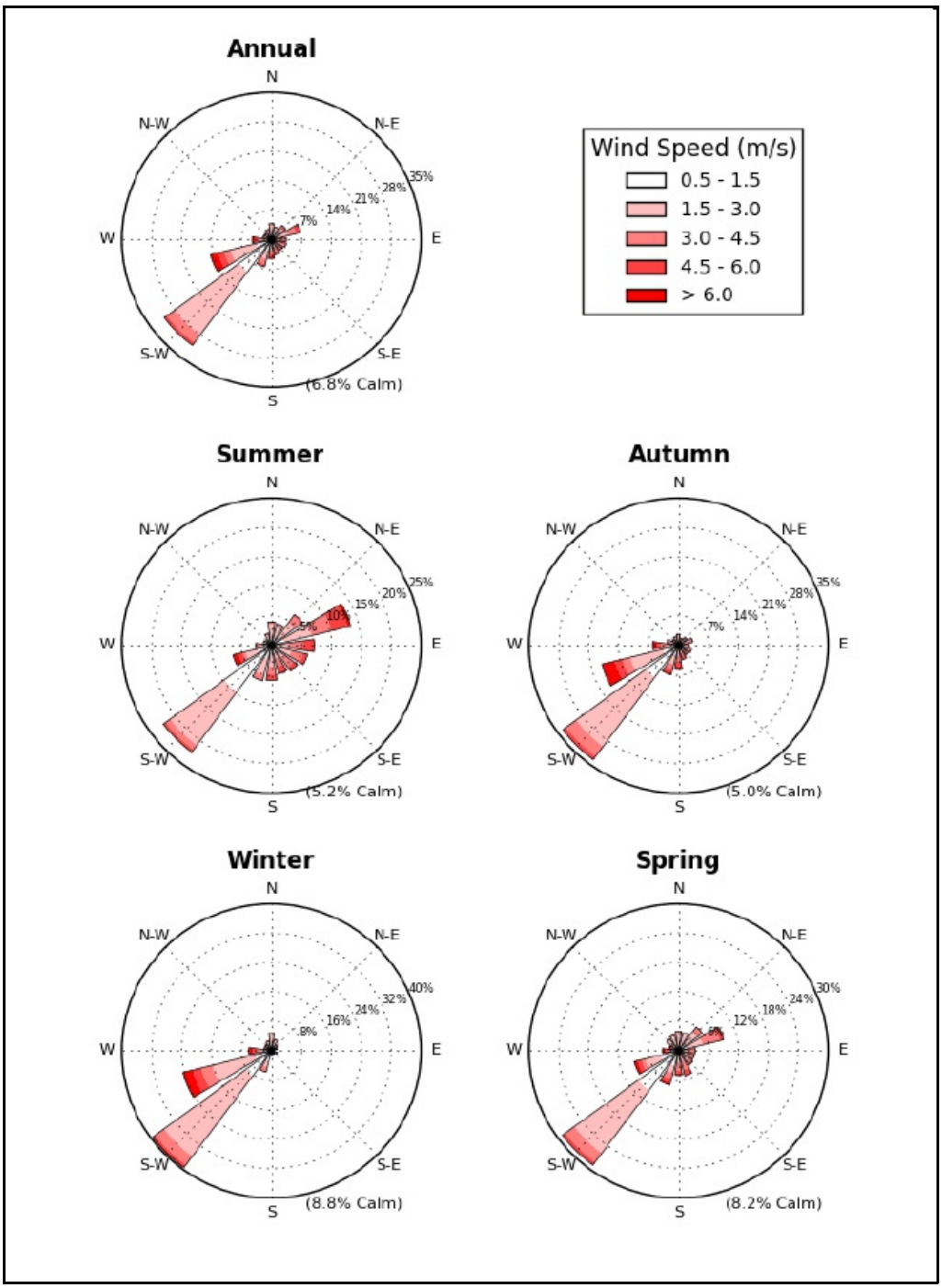


Figure 6-2: OEH Campbelltown West Wind Roses, 2015

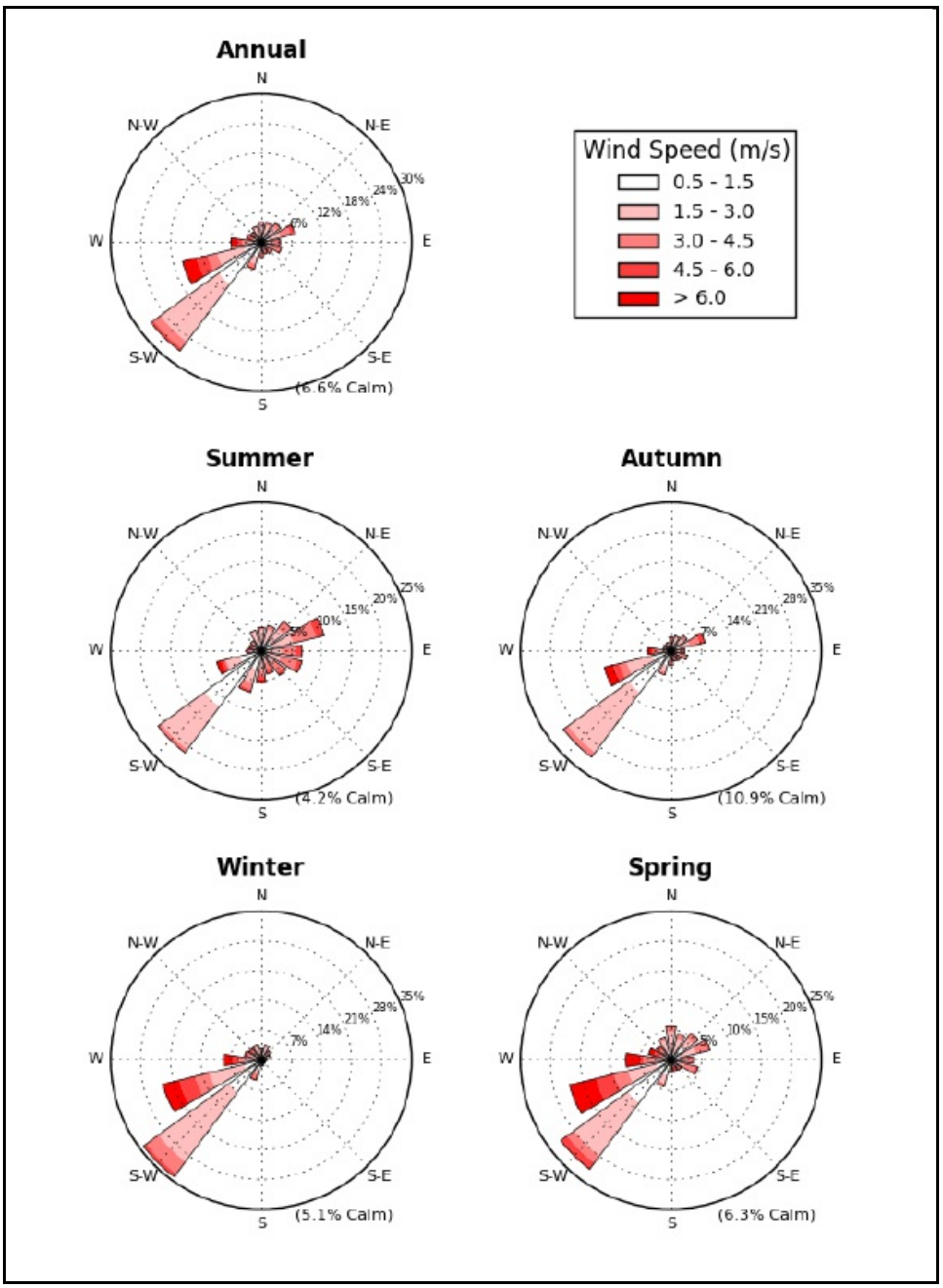


Figure 6-3: OEH Campbelltown West Wind Roses, 2016

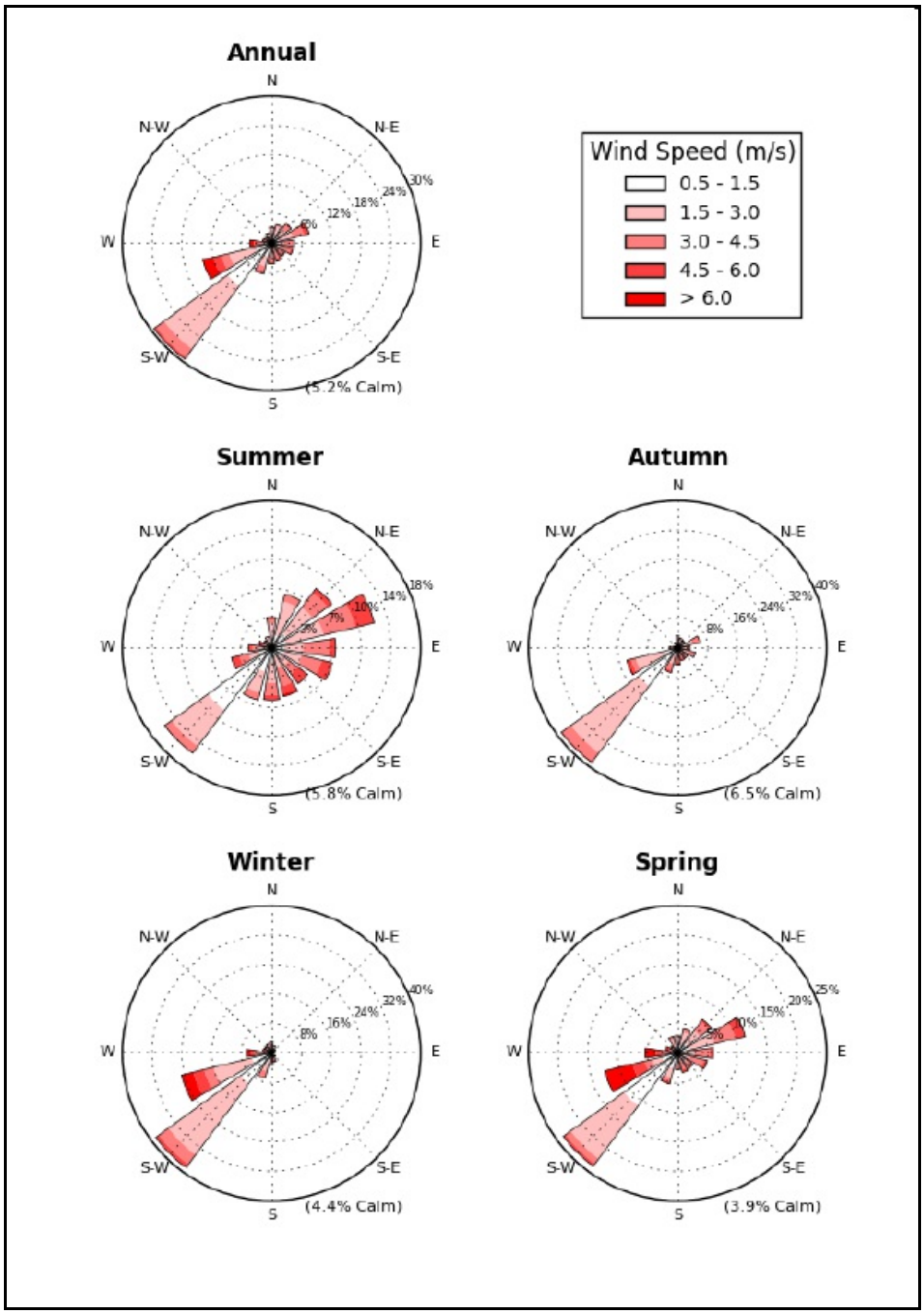


Figure 6-4: OEH Campbelltown West Wind Roses, 2017

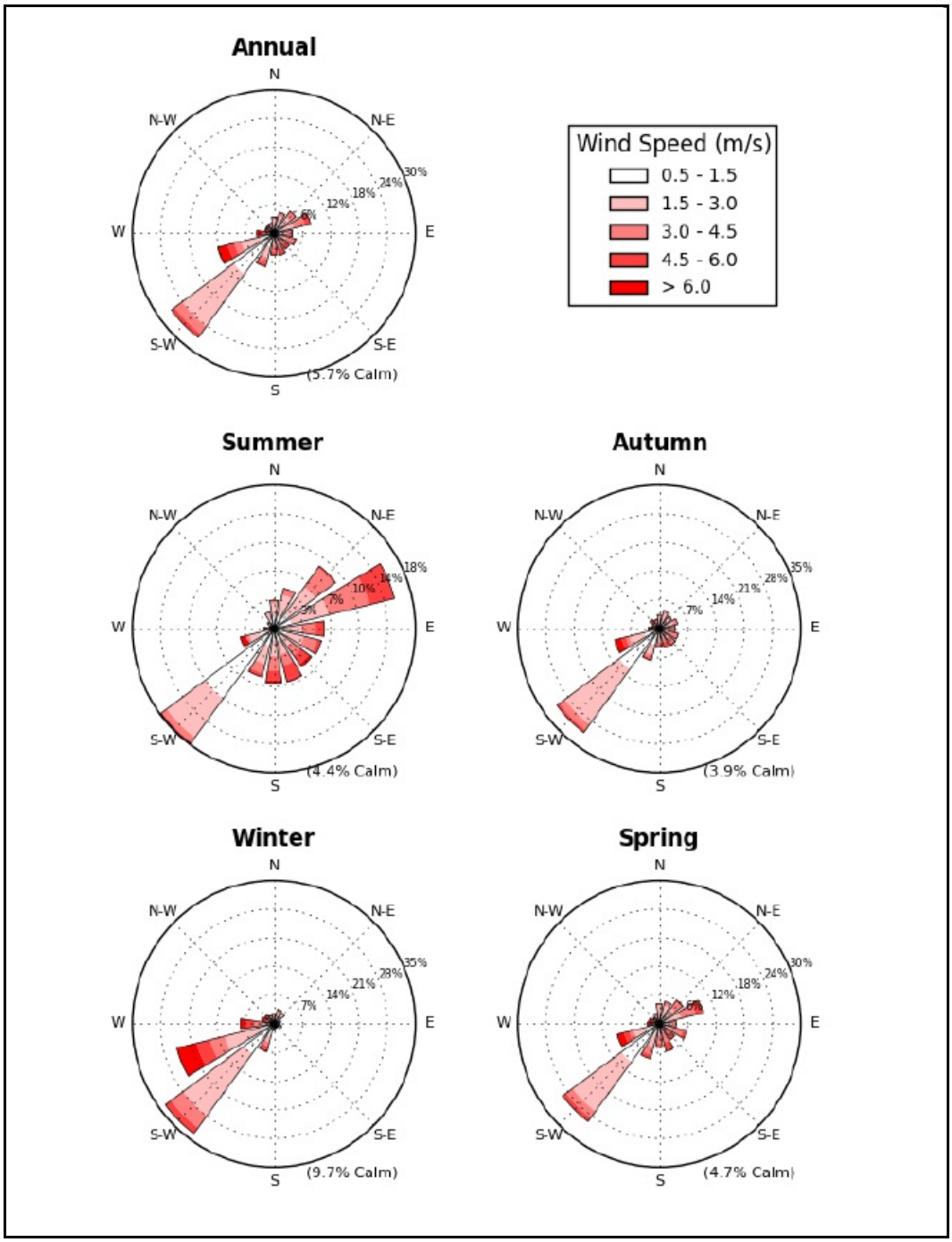


Figure 6-5: OEH Campbelltown West Wind Roses, 2018

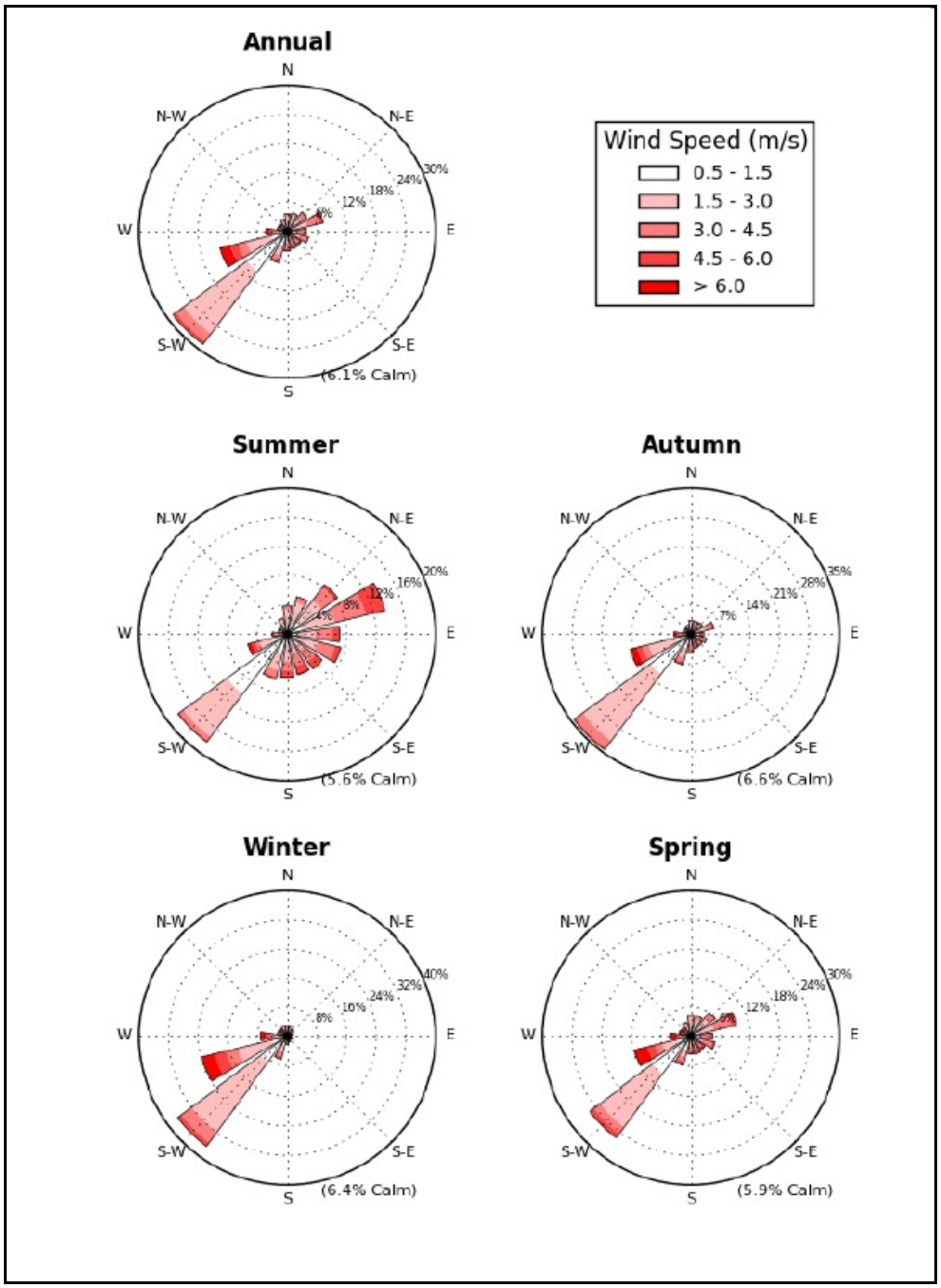


Figure 6-6: OEH Campbelltown West Wind Roses, 2014-2018

6.3.2 Local Ambient Air Quality

No site-specific data are available to determine the existing concentrations of dust and particulate matter at sensitive receptors near the Site. The OEH operates a network of air quality monitoring stations across NSW. The nearest OEH monitoring station is located at Campbelltown West. The Campbelltown West monitoring station is located approximately 2.2 km south of the Site.

A summary of the PM_{10} and $PM_{2.5}$ monitoring results collected at the Campbelltown West monitoring site during 2017 is presented in **Table 6-4**.

Pollutant	Annual Average (µg/m3)	24-hour Average (µg/m3)	
		Maximum	95th Percentile
PM_{10}	15.7	53.1 (32.1)	27.7
$PM_{2.5}$	7.4	25.0 (16.9)	12.7

Table 6-4: 2017 Particulate matter monitoring results – Campbelltown West

When characterising typical ambient air quality, impacts from extreme events such as bushfires and dust storms are usually excluded. The highest 24-hour average PM_{10} and $PM_{2.5}$ concentrations measured at Campbelltown West during 2017 were 53.1 µg/m^3 and 25.0 µg/m^3 and were due to hazard reduction burns. The values in brackets in **Table 6-4** represent the maximum 24-hour average PM_{10} and $PM_{2.5}$ concentrations measured at Campbelltown West, unaffected by extreme events. These values will be adopted for assessment purposes.

There are no readily available site specific Total Suspended Particulates (TSP) and deposited dust monitoring data. The Campbelltown West monitoring site does not measure these components, however, estimates of the background levels for the area are required to assess the impacts of the proposal on TSP and deposited dust.

Estimates of the annual average background TSP concentrations can be determined from a relationship between measured PM_{10} concentrations which assumes that 40% of the TSP is PM_{10} and was established as part of a review of ambient monitoring data collected by co-located TSP and PM_{10} monitors operated for reasonably long periods of time in the Hunter Valley (NSW Minerals Council, 2000). Applying this relationship with the 2017 annual average PM_{10} concentration of 16.1 µg/m^3 at the Campbelltown West monitoring station estimates an annual average TSP concentration of 40.3 µg/m^3. **Table 6-5** summarises the background air quality adopted for assessment purposes.

Pollutant	Averaging Period	Adopted Background Concentration/Level
TSP	Annual	39.3 µg/m^3
PM_{10}	24-hour	32.1 µg/m^3
	Annual	15.7 µg/m^3
$PM_{2.5}$	24-hour	16.9 µg/m^3
	Annual	7.4 µg/m^3

Table 6-5: Background Air Quality Adopted for Assessment

6.4 Dispersion Modelling

6.4.1 Meteorological Modelling

TAPM

No meteorological observation data is available for the Site, therefore, site-specific meteorological data was generated through the use of a prognostic model. The prognostic model used was The Air Pollution Model (**TAPM**), developed and distributed by the Commonwealth Scientific and industrial Research Organisation (**CSIRO**).

TAPM is an incompressible, non-hydrostatic, primitive equations prognostic model with a terrain-following vertical coordinate for three-dimensional simulations which predicts the flows important to local scale air pollution, such as sea breezes and terrain induced flows, against a background of large-scale meteorology provided by synoptic analyses. TAPM benefits from having access to databases of terrain, vegetation and soil type, leaf area index, sea-surface temperature, and synoptic scale meteorological analyses for various regions around the world.

The prognostic modelling domain was centred at 34.03° S, 151.18° E and involved four nesting grids of 30 km, 10 km, 3 km and 1 km with 41 grids in the lateral dimensions and 25 vertical levels.

The TAPM model included assimilation of wind data collected at the Kurnell BoM Station during 2017.

AERMET

The TAPM results, including predictions of wind speed, wind direction, temperature, humidity, cloud cover, solar radiation, and rainfall, were used as inputs to AERMET – AERMOD's meteorological pre-processor.

AERMET uses the TAPM data, along with land use data, to calculate mixing heights and velocity scaling parameters.

6.4.2 Dispersion Modelling

AERMOD

The dispersion model chosen for this assessment was AERMOD – the US EPA regulatory Gaussian plume air dispersion model.

AERMOD is a steady state plume model which incorporates air dispersion based on planetary boundary layer turbulence structure and scaling concepts which includes treatment of both surface and elevated sources, and both simple and complex terrain.

AERMOD was selected by the Victorian EPA to replace AUSPLUME from 1 January 2014, and its use is

accepted by NSW EPA.

6.5 Emissions to Air

Dust emissions from the proposed development have been estimated for all significant dust generating activities, using emission factors sourced from both locally developed and US EPA developed documentation. PM_{10} dust emissions from all significant dust generating activities for the proposal are presented in **Table 6-6**. Detailed emission inventory and emission estimation calculations are presented in Appendix A of the Wilkinson Murray Report.

Activity	Emissions (kg/year)
Loaded delivery trucks arriving (paved)	164
Delivery truck round trip (unpaved)	538
Unloaded delivery trucks leaving (paved)	97
Material unloaded from truck	85
Concrete loaded into primary crusher	56
Crushing (concrete)	24
Screening (concrete)	33
Unloaded to stockpile (concrete)	56
Loaded into pugmill (concrete)	56
Unloaded to stockpile (road base)	56
Loading product material (road base) to truck	56
Loading raw material (sand) to screen	28
Screening material (sand)	56
Unloading material (sand) to stockpile	28
Loading product material (sand) to truck	28
Unloaded dispatch trucks arriving (paved)	78
Dispatch truck (concrete/road base) round trip (unpaved)	590
Dispatch truck (sand) round trip (unpaved)	147
Loaded dispatch truck leaving (paved)	144
Wind erosion from stockpiles	833
Total	3,155

Table 6-6: Estimated PM_{10} emissions (kg/year)

The distribution of particles in each particle size range is as follows:

- $PM_{2.5}$ (FP) is 4.7% of the TSP;
- $PM_{2.5-10}$ (CM) is 34.4% of TSP, and
- PM_{10-30} (Rest) is 60.9% of TSP.

These fractions of fine, inhalable and coarse particle were used to estimate the TSP and $PM_{2.5}$ concentrations.

6.6 Assessment of Impacts

Table 6-7 presents the dispersion modelling results at each of the discrete receptors shown in **Figure 6-7**.

Figure 6-7: Aerial of Site

Receptor ID	$PM_{2.5}$ (µg/m³)		PM_{10} (µg/m³)		TSP (µg/m³)	$PM_{2.5}$ (µg/m³)		PM_{10} (µg/m³)		TSP (µg/m³)
	Incremental Impact					Total Impact				
	24-hr Ave.	Ann. Ave.	24-hr Ave.	Ann. Ave.	Ann. Ave.	24-hr Ave.	Ann. Ave.	24-hr Ave.	Ann. Ave.	Ann. Ave.
	Air Quality Impact Assessment Criteria									
	-	-	-	-	-	25	8	50	25	90
Residential Receiver 1	0.55	0.08	3.99	0.57	1.46	17.45	7.48	36.09	16.27	40.76
Residential Receiver 2	1.01	0.08	7.41	0.61	1.56	17.91	7.48	39.51	16.31	40.86
Residential Receiver 3	0.66	0.08	4.80	0.60	1.53	17.56	7.48	36.90	16.30	40.83
Residential Receiver 4	0.50	0.08	3.67	0.55	1.41	17.40	7.48	35.77	16.25	40.71
Residential Receiver 5	0.59	0.06	4.33	0.41	1.05	17.49	7.46	36.43	16.11	40.35
Industrial Receiver 1	2.98	1.76	21.78	12.91	33.02	19.88	**9.16**	**53.88**	**28.61**	72.32
Industrial Receiver 2	4.13	1.23	30.23	8.98	22.97	21.03	**8.63**	**62.33**	24.68	62.27
Industrial Receiver 3	3.26	1.27	23.83	9.29	23.76	20.16	**8.67**	**55.93**	24.99	63.06

Table 6-7: Summary of Dispersion Modelling Results

The incremental impacts refer to the potential impacts from activities only associated with the operation of the proposal.

The total impacts refer to the cumulative impacts of the proposal and the estimated background levels.

The primary dust sources identified from the proposal are:

- vehicles travelling on unsealed roads, and
- wind-blown dust from stockpiles or exposed areas.

The following mitigation measures were included in estimating potential dust emission from the Site.

- Level 2 (>2 l/m²/hr) water spray or chemical suppressant on unsealed haul roads – 84%.
- Watering stockpile/exposed areas – 50% reduction.
- Minimisation of wind erosion due to wind speed reduction provided by the existing infrastructure surrounding the Site – 30% reduction (control factor for "wind breaks").
- Traffic speed restrictions of 10 km/hr for all on-site vehicles.

The predicted results in **Table 6-7** show minimal incremental impact from the proposed operations at the nearby residential receptors. Predicted total results for $PM_{2.5}$, PM_{10} or TSP are below impact assessment criteria when compared with NSW EPA guidelines at the residential receivers.

The cumulative annual average PM_{10} and $PM_{2.5}$ concentrations predicted at the industrial receiver locations marginally exceed relevant impact assessment criteria. The results also show that the maximum predicted total 24-hour average PM_{10} concentrations exceed the impact assessment criterion at the three closest industrial receivers (I1, I2 and I3).

The predicted exceedance of the impact assessment criterion for 24-hour average PM_{10} at the closest industrial receivers (I1, I2 and I3) is largely due to the conservative assessment methodology whereby the maximum predicted incremental concentration, due to the proposal, is added to the maximum ambient concentration. Therefore, in accordance with the Approved Methods, a "contemporaneous" assessment has been conducted to provide a more detailed analysis of the potential impacts of the proposal.

The highest expected $PM_{2.5}$ annual average concentration at Industrial Receiver 1 was 1.76 $\mu g/m^3$ which represents approximately 20% of the $PM_{2.5}$ criteria and is considered an acceptable contribution to the airshed in an industrial area. To assess the implications of the $PM_{2.5}$ annual average exceedance a "contemporaneous" assessment has been conducted to provide a more detailed analysis of the potential impacts of the proposal.

The contemporaneous assessment of 24-hour average PM_{10} and $PM_{2.5}$ concentrations involves adding the existing background PM_{10} concentration, observed at the OEH monitoring site in Campbelltown West, to the predicted incremental concentration for each day of the simulation period.

The results of the contemporaneous assessment of 24-hour average PM_{10} and $PM_{2.5}$ concentrations at the industrial receivers I1, I2 and I3, respectively are shown in Figure 7-1, Figure 7-2, Figure 7-3, Figure

7-4, Figure 7-5 and Figure 7-6 of the Wilkinson Murray Report at **Appendix 7**. The contemporaneous assessment shows that the contribution of the proposal to total PM_{10} and $PM_{2.5}$ concentrations is low, and that any exceedances of the impact assessment criterion are largely due to high ambient PM_{10} and $PM_{2.5}$ concentrations. The high ambient concentration on the 24 September 2017 was due to fire reduction burns in NSW. There are no additional exceedances of the PM_{10} and $PM_{2.5}$ criteria.

A contour plot of the incremental 24-hour and annual average PM_{10} concentrations is presented as **Figure 6-8**.

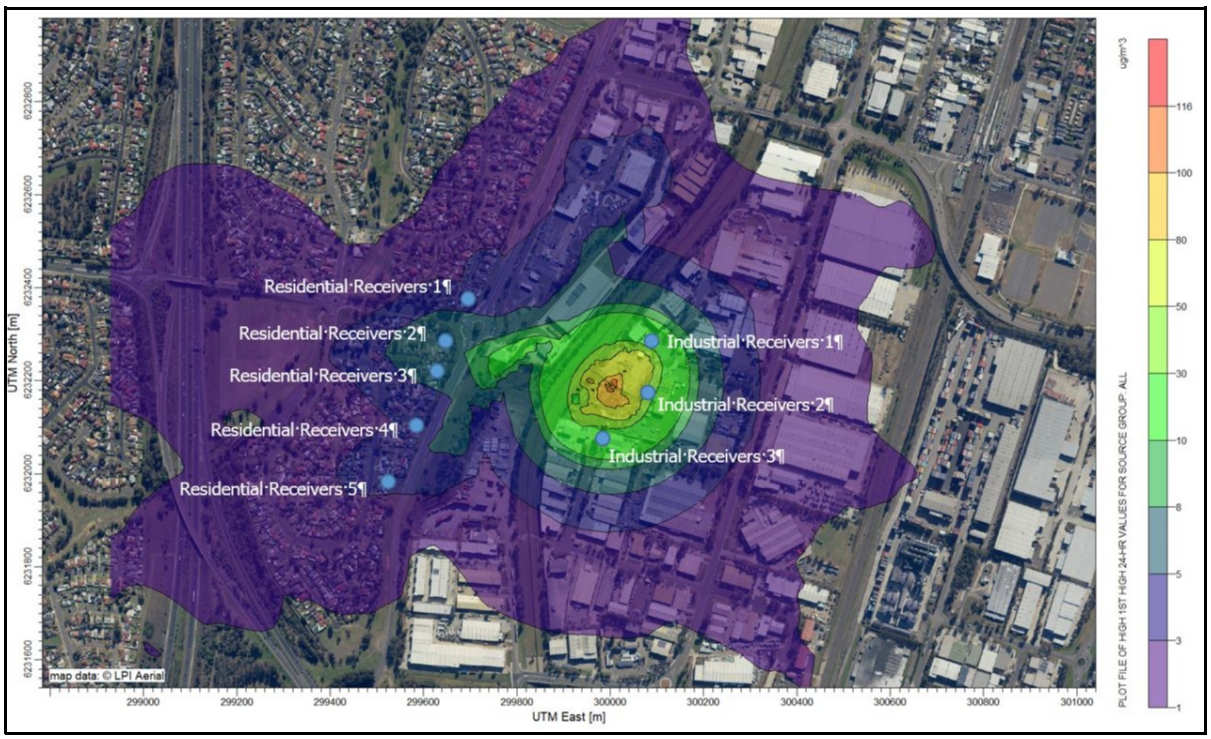


Figure 6-8: Extract from the contour map of the Wilkinson Murray Report.

6.7 Respirable Crystalline Silica

The assessment results in **Table 6-7** show that the most affected residential and/or industrial receiver is Industrial Receiver I1 and it is predicted to experience annual average $PM_{2.5}$ concentrations of 1.76 µg/m³ due to the proposal which is due to the total dust from the Site, and only a small portion of this dust could contain silica. As the total level is below the Victorian EPA criterion of 3µg/m³ for respirable crystalline silica, the actual level from the proposal would be much lower and, hence, the proposal would not result in an unacceptable level respirable crystalline silica in the ambient air at any residential and industrial receiver.

6.8 Conclusion

Potential dust impacts associated with the day-to-day operational activities for the proposed development have been assessed in general accordance with the Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales.

Quantitative assessments of potential dust impacts from the operation of the proposal have been conducted, based on TAPM meteorological simulations and the AERMOD dispersion modelling system.

The deployment of appropriate dust mitigation and operational measures will minimise the potential occurrence of excessive dust emissions from the proposal and ensure that air quality impacts are lower than those predicted. The recommended mitigation measure are:

- Level 2 (>2 l/m²/hr) water spray or chemical suppressant on unsealed haul roads – 84% reduction.
- Watering stockpile/exposed areas – 50% reduction.
- Traffic speed restrictions of 10 km/hr for all on-site vehicles.

The results of the dispersion modelling indicate that dust and particulate matter concentrations due to the operation of the proposal can be adequately managed on site to mitigate impacts.

Part Seven

GREENHOUSE GAS ASSESSMENT

7.1 Introduction

The Secretary's Environmental Assessment Requirements includes a requirement for:

- *a quantitative assessment of the potential Scope 1, 2 and 3 greenhouse gas emissions of the development, and a qualitative assessment of the potential impacts of these emissions on the environment; and*

- *a detailed description of the measures that would be implemented on site to ensure that the development is energy efficient.*

In order to ascertain the potential impact of the proposed facility on Greenhouse Gas Emissions, Wilkinson Murray Pty Limited has prepared a report titled *Materials Recycling Facility, Minto Greenhouse Gas Assessment* (**the Wilkinson Murray Report**) a copy of which is at **Appendix 10**.

7.2 Greenhouse Gas Methodology

The following greenhouse gases have been identified as significant contributors to global warming:

- carbon dioxide (CO_2)
- methane (CH_4)
- nitrous dioxide (N2O)
- synthetic gases
- Hydro fluorocarbons (HFCs, SF_6, CF_4, C_2F_6)

HFCs and synthetic gases are not relevant to the proposed development.

National Greenhouse Accounts Factors (July 2018) has been used to provide a consistent set of emission factors, which are suitable for reporting Greenhouse Gas Emissions.

Under the Department of Climate Change and Energy Efficiency protocol GHG emissions are categorised as Scope 1, Scope 2 and Scope 3 emissions, being:

- **Scope 1** Direct (or point-source) emission factors emissions, are direct emissions from sources owned or operated by the facility. These may be calculated using "Point Source Emissions Factors" as defined in the AGO Factors and Methods Workbook.

- **Scope 2** Indirect emission factors - emissions are GHGs released as a result of the generation of electricity, or the production of heat, cooling or steam purchased by the reporting company.

- **Scope 3** Various emission factors - emissions are all other GHG emissions which are not covered under Scope 1 or Scope 2. Scope 3 emissions can include activities such as employees commuting to work, extraction, production and transport of fuels, materials and other goods, and use of products manufactured and sold.

7.3 Scope of Assessment

This assessment considers the major greenhouse gas emissions sources based on the design and construction staging information which was available during the design phase. The assessment provides greenhouse gas emissions during the following phases of operation:

Construction Period, comprising of the following:

- Earthworks 4 weeks duration.
- Foundation / Hardstand 6 weeks duration.
- Superstructure 4 weeks duration.
- Operational Period.

Types of emissions and associated scopes with the construction and operational phases of the project are provided in **Table 7-1** and **Table 7-2**.

Scope	Emission Sources
Scope 1	• Transportation of materials via heavy vehicles; • Light vehicles for contractor and staff use; • Fuel used by construction and civil equipment; • Fuel usage by on-site generator.
Scope 2	• Consumption of purchased electricity from the grid to power on-site amenities.
Scope 3	• Extraction, production, transmission and distribution of fuel and electricity used onsite; • Waste and waste water generated; • Commute of workers.

Table 7-1: Project Construction Emission Scopes

Scope	Emission Sources
Scope 1	• Transportation of materials via heavy vehicles; • Operational fuel usage in vehicles and equipment.
Scope 2	• Consumption of purchased electricity from the grid to power on-site amenities.
Scope 3	• Extraction, production, transmission and distribution of fuel and electricity used onsite; • Waste and waste water generated; • Commute of workers.

Table 7-2: Project Operational Emission Scopes

7.4 Estimation of Greenhouse Gas Emissions

The Site is in an established industrial estate with limited existing vegetation. The predicted loss of carbon sequestration as a greenhouse gas emission source is, therefore, considered minimal and will be not considered.

Detailed methodology of construction works has not been determined at this stage of the project. Emissions will be highly dependent on many variables such weather, construction methodology, off site fabrication, suppliers etc., therefore, unlike operational emissions, an estimation of construction related emissions can be highly variable.

7.4.1 Emissions from Construction

The assessment of the construction period associated with the resource recovery facility is limited to the following activities:

Truck Movements for Construction

- Removal of Fill totalling 500 trucks.
- Transportation of Construction Materials totalling 280 trucks.

Machinery and Plant used on site for Construction

- Average of 1 large diesel powered plant in operation for half the construction period.

Expected Construction Workforce

- 4-10 persons per day depending on construction task.

Electricity Generation for Construction

- Off-site generated mains power for the site office.
- On-site diesel generated power for power tools.

Waste and wastewater

- Typical construction waste generated.
- Typical waste and waste water generated from persons on-site.

Equivalent CO2-e emission estimations are presented in **Table 7-3**.

Project Component / Source	Emission Sources	Quantity	Greenhouse Gas Emissions (tonnes CO2-e)			
			Scope 1	Scope 2	Scope 3	Total
Diesel fuel consumption – transport Purposes	Diesel for transport (LGV / HGV)	17 kL	46.4	0	0	46.4
Diesel fuel consumption – Mobile Plant	Construction equipment diesel fuel used	9.4 kL	25.9	0	0	25.9
Diesel fuel consumption – Stationary Plant	Construction generators diesel fuel used	0.8 kL	2.3	0	0	2.3
Electricity	Electricity supplied to site offices	9,600 kWh	0	7.9	0	7.9
Construction worker commute	Petrol for transport (light vehicle), bus travel, rail travel	1.6 kL	0	3.8	0.5	3.7
		Total	**74.6**	**11.7**	**0.5**	**86.2**

Table 7-3: Emission from Construction Period

7.4.2 Emissions from Operation

The assessment of the operational period associated with the Resource Recovery Facility is limited to the following activities:

Truck movements during operational period

- Trucks inbound with product totalling 171 per weekday and 106 per Saturday.
- Trucks outbound with product totalling 171 per weekday and 106 per Saturday.

Machinery and Plant used on site during Operational Period

- Average of 6 large diesel powered plant in operation at any one time, e.g. 3 excavator and 3 loaders.

Front End Loader

- Sand Washing Plant operating every day with a power consumption of 100kw/h.
- Concrete Crushing Plant operating every other day with a power consumption of 200kw/h.
- Pugmill.

Expected Typical Operational Workforce on-site

- 15 persons per day.

Electricity Generation for Operational Period

- Off-site generated mains power for site office, weighbridge and lunchroom.
- On-site diesel generated power for sand washing plant, concrete crushing plant and Pugmill.

Equivalent CO2-e emission estimations are presented in **Table 7-4**.

Project Component / Source	Emission Sources	Quantity	Greenhouse Gas Emissions (tonnes CO2-e)			
			Scope 1	Scope 2	Scope 3	Total
Diesel fuel consumption – transport Purposes	Diesel for transport (LGV / HGV)	2014.9 kL	6122.3	0.0	0.0	6122.3
Diesel fuel consumption – mobile plant	On-site Plant diesel fuel used	349.9 kL	952.1	0.0	0.0	952.1
Diesel fuel consumption – stationary plant	On-site equipment diesel fuel used	234 kL	639.2	0.0	0.0	639.2
Electricity	Electricity supplied to site offices	19 200 kWh	0.0	15.7	0.0	15.7
Employee commute	Petrol for transport (light vehicle)	19.5 kL	0.0	0.0	46.5	46.5
		Total	**7634.3**	**15.7**	**46.5**	**7775.8**

Table 7-4: Emission Sources from Operation Phase

7.4.3 Overall Emissions

The latest National Inventory Report (2016) and State and Territory Greenhouse Gas Inventories detailed Australia's total greenhouse gas emissions in 2013 amounted to 532.971 million tonnes of carbon dioxide equivalent (Million tonnes CO2-e) whilst New South Wales accounted for 130.273 million tonnes of this total.

The Resource Recovery Facility will account for less than 0.006% of current NSW emissions.

7.5 Greenhouse Gas Mitigation Measures

7.5.1 Reducing Greenhouse Gas Emissions from Diesel Fuel Consumption

Diesel fuel consumption, namely that used in the transportation of material to and from the Site, generation of on-site power and that used in on-site vehicles represents the source of the major greenhouse gas emissions for the proposed development.

Mitigation options to reduce energy consumption and greenhouse gas emissions include:

- Avoid prolonged idling of equipment: Develop a policy about idling times and monitor unnecessary operation.
- Throttle down and switch off equipment when not in use.
- Fill fuel tanks to 95% of capacity to allow for expansion and reduce spillage.
- Perform regular inspection and maintenance.
- Log fuel use by vehicle and machinery to help identify fuel leaks and poorly performing vehicles.
- Consider the use of biofuels (Biodiesel or ethanol).
- Using vehicles with greenhouse gas emissions ratings of a minimum of 7.5 for passenger vehicles and 6 for light commercial vehicles, as described in the Green Vehicle Guide (www.greenvehicleguide.gov.au).

7.5.2 Reducing Greenhouse Gas Emissions from Electricity Consumption

Mitigation options to reduce energy consumption and greenhouse gas emissions from electricity consumption include:

- Specifying the use of grid-sourced renewable energy supply.
- Increasing solar access availability. Work areas should be located away from the western side of the development where utility areas such as toilets and showers should be located.
- Utility areas should be naturally ventilated where possible, and if possible be designed to provide good cross-flow potential.
- Light switches will be located at room exits to encourage switching lights off when leaving a room. Separate switches will be installed for special purpose lighting.
- Motion detectors should be used for externally lit non-critical areas.
- The option to use compact fluorescent bulbs is proposed.
- Hot water is likely to be required for tea making and showering facilities. Electric storage hot water systems are the least efficient hot water systems. Instantaneous hot water, solar hot water with an electric boost or gas hot water should be considered.
- Installation of energy saving appliances.

7.5.3 Reducing Embodied Greenhouse Gas Emissions

Although embodied greenhouse emission was not considered, the following measures could be implemented to reduce total emission levels:

- Specifying sourcing of construction materials with lower embodied emissions (where a suitable substitute is available for construction materials with high embodied emissions). This includes low-carbon concrete, recycled metals and recycled construction aggregate.
- Source equipment and materials locally to reduce emissions associated with their transportation.

7.6 Conclusion

A review of the greenhouse gas emissions has been considered for the proposed Resource Recovery

Facility at 7 Montore Road, Minto.

The study has identified sources of greenhouse gas emissions during both construction and operation of the facility.

Contribution emissions are highly dependent on the construction methodology and program and, as such, are an estimate of possible emissions.

In the case of operational stage, an emission rate of 17 kg CO2-e/ tonne of product has been established.

Potential measures to reduce emissions have been identified. These measures, where feasible, should be adopted into a site specific environmental management plan.

Part Eight

VISUAL IMPACT ASSESSMENT

8.1 Introduction

The Secretary's Environmental Assessment Requirements includes a requirement for:

- *an assessment of the potential visual impacts of the development on the amenity of the surrounding area.*

- *a detailed description of the measures that would be implemented to minimise the visual impacts of the development, including the design features, landscaping and measures to minimise the lighting and signage impacts of the development as well as measures to manage graffiti.*

In order to ascertain the potential impact of the proposed development on the visual environment of the locality, a Visual Impact Assessment has been undertaken.

8.2 Methodology

The assessment of visual impacts is a field which requires a degree of subjective judgment and cannot be made fully objective.

It is necessary to limit the subjectivity of the work by adopting a systematic, explicit and comprehensive approach with the aim of separating aspects which can be more objective, for example the physical setting, visual character, visibility and visual qualities of a proposal, from more subjective elements, such as matters of personal taste and emotion.

The methodology utilised consists of the steps described below.

1. Identification and description of the existing visual character of the land within which the proposal would be seen.

2. Analysis and evaluation of the potential future visibility of and visual accessibility of the proposal.

3. Assessment of the residual visual impacts of the proposal, if any, and any necessary mitigation measures which are the subject of commitments to environmental management programs for which conditions of consent would be required.

A viewpoint analysis was conducted to assess the visual impacts which may be experienced which consisted of visiting the Site and the locality and assessing the likely impact on views from selected locations. The locations were selected to represent all of the types of view of the development which would exist in the immediate area. At each viewing place, a series of observations and assessments were

made. A variety of locations were also visited to ascertain the extent of the visual catchment and the characteristics of the views.

The catchment from where the Site can be seen is limited due largely to the topography of the Site and its surrounding area. The activity on the Site is not visible from the residential development to the west of Campbelltown Road. It is, however, possible to obtain limited views to the Site from the industrial development in the locality. **Figure 8-1** shows the general locations from which the Site is visible.

Figure 8-1: Extract from an aerial photograph with arrows showing the line of sight to the Site (shaded yellow).

From all of the vantage points shown in **Figure 8-1** the view is to the Minto Industrial Area. Any development on the Site as proposed would be seen as part of the industrial vista provided by the varied industrial development in the Minto Industrial Area.

All machinery associated with the proposed development is to be located within purpose built buildings and the stockpiles of unprocessed and processed materials would be screened from the majority of the adjoining industrial development through side boundary walls and landscaping.

In light of the above, it is concluded that there would be no visual impact associated with the proposed development.

Part Nine

WATER QUALITY IMPACT ASSESSMENT

9.1 Introduction

The Secretary's Environmental Assessment Requirements require:

- *a detailed water balance for the development outlining the measures that would be implemented to minimise the use of water on site and measures to ensure an adequate and secure water supply is available for the proposal.*
- *wastewater predictions, and the measures that would be implemented to treat, reuse and/or dispose of this water.*
- *the proposed erosion and sediment controls during construction.*
- *the proposed stormwater management system.*
- *an assessment of the potential impact of the development on Bow Bowing Creek and riparian areas*
- *consideration of the potential groundwater, salinity, contamination, flooding and acid sulfate soil impacts of the development.*

In order to ascertain the potential impact of the proposed development on the stormwater drainage system, Martens & Associates has prepared a report titled *Site Water Management Plan: Minto Resource Recovery Facility 7 Montore Road, Minto* (**the Martens Report**) a copy of which is at **Appendix 5**.

9.2 Objectives

The objectives of the Site Soil and Water Management Plan (**SWMP**) are to:

- Develop a stormwater management system to prevent potential off-site water quality and quantity impacts.
- Develop a stormwater reuse system.
- Demonstrate compliance with relevant Water Sharing Plans (**WSP**).
- Provide an impact assessment of the proposed development on the adjacent Bow Bowing Creek environment.
- Provide an assessment of predicted wastewater loads.

- Assess groundwater impacts.

9.3 Relevant Planning Controls and Design Principles

The following planning controls and design principles have been consulted and incorporated into the design of the stormwater management system:

- Campbelltown City Council (Sustainable City) DCP 2015, and
- Landcom (2004) Soils and Construction: Managing Urban Stormwater.

9.4 Consultation

A number of agencies have been consulted during the development of the SWMP as detailed in **Table 9-1**.

Agency	Contact	Outcome
NSW Environment Protection Authority (EPA)	Jacqueline Ingham	Proposed development is to ensure any discharge is treated and of an appropriate quality. 'Dirty' and 'clean' parts of the site are to be separate Vehicles leaving the site are to be cleaned via a wheel wash of similar to prevent pollution of surrounding environments.
Department of Industry – Water (DPI Water)	Wayne Connor	The proposed sedimentation basin is exempt from harvestable rights calculations and does not require Water Management Act licenses. Collection of water from office roof is not required to be authorised. No further information is required.

Table 9-1: Agency consultation.

9.5 Stormwater Quality

A stormwater retention system is proposed for the Site to collect and treat runoff, preventing off-site migration of sediment contaminated stormwater.

On-site tanks will be utilised to store and supply captured stormwater to satisfy dust suppression and sand washing demands.

Design of this system is in accordance with NSW Landcom (2004) Soils and Construction Handbook.

9.5.1 Water Quality Targets

Landcom (2004) notes that, to ensure pollution of downslope receiving waters does not occur, treated discharge waters from sedimentation basins should not exceed 50ppm of Total Suspended Solids (**TSS**).

Although overflow from the basins and on-site tanks is generally not expected during normal operation, it may occur during extended periods of wet weather where dust suppression and sand washing are not required or during extreme rainfall events. Under these circumstances, overflow would be monitored and managed.

Based the proposed site operations, the following potential contaminants are considered to be the main risk to surface and groundwater quality at the Site:

- Suspended solids
- Heavy metals
- Hydrocarbons
- Oil and grease
- pH

A stormwater and sediment retention system is proposed to collect and treat site runoff and limit off-site migration of surface water. Retained water will be reused as part of the planned extensive water recycling program which will include dust suppression, sand washing and on-site toilet flushing. The full details of the stormwater retention system and associated stormwater quality improvement devices are provided in the **SWMP**. In summary, the proposed stormwater system will include:

- Pit and pipe network
- Rainwater tanks
- Sedimentation basins
- Oil and grit separators (Humeceptor)

The stormwater retention system has been designed in accordance with Landcom (2004) and has been appropriately sized to capture the first flush during all rainfall events. **Table 9-2** further details mitigation measures specific to the expected contaminants of concern.

Table 9-2: Remediation acceptance criteria.

Contaminant of Concern	Adopted Screening Level (w/w)
Total Suspended Solids (TSS)	During rain fall events, all initial site surface water is diverted to a retention device (sedimentation basin or rainwater tank). The retention system will remove a significant amount of TSS associated with first flush water which is then consumed by reuse as part of site operations.

Contaminant of Concern	Adopted Screening Level (w/w)
	During larger storm events where the capacity of the first flush system is exceeded, surface water will bypass the system and be discharged from the site, however, prior to off-site discharge, water will pass through humeceptor units which will, based on the manufacture's specifications, remove up to 80% of TSS. As the first flush will have already been captured and retained, limited TSS would be expected to be present in water entering the humeceptor units. The results of MUSIC modelling indicate water leaving the Site will meet Campbelltown City Council's water quality objectives in regard to TSS.
Heavy Metal	The majority of heavy metal impacts to water quality are expected to be associated with TSS and will be similarly concentrated in the first flush. The removal of TSS, as described above, will also ensure that potential heavy metal impacts to water quality from site use are managed and will not impact on the downstream receiving environment.
Hydrocarbons (including oil and grease)	As with metals, a majority of hydrocarbon impacts are also expected to be associated with first flush. Hydrocarbon impacts may also occur from spills or on-site machinery during site operation. It is expected that both 'free' hydrocarbons (spills) and hydrocarbons associated with first flush will be captured in the system as part of the first flush retention system. The Humeceptor units are rated to remove up to 99% of hydrocarbons and have capacity to store hydrocarbons in the event of accidental site spills.
pH	pH impacts to water are likely to be associated with the cementitious fines which will be generated by the concrete recycling and crushing operations. Fines will be predominantly washed off in the first flush, will be captured and removed by the site first flush system. Following the first flush it is not expected that sufficient cementitious fines will be present to sufficiently impact the water leaving the Site.

9.5.2 Sediment Basin Description

A concept sediment basin design has been developed for the proposed Resource Recovery Facility:

- The Site is graded to direct all surface runoff to site basins prior to reuse or discharge from the Site to meet water quality objectives. The driveway and the entry section of the car park are excluded from capture.

- Sedimentation basins are located in the north and south of the Site. Both basins are below ground concrete pits.
- A floating pump will be located in each basin for extraction of clean water to on-site tanks for reuse in dust suppression and sand washing.
- Detailed design of the proposed basins is to be undertaken in accordance with Landcom (2004) during the construction certificate stage.

9.5.3 Sedimentation Basin Design

Sedimentation basins are sized based on design procedures set out in the Landcom Handbook (2004) and summarised in **Table 9-3**.

Element	Design Parameter
90th percentile 5-day rainfall Campbelltown	43 mm
Runoff coefficient	0.83
Catchment area	20,143 m^2
5-day runoff volume (m^3)	**720 m^3**

Table 9-3: Total site sediment basin minimum design specifications summary.

The total 5-day runoff volume from **Table 9-3** stored on-site, split between both site basins and above ground tanks, is outlined in **Table 9-4**.

Runoff captured by both basins will be pumped to above-ground tanks and used for stockpile watering, general Site dust control and sand washing.

Parameter	Southern Sediment Basin	Northern Sediment Basin	Onsite Above Ground Tank
Volume[1]	100 m^3	100 m^3	520 m^3
Footprint	5 m x 10 m	5 m x 14 m	
Basin invert level	41.00 mAHD	41.00 mAHD	-
Overflow discharge weir level	43.00 mAHD [2]	43.30 mAHD	
Emergency overflow weir level [3]	43.55 mAHD	43.82 mAHD	-

Table 9-4: Sediment basin details.

Notes:
[1] Total volume of sediment basins = 200 m^3.
[2] In the southern basin, overflow discharge weir is designed to convey minor storm event, tailwater condition in the major storm event prevents discharge being conveyed in the pipe.
[3] Emergency overflow weirs formed in western site batter.

The basins will have a series of custom pits which work as describe below:

- Incoming site runoff is directed firstly to a sedimentation pit, capturing coarse sediments. Water is pumped from this pit to holding tanks for reuse on-site.

- Flows unable to be pumped to on-site tanks due to holding tank capacity being reached or incoming flows exceeding basin storage volume are directed to an overflow pit from which a pipe flows to Bow Bowing creek.

- Outlet pipes from the two basins will discharge to Bow Bowing Creek via existing headwalls. In the northern basin, pit/pipes have been sized to carry all storms up to and including the 100 year ARI storm. In the southern basin, pit/pipes have been sized for the 10 year ARI storm. Flows exceeding the pipe capacity will be directed to Bow Bowing Creek via the emergency overflow weir. The emergency overflow weir is designed to convey the 100 year ARI storm. Preliminary stormwater outlet designs are provided in the Martens Report.

9.5.4 Management and Monitoring

The sediment basins will be managed by pumping the collected rainfall runoff to on-site holding tanks. If all storage tanks are full and water remains in the sedimentation basin, water will be monitored to ensure water quality objectives are met prior to discharging Bow Bowing Creek.

Emergency overflow weirs are provided in the earth bund along the western portion of the Site for the controlled release of ponded water from the Site in the rare case of site pit or pipe blockage.

The water quality monitoring system will be:

- A site calibrated 50ppm water sample kept on-site.

- In the event that water needs to be discharged from the basin, a water sample will be taken daily from the basin settling zone.

- Water samples will be compared to the calibrated sample.

- Discharge may occur from the basin once water samples match the calibrated sample (i.e. water quality objectives have been achieved).

- The calibrated water sample will be re-calibrated every 12 months by laboratory analysis for total suspended solids to ensure accuracy.

-

9.5.5 Firefighting Water Containment Measures

Both of the proposed sediment basins/tanks (Northern and Southern) will be fitted with a manual shut-off valve on the outlet pipe. In the event of a firefighting emergency, the shut-off valve will activated, preventing water being released from the sediment basins/tanks and ensuring no release of fire hydrant water from the Site. The proposed site storage volume of 200 kl is sufficient to contain 108

kl of fire hydrant water based on a hydrant flow rate 20L/sec (two hydrants simultaneously) for 90 minutes. Fire hydrant water stored within the site basins/tanks is to be collected by a licensed wastewater contractor following a fire event.

9.6 Stormwater Quantity

The Site will have well compacted, unsealed surfaces which will be largely impervious and consist of crushed recycled concrete and aggregates.

Volume 2 of Campbelltown City Council's Sustainable City Development Control Plan 2015 requires that On Site Detention (**OSD**) be provided on sites where impervious area is increasing and upgrading downstream stormwater systems are not possible, however, in correspondence with Council, Council noted there is no requirement for OSD to be provided for the proposed development.

9.6.1 Objective

The objective for stormwater quality is:

- To ensure adequate site drainage is provided by the concept drainage design.

9.6.2 Concept Site Drainage Network

The proposed pit and pipe network is provided in Attachment A of the Martens Report as follows:

- A large portion of stormwater runoff from the Site will be directed to two (2) sedimentation basins located in the north and south of the Site.
- Water from each basin is pumped to storage tanks via floating pumps.
- Once the storage tanks are full, pumping ceases and water collects in the sedimentation basins. Water stored in tanks will be used for dust suppression and sand washing.
- An overflow pit is located within each sedimentation basin. In the northern basin, overflow from sedimentation basin will discharge into the overflow pit during the minor and major storm event, prior to discharging to Bow Bowing Creek. In the southern basin, flows will discharge to the overflow pit during the minor storm event. Once the pipe capacity is exceeded, water will overtop the basin and discharge to Bow Bowing Creek via the emergency overflow weir.
- Runoff from the driveway and the entry section of the car park will be captured by the proposed pit and pipe network and discharge to Council's kerb and gutter system.

- Runoff from vegetated batters discharge directly to Bow Bowing Creek.

9.6.3 Modelling

DRAINS modelling was used to assess the proposed stormwater drainage system. DRAINS (version 2018.06 - 28 June 2018) was used to analyse site hydrology and provide an adequately sized stormwater discharge system leading to Bow Bowing Creek.

9.6.4 Catchment Overview

The pre and post development catchment area is taken as the Site area (i.e. 2.35 ha) as no adjacent catchment areas drain to the Site. Assumed change in impervious percentage for post developed conditions are outlined in **Table 9-5**.

Scenario/Model	Catchment Area (ha)	% Pervious	% Impervious
Pre Development	2.35	100	0
Post Development	2.35	0	100

Table 9-5: DRAINS catchment area summary.

9.6.4.1 Stormwater Hydrological and Hydraulic Modelling

DRAINS Model Setup

Modelling assumes that sediment basins are at full capacity for minor storm event (1 to 10 year ARI) and the major storm event (1 in 100 year ARI).

Rainfall data adopted for stormwater modelling was derived from the Bureau of Meteorology website for the Site. Hydrological loss parameters are in accordance with Council's requirements.

DRAINS Results

No on-site OSD is required. DRAINS modelling for 1 in 10 and 1 in 100 year ARI design storms are summarised in **Table 9-6**.

Pit freeboard is acceptable in all pits modelled in the minor system (>150mm). Results demonstrate the proposed site drainage is adequately sized.

ARI Storm Event	Pre Development Peak (m^3/s)	Post Development Peak (m^3/s)[1]
1 in 10 year ARI (minor system)	0.257	0.909
1 in 100 year ARI (major system)	0.602	0.927[2]

Table 9-6: Peak site discharge.

Flood levels provided by Council for the 1 in 100 ARI event were used as downstream tail water levels in DRAINS modelling for the major system.

The driveway pit and pipe line was modelled to demonstrate the drainage system can capture and convey the minor storm flows (1 in 10 year).

9.7 Proposed Water Reuse Scheme

The proposed water reuse scheme for the Site has been developed to achieve significant reduction in the town water demands of the Site. Non-potable site water uses include dust suppression, sand washing and toilet flushing. The proposed site water reuse scheme will supply recycled stormwater for these purposes.

9.7.1 Water Demand

At the Camellia Resource Recovery Facility (operated by the applicant), the water cart for dust suppression is 12 kL and sprinklers on crushers and stockpiles are used to supplement water carts.

During winter, the cart is used on average 3 times a day (36 kL/day) and total sprinkler water consumption is approximately 15 kL/day. In summer, water cart usage increases to 8 times a day (96 kL/day) and sprinkler water consumption doubles (i.e. to 30 kL/day).

The sand washing facility is considered as a "closed" system, where wastewater is collected and reused within the facility. A certain amount of water loss is expected, mainly due to moisture within the washed product and evaporative loss. The amount of water required to supplement the loss is approximately 75 KL/day.

Water demand for toilets will be approximately 20 L/person/day.

In summary water demands to be supplied by stormwater reuse are:

- Winter dust suppression - 51 kL/day;
- Summer dust suppression – 126 kL/day;

- Sand washing – 75 kL/day.
- Toilet flushing – 0.3 kL/day.

9.7.2 Water Supply

Dust suppression and sand washing demands will be satisfied through reuse of stormwater runoff sourced from 200 kL sedimentation basins.

Captured runoff will be transferred to storage tanks for use on demand.

Approximately 520 kL of tank storage will be available on-site to provide 2 days of operational demand (based on 6 operational days per week) for dust suppression and 5 operational days per week for sand washing).

Water demand for toilet flushing will be supplied from a 5 kL roof water tank adjacent to the workshop building.

Reticulated water supply is available at the Site to provide water once site storages are exhausted.

9.7.3 Site Water Balance

A daily time step water balance model (**WatCycle**) was utilised to determine the water saving potential of proposed water reuse systems.

Water balance modelling input parameters and results are summarised in **Table 9-7**.

Water balance modelling indicates that, on average, 47.91 ML/year of town water, is required to meet average water demands for the proposed development.

Stormwater captured and reused on site reduces the average town water demand by approximately 20%.

Completed analysis demonstrates that increased storage of stormwater runoff would have minimum impact on the total water demand for the Site.

Parameter	Dust Suppression and Sand Washing System	Toilet System
	Source	
Catchment	2.0 ha (site)	0.12 ha (roof)
Initial Loss (mm)	0.5	0.5
Continuing Loss (mm/hr)	0	0
Pan Evaporation Factor	75%	75%
	Storage	
Volume	520 kL	5 kL
Type	Covered tanks	Covered tanks
	Demands (kL/day)	
Jan	201	0.3
Feb	201	0.3
Mar	163.5	0.3
Apr	163.5	0.3
May	163.5	0.3
Jun	126	0.3
Jul	126	0.3
Aug	126	0.3
Sept	163.5	0.3
Oct	163.5	0.3
Nov	163.5	0.3
Dec	201	0.3
	Annual Savings Assessment	
Total Demand	59.6 ML	0.11 ML
Average Reuse Supply	11.7 ML	0.1 ML
% Saving	19.70%	91.74%

Table 9-7: Water balance modelling inputs and results

9.7.4 Water Reuse System

The site water management and reuse system is summarised as follows:

- Stormwater from the roofs and hardstand areas is to be collected and stored for dust suppression via sprinklers and water cart and sand washing.
- Rainwater from the workshop building roof is to be collected and stored in rainwater tanks and used for toilet flushing.
- Town water will be used for potable uses and to supplement other supplies as required.

The hierarchy of water usage for dust suppression, sand washing and toilet flushing by source is as follows:

1. Captured site stormwater.
2. Reticulated town water supply.

9.7.5 Compliance with Surface Water Water Sharing Plan (WSP)

The Site lies within the Southern Sydney Rivers water source within the Greater Metropolitan Region Unregulated River Water Sources. The Site is within the Lower Georges River and Bunbury Curran Creek management zone. The WSP includes rules for all utilisation of surface water within the plan area.

The proposed development includes site sediment basins in the form of concrete tanks and collection of roof water from the proposed workshop building for non-potable (toilet flushing) reuse. Based on correspondence with DPI Water Licensing Officer:

- The sedimentation basin is exempt from licensing under the Maximum Harvestable Right Policy of DPI Water (formerly NSW Office of Water) as the structure is provided for the purposes of capture and circulation of contaminated drainage (i.e. sediment-laden runoff).

- The collection of water from the roof area is not required to be authorised under the Farm Dams Policy.

Additionally, the development does not include either collection or extraction from Bow Bowing Creek and, therefore, no licensable surface water elements are proposed. The development is, therefore, compliant with the rules of the WSP.

9.8 Riparian Impact Assessment

9.8.1 Existing Riparian Conditions

Bow Bowing Creek is a major tributary of Bunbury Curran Creek which joins the Georges River approximately 10km north east of the Site. Aside from its headwaters, the creek channel is concrete lined to its confluence with Bunbury Curran Creek.

In the vicinity of the Site, this concrete channel is approximately 300mm deep and approximately 3.5m wide.

Downstream of the headwaters, the riparian corridor is either absent with industrial development on the right and left bank of the concrete channel or consists of grassed batters of approximately 20m either side of the channel.

Screen planting along industrial lot boundaries is typical as seen at the Site.

Stormwater from industrial areas is discharged to the creek at numerous locations via stormwater pipes with concrete lined flow paths.

9.8.2 Impact Assessment

The Site lies partly within 40m of the right bank of Bow Bowing Creek and is classified as "waterfront land" and the development will be integrated development under the *Water Management Act 2000*. Proposed site works are approximately 25m from the top of bank and are consistent with uses on adjacent sites. The proposal includes measures to mitigate potential impacts including water quality and quantity with residual impacts considered negligible. Development includes the removal of some trees and grass within 40m of the bank of Bow Bowing Creek. Given the low ecological value of screen planting, the impacts are considered low. A detailed impact assessment is provided in **Table 9-8**.

Element	Impact	Comment
Channel stability	Negligible	Proposed development is more than 25m from the right top of bank. The low flow channel is concrete lined and high flow banks will be grassed. Proposed development attenuates post development flows to pre development level. No significant impact is anticipated.
Riparian zone	Low	The proposed development will involve the removal of existing screen planting along the western boundary. These trees have been assessed as non-significant by the Flora and Fauna Assessment (REF).
Sediment movement	Negligible	Bow Bowing Creek is concrete lined in the vicinity of the site. Development measures are provided to insure increases in sediment flux to the creek do not occur. Impacts on sediment movement are therefore not considered significant.
Water quality	Negligible	Proposed sediment basin (Section 3) will capture all sediment-laden runoff and treat it prior to reuse or discharge. Management and monitoring of discharge waters (Section 3.5) will ensure water is of a suitable quality and will have negligible environmental impact.
Hydraulic regime	Negligible	Hydrological regime is acceptable. No site OSD is required as indicated by Council.

Table 9-8: Impact assessment on nearby riparian environment

9.8.3 Mitigation Measures

Table 9-8 details proposed measures to mitigate actual and potential environmental disturbances and consequences which are summarised as:

- Capture and treat site runoff to prevent sediment-laden runoff discharging into the creek.
- Inclusion of sedimentation basins sized in accordance with Landcom (2004).
- Reuse of captured stormwater to limit the amount of stormwater discharge.
- Water quality monitoring regime to ensure water discharged is of an appropriate quality.
- Development outside of creek channel.

9.9 Wastewater Assessment

Wastewater generated is limited to sewage generated by site staff.

No proposed industrial site use will generate wastewater other than runoff managed through the Site stormwater system.

9.9.1 Predicted Site Population

The proposed development will have 15 employees. This figure has been used for the purposes of wastewater load calculations.

9.9.2 Predicted Wastewater Load

Based on Table H4 of AS/NZS 1547 (2012) a daily wastewater generation rate of 50 L/person/day is recommended for rural factories with reticulated water supply. Of this, 20 L/person/day is expected to be reused for toilet flushing with the remainder for kitchen, handbasin and infrequent shower use.

A predicted total wastewater load for the developed site is, therefore, 750 L/day.

9.9.3 Wastewater Management

The Site is connected to the Sydney Water sewer main for sewage disposal.

No on-site treatment, reuse or disposal is proposed.

9.9.4 Adequacy

Connection of the Site to reticulated sewer is considered to be an adequate means of managing site wastewater.

9.10 Groundwater Assessment

9.10.1 Existing Groundwater Conditions

A review of NSW government public record (**NRATLAS**) revealed there are no bores within close proximity to the Site, and situated at a comparable topographic location, with groundwater data or standing water level information.

In order to assess the impact of the proposed development on groundwater, a local groundwater level is assumed at the Bow Bowing Creek channel invert (approximately 39.3m AHD). Groundwater gradient is assumed to reflect the local surface gradient of approximately 2%.

A conceptual groundwater model has been developed and is provided in Attachment C of the Martens Report.

9.10.2 Impact of the Proposed Development

The proposed development will have a negligible impact on groundwater as:

- The proposed sedimentation basins do not intercept the anticipated site groundwater table.
- The highly compacted nature of the Site surface will limit infiltration across the Site and prevent significant drainage to groundwater. It is, therefore, assumed that there will be no negative impacts regarding acid sulphate soils or salinity.
- Site operation will not introduce significant potential contaminants to the Site. The primary site "pollutant" is sediment, which poses no risk to groundwater. Other possible pollutants include fuel and lubricants associated with site equipment. Standard practice management and maintenance of equipment, fuel and lubricant storage will achieve appropriate protection of local groundwater, including spill kits, use of bunding, procedures and training to contain pollutants in line with the recommendations of AS1940B1993 and AS4452B1997 as required by NSW EPA.
- There will be some areas of significant difference between the existing and proposed landform, but generally excavation and grading is within -0.75 to +0.75 m from existing levels. Apart from the excavations for the proposed sedimentation basins (approximately 2m deep), no significant excavation is proposed.

During search of the NRATLAS public record, it was also noted that groundwater bores in close proximity to the Site (between 1.5km – 8km from the Site) were all monitoring bores and not for the purposes of irrigation or domestic use. The overall impact of the proposed development on beneficial groundwater use is considered negligible.

9.10.3 Compliance with Water Sharing Plan (WSP)

The Site lies within the Southern Sydney Rivers WSP area of the Greater Metropolitan Region Groundwater Water Sources. The proposed development includes no excavation, wells or other elements which are expected to intercept groundwater. No extraction of groundwater is proposed. It

is concluded that there are no licensable groundwater elements in the development and the development will have no significant effect on local groundwater gradient. It is, therefore, considered to be compliant with the rules of the WSP.

9.10.4 Mitigation Measures

While minimal, risk posed to site groundwater by site equipment and fuel/lubricant storage are considered with recommended mitigation measures as follows:

- All fuel and lubricant to be stored within an approved concrete floored and bunded fuel storage designed in accordance with applicable best practice or regulatory requirements.

9.11 Integrated Water Cycle Management Plan

9.11.1 Stormwater Quality

Sedimentation basins and storage tanks with an approximate total volume of 520 kL will be constructed to capture and treat site stormwater. These basins have been designed in accordance with Landcom (2004) to appropriately hold and treat water prior to reuse or discharge. Discharge to Bow Bowing Creek will be in accordance with the water quality management and monitoring regime.

9.11.2 Stormwater Quantity

The outlet pipes and overflow weir from the sediment basins will discharge to Bow Bowing Creek.

9.11.3 Water Reuse Assessment

Stormwater from the sedimentation basin will be transferred to 520 kL storage tanks for dust suppression and sand washing reuse. Water balance modelling suggests that this water reuse scheme will result in a 18.8% reduction in town water demand.

9.11.4 Riparian Impact Assessment

The Site is partly within 40m of Bow Bowing Creek and is considered waterfront land, therefore, the development will be integrated development under the *Water Management Act (2000)*.

Proposed site works are approximately 25m from the top of bank and are consistent with uses on adjacent sites. The proposal includes measures to mitigate potential impacts including water quality and quantity with residual impacts considered negligible.

Development includes the removal of some trees and grass within 40m of the bank. Given the low ecological value of screen planting the impacts are considered low.

A detailed impact assessment is provided in Table 7 of the Martens Report which is reproduced as **Table 9-9**.

Element	Impact	Comment
Channel stability	Negligible	Proposed development is more than 25m from the right top of bank. The low flow channel is concrete lined and high flow banks will be grassed. Proposed development attenuates post development flows to pre development level. No significant impact is anticipated.
Riparian zone	Low	The proposed development will involve the removal of existing screen planting along the western boundary. These trees have been assessed as non-significant by the Flora and Fauna Assessment (REF).
Sediment movement	Negligible	Bow Bowing Creek is concrete lined in the vicinity of the site. Development measures are provided to insure increases in sediment flux to the creek do not occur. Impacts on sediment movement are therefore not considered significant.
Water quality	Negligible	Proposed sediment basin (Section 3) will capture all sediment-laden runoff and treat it prior to reuse or discharge. Management and monitoring of discharge waters (Section 3.5) will ensure water is of a suitable quality and will have negligible environmental impact.
Hydraulic regime	Negligible	Hydrological regime is acceptable. No site OSD is required as indicated by Council.

Table 9-9: Impact assessment on nearby riparian environment.

Mitigation Measures

Table 9-9 details proposed measures to mitigate actual and potential environmental disturbances and consequences which are summarised as:

- Capture and treat site runoff to prevent sediment-laden runoff discharging into the creek.
- Inclusion of sedimentation basins sized in accordance with Landcom (2004).
- Reuse of captured stormwater to limit the amount of stormwater discharge.
- Water quality monitoring regime to ensure water discharged is of an appropriate quality.
- Development outside of creek channel.

9.11.5 Wastewater Assessment

Site wastewater generation is limited to sewage from staff. No industrial wastewater, other than runoff managed by site stormwater system, will be produced.

The predicted peak site population is 15 people including: foreman, loader drivers, excavator drivers, weighbridge attendants, fitters and labourers at any one time. For assessment, a daily wastewater generation rate of 50 L/person/day is recommended, of which 20 L/person/day is expected to be reused for toilet flushing with the remainder for kitchen, handbasin and infrequent shower use. A predicted total wastewater load for the developed site is, therefore, 750 L/day.

The Site is connected to Sydney Water sewer main for sewage disposal. No on-site treatment, reuse or disposal is proposed.

Connection of the Site to reticulated town sewer is considered to be an adequate means of managing site wastewater.

9.11.6 Groundwater Assessment

No site or local groundwater data is available. A conceptual groundwater model for the Site has been developed to assess the proposals impact. Groundwater level of 39.3mAHD being channel invert level of Bow Bowing Creek is assumed with groundwater gradient expected to reflect the local surface gradient of approximately 2%.

No element of the proposed development will intercept the groundwater table and no groundwater extraction is proposed.

Measures are proposed to ensure surface operations do not result in contamination of underlying groundwater. The proposal will have a negligible impact on groundwater.

9.11.7 Water Sharing Plan (WSP)

The proposed site basins are exempt from licensing and no extraction from Bow Bowing Creek is proposed. The surface water elements of the development are, therefore, considered to be consistent with the Greater Metropolitan Region Unregulated River Water Sources WSP.

No groundwater extraction or significant impacts are included in the proposed development. It is, therefore, considered to be consistent with the Greater Metropolitan Region Groundwater Water Sources WSP.

9.12 Erosion and Sediment Control

In order to ascertain the potential impact of the proposed development with regard to erosion and sediment control, Martens & Associates has prepared a report titled *Erosion and Sediment Control Plan: Minto Resource Recovery Facility 7 Montore Road, Minto.*(**ESCP**) (**the Martens Report**) a copy of which is at **Appendix 5**.

The objectives of this ESCP are to:

- Control the transport of sediment from areas disturbed by construction activities.
- Minimise erosion.
- Manage stormwater to protect downstream water quality.

The following planning and engineering controls and design principles have been considered:

- Campbelltown City Council (2009) Development Control Plan.
- Campbelltown City Council (CCC) (2009) Engineering Design for Development.
- Landcom (2004) Soils and Construction: Managing Urban Stormwater.

The Wollongong 1:100,000 Geological Series sheet indicates that the natural soil profile of the Site is underlain by quaternary deposits of quartz and lithic "fluvial" sand, silt and clay.

The Wollongong 1:100 000 Soil Landscapes sheet indicates site soils are of the Blacktown soil landscape comprising earthy sands in valley flats.

To eliminate the discharge of sediment from the Site, temporary sediment and erosion controls are to be constructed prior to commencement of any work. The controls are to be installed in accordance with the Sediment and Erosion Control Plans prepared by Martens and Associates (see Attachment A of the Martens ECSP Report) and the requirements of Landcom (2004).

9.12.1 Sedimentation Basin

Based on the methods provided in the Blue Book, sediments generated during the construction are calculated to be less than 150 m^3/year, therefore, no sedimentation basin is required for the construction phase of the development.

9.12.2 Erosion and Sediment Control Measures

The following sediment and erosion control measures are proposed to prevent the pollutants generated

from construction activities from adversely affecting the water quality of the receiving environment.

- Sediment fencing will be used at the downslope end of the Site for the duration of all earthworks.
- Proposed site clearance and bulk earthworks will be undertaken in a single stage, following the implementation of site sediment control fences.
- Stormwater inlets will be protected by geotextile sediment barriers at all times during work on site.
- All site stockpile areas will have sediment fencing downslope of them.
- Stabilised site access is to be used at all times during the construction phase.

9.12.3 Recommendation

The following recommendations are made with respect to the proposed sediment and erosion control measures:

- Sediment and erosion control measures are to be maintained in good working order, and be repaired or replaced throughout the entire duration of the works.
- Sediment and erosion control measures are to be installed, inspected and approved prior to commencement of excavation works.
- Daily inspection of stockpiles and bunds will be undertaken with issues noted and remedial actions undertaken as soon as feasible where any such issues arise.
- Entrance street sweeping will be undertaken as required during and after excavation and construction until the Site is fully established.
- The contractor will maintain dust control until final completion of works. The controls will be as per the Air Quality Report (**Appendix 7**).
- During windy weather, large, disturbed, unprotected areas will be kept moist (not wet) by sprinkling with water to keep dust under control.
- Erosion and sediment control measures are not to be removed until all site disturbance works are completed and the Site is rehabilitated.

Part Ten

TRAFFIC IMPACT ASSESSMENT

10.1 Introduction

The Secretary's Environmental Assessment Requirements includes a requirement for:

- *details of traffic types and volumes likely to be generated during construction and operation.*
- *plans demonstrating how all vehicles likely to be generated during construction and operation and awaiting loading, unloading or servicing can be accommodated on the site to avoid queuing in the street network.*
- *an assessment of the predicted impacts of this traffic on the safety and capacity of the surrounding road network and a description of the measures that would be implemented to upgrade and/or maintain this network over time.*
- *details of key transport routes, site access, internal roadways, infrastructure works and parking.*
- *detailed plans of the proposed layout of the internal road network and parking on site in accordance with the relevant Australian standards.*

In order to ascertain the potential impact of the proposed development on the local traffic network, McLaren Traffic Engineering has prepared a report titled *Traffic and Parking Impact Assessment of Proposed Resource Recovery Facility at 7 Montore Road, Minto* (**the McLaren Report**) a copy of which is at **Appendix 8**.

10.2 Existing Traffic and Parking Conditions

10.2.1 Road Hierarchy

Montore Road has the following characteristics within close proximity to the Site:

- LOCAL road classification.
- The carriageway is 13m in width with 2 lanes of traffic (one in each direction) and permitted parking on both sides.
- Speed limit of 50km/h applies.
- The Site is located at a mid-block bend within Montore Road at its westernmost point.

Airds Road has the following characteristics within close proximity to the Site:

- LOCAL road classification.
- Carriageway width of approximately 16m with 2 lanes of traffic (one in each direction).
- Unrestricted kerbside parking permitted on both sides of the roadway.
- Sign posted speed restriction of 60km/h.
- Give way sign control junction with Montore Road.

Pembroke Road has the following characteristics within close proximity to the Site:

- RMS Classified STATE road (No.680).
- The carriageway is generally 8m in width with two (2) lanes of traffic (one in each direction), except for near the signalised intersection with Rose Payten Drive, where it is approximately 22m in width with five (5) lanes of traffic (two in each direction and a single right turn short lane upon all approaches to the intersection).
- Speed limit of 60km/h applies.
- The road is used as a truck route to / from the Site.

Ben Lomond Road has the following characteristics within close proximity to the Site:

- Regional road (No.7196).
- Carriageway width of approximately 17m with four (4) lanes of traffic (two in each direction).
- Sign posted speed restriction of 60km/h.
- The road is used as a truck route to / from the Site.

The industrial precinct of Minto, and in particular the road network, is an approved B-Double route with access from Ben Lomond Road to the north, Pembroke Road to the east or Rose Payten Drive to the south of the Site.

10.2.2 Existing Traffic Management

Within the vicinity of the Site, the following controls are in place:

- Priority controlled junction of Montore Road / Airds Road.
- Roundabout intersection of Airds Road / Ben Lomond Road.

- Roundabout intersection of Ben Lomond Road / Pembroke Road.
- Signalised intersection of Rose Payten Drive / Pembroke Road / Smith Creek Bypass.
- Signalised junction of Rose Payten Drive / Campbelltown Road.

10.2.3 Existing Traffic and Parking Environment

Traffic counts were completed on Thursday 13 December 2018, representing a typical weekday at the intersections of:

- Campbelltown Road / Rose Payten Drive.
- Ben Lomond Road / Airds Road, Airds Road / Montore Road.
- Rose Payten Drive / Pembroke Road / Smith Street Bypass and Ben Lomond Road / Pembroke Road.

The results are reproduced in Annexure D (of the McLaren Report).

Existing intersection performances have been assessed using SIDRA INTERSECTION 8.0. The analysis is summarised in **Table 10-1**.

It is evident from **Table 10-1** that all relevant intersections operate at a GOOD Level of Service (**LoS**) during the weekday peak periods as the surrounding road network has minimal delay.

The signalised intersections of Pembroke Road / Rose Payten Drive and Campbelltown Road / Rose Payten Drive are operating at LoS B. These intersections are operating with acceptable delays according to the Roads and Maritime Services guidelines.

Intersection	Peak Hour	Degree of Saturation[1]	Average Delay[2] (sec/veh)	Level of Service[3][4]	Control Type	Worst Movement	95th Percentile Queue
EXISTING PERFORMANCE							
Airds Rd / Montore Rd	AM	0.17	1.0 (Worst 8.9)	**NA** (Worst A)	Give Way	RT from Montore Rd (W)	0.3 veh (2.4m) Airds Rd (N)
	PM	0.20	0.9 (Worst 9.7)	**NA** (Worst A)		RT from Montore Rd (W)	0.2 veh (1.8m) Airds Rd (N)
Airds Rd / Ben Lomond Rd	AM	0.66	7.5 (Worst 17.1)	**A** (Worst B)	Roundabout	RT from Airds Road (N)	7.1 veh (52.3m) Ben Lomond Rd (W)
	PM	0.70	9.8 (Worst 21.8)	**A** (Worst B)		RT from Airds Road (N)	8 veh (59.2m) Ben Lomond Rd (W)
Pembroke Rd / Ben Lomond Rd	AM	0.49	8.1 (Worst: 14.2)	**A** (Worst: A)	Roundabout	RT from Pembroke Rd (N)	3.9 veh (27.9m) Pembroke Rd (N)
	PM	0.73	12 (Worst: 24.9)	**A** (Worst: B)		RT from Pembroke Rd (N)	9.4 veh (67m) Pembroke Rd (N)
Rose Payten Dr / Smiths Creek Bypass / Pembroke Rd	AM	0.82	22.6	**B**	Signals	RT from Smiths Creek Bypass (SE)	16.4 veh (117.9m) Pembroke Rd (NE)
	PM	0.70	28.2	**B**		RT from Smiths Creek Bypass (SE)	23 veh (163.4m) Pembroke Rd (NE)
Campbelltown Rd / Rose Payten Dr	AM	0.85	19.9	**B**	Signals	RT from Rose Payten Dr (E)	26.7 veh (194.1m) Campbelltown Rd (N)
	PM	0.84	18.5	**B**		RT from Rose Payten Dr (E)	32.6 veh (233.9m) Campbelltown Rd (N)

Table 10-1: Existing intersection performances (Sidra Intersection 8.0)

NOTES: (1) The Degree of Saturation is the ratio of demand to capacity for the most disadvantaged movement.

(2) The average delay is the delay experienced on average by all vehicles. The value in brackets represents the delay to the most disadvantaged movement.

(3) The Level of Service is a qualitative measure of performance describing operational conditions. There are six levels of service, designated from A to F, with A representing the best operational condition and level of service F the worst. The LoS of the intersection is shown in bold, and the LoS of the most disadvantaged movement is shown in brackets.

(4) No overall Level of Service is provided for Give Way and Stop controlled intersections as the low delays associated with the dominant movements skew the average delay of the intersection. The Level of Service of the worst approach is an indicator of the operation of the intersection, with a worse Level of Service corresponding to long delays and reduced safety outcomes for that approach.

10.3 Public Transport

There are numerous public transport networks surrounding the industrial precinct of Minto. Minto

Railway Station is approximately 1km walking distance to the north, and Leumeah Railway Station is 3km to the south. Both stations are on the South Line, Cumberland Line and Airport and East Hills Line.

Public bus networks service Minto station as shown in **Figure 10-1**, however, no service runs along Airds Road which would be a key link to the Site which suggests only a low percentage of staff and visitors to the proposed development will utilise public transport.

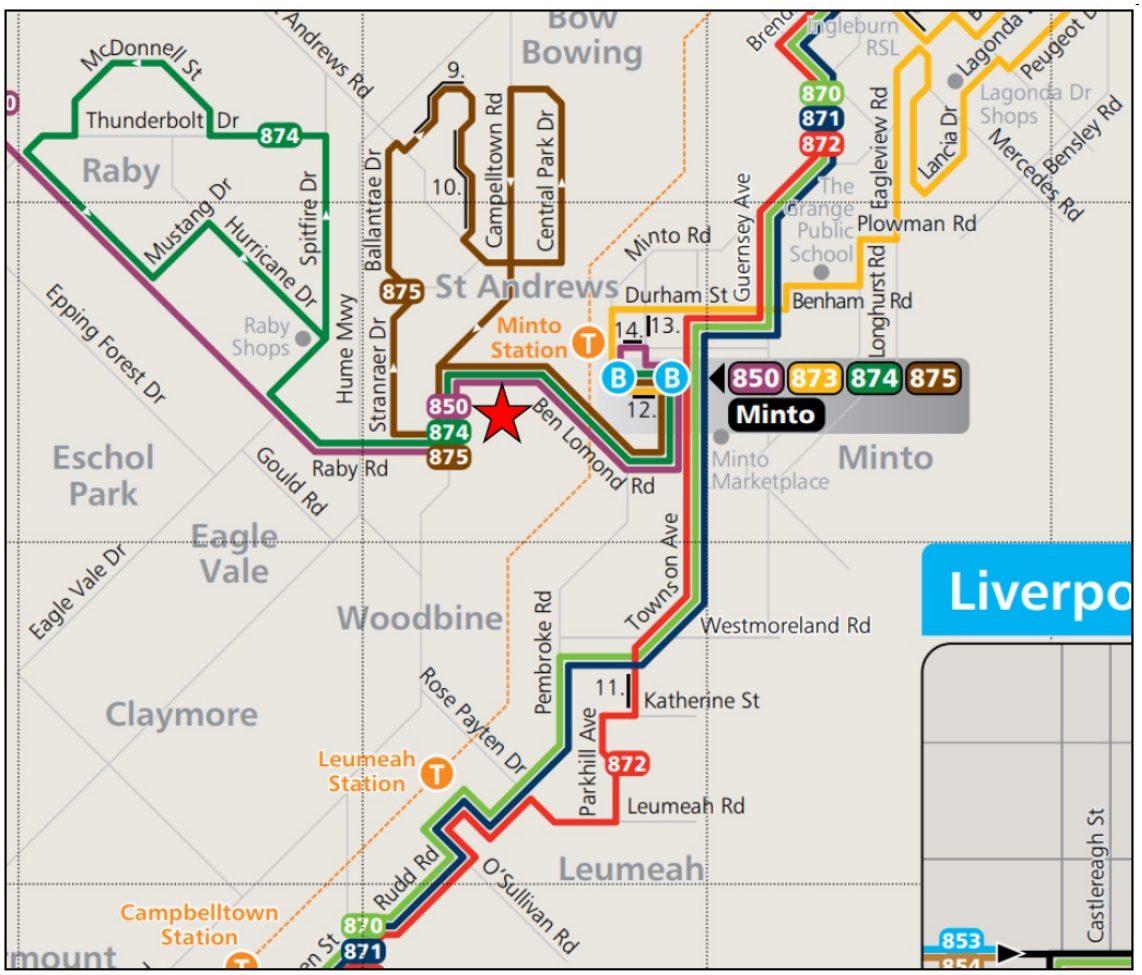


Figure 10-1: Public Transport Network

10.4 Parking Assessment

10.4.1 Car Parking Requirement

Campbelltown (Sustainable City) Development Control Plan 2015 – Part 6 Industrial Development provides car parking rates based on storage and office units on-site, however, it is considered that the operation of the Resource Recovery Facility, which has small office space and large storage facilities for bulk materials, should be based on a merit assessment.

The proposed development is expected to have a total of 25 employees, 15 of whom will require the provision of car parking (as the remaining 10 contract drivers will arrive in trucks). It is, therefore, more

feasible to provide a parking rate of 1 space per 1 employee on-site at any one time which will equate to 15 staff car spaces.

Similar developments see approximately 10 visitor trips per day. Parking provision for visitors to the Site would be 1 to 2 car spaces as visitors tend to stay for less than 1-2 hours which gives a suitable on-site provision of 16 to 17 car parking spaces.

At least 1 car parking space should be a dedicated disabled space with adjacent shared zone as per AS2890.6:2009.

The proposed layout shows a total of 18 car parking spaces complying with the above recommendations, including 1 disabled space.

10.4.2 Bicycle and Motorcycle Parking Requirements

Campbelltown (Sustainable City) Development Control Plan 2015 does not provide bicycle or motorcycle parking rates for industrial land uses and, as such, no on-site parking for bicycles and motorcycles has been provided. If necessary, there is adequate space within the car parking area to provide bicycle or motorcycle facilities.

10.4.3 Servicing and Loading

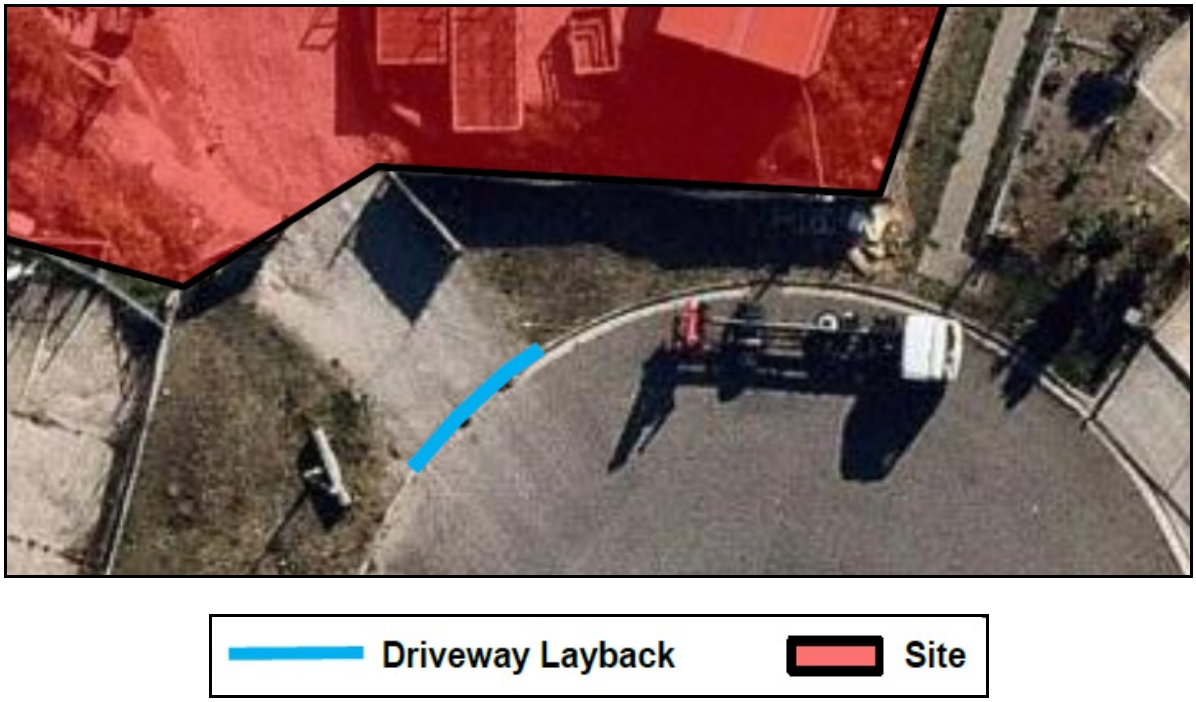
The Site will have access for vehicles up to and including 19m semi-trailers which will adhere to the following requirements:

- Provision will be made for all loading and unloading to take place wholly within the designated loading area.
- No loading or unloading will be carried out across parking spaces, landscaped areas, pedestrian aisles or on roadways.

There will be a requirement for upgrading of the existing access to the Site to accommodate the additional heavy vehicle movements.

Details of the existing and proposed layback to the Site in Montore Road are provided in Figures 4 & 5 of the McLaren Report and extract from which is provided as **Figure 10-2**.

Figure 10-3 shows the loading and unloading regime on the Site.



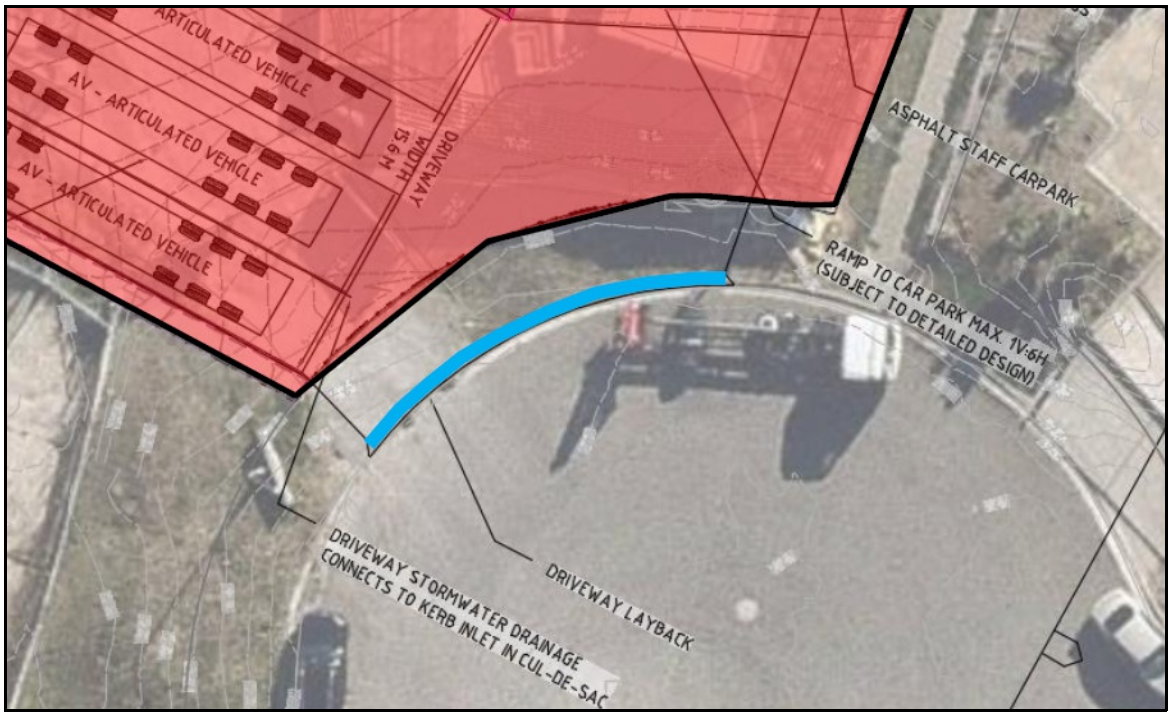


Figure 10-2: Diagram showing the existing and proposed site entrance. Works on the site entrance will be undertaken in accordance with the relevant Council standards.

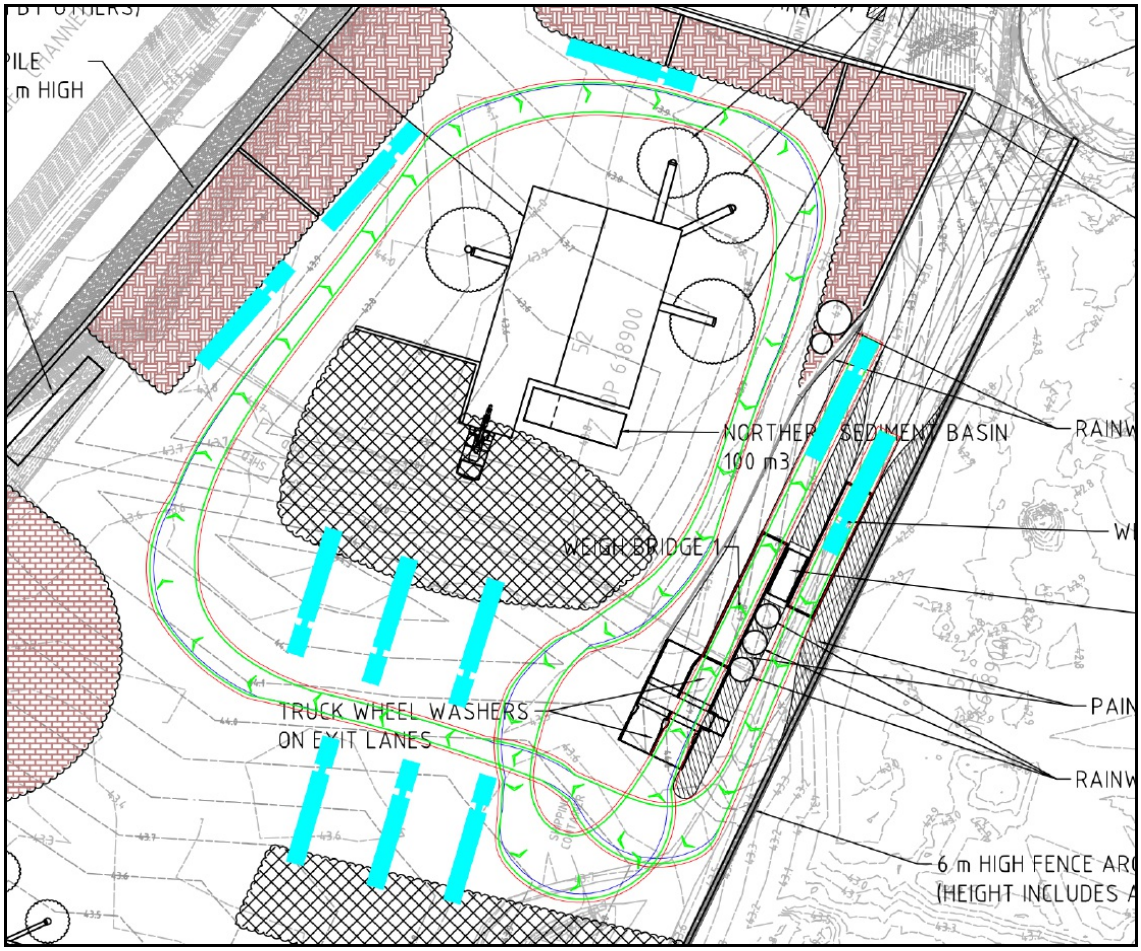


Figure 10-3: Diagram showing the location of trucks for unloading/loading and swept path analysis.

10.4.4 Disabled Parking

Campbelltown (Sustainable City) Development Control Plan 2015 requires accessible parking to comply with the minimum standards of the Building Code of Australia (**BCA**). The BCA does not specify a building class or parking requirements for industrial land uses such as Resource Recovery Facilities. A provision of 1 disabled parking space is, therefore, considered adequate provision which achieves compliance with *Campbelltown (Sustainable City) Development Control Plan 2015*.

10.4.5 Car Park Design and Compliance

The proposed car park has been designed to comply with the relevant Australian Standards (AS2890.1:2004, AS2890.6:2009).

Campbelltown (Sustainable City) Development Control Plan 2015 further stipulates the following requirements for industrial sites:

- Sufficient space will be provided on-site so that no vehicle will be required to make more

than a three-point movement to exit the Site in a forward direction.

- No car parking spaces will be designed in a stacked configuration.
- Each site will have a:

  (I) maximum of one ingress and one egress for heavy vehicles (combined or separated).

  (ii) each site may have an additional ingress / egress for cars (and other light vehicles).

- A minimum of 10% of the required car parking spaces, including disabled spaces, will be located within close proximity to the main pedestrian entry to the building.

Each of these conditions has been satisfied in the proposed development.

10.4.6 Service Vehicle Design and Compliance

The proposed development achieves the following outcomes in terms of servicing and loading:

- Internal clockwise circulation for entering / exiting heavy vehicles.
- Sufficient area to accommodate vehicles up to and including 19m Articulated Vehicles (**AV**).
- Six (6) waiting bays which can accommodate AVs.
- Driveway widths to accommodate simultaneous AV entry and exit manoeuvres.

Swept path tests of AVs circulating within the Site and entering / exiting the Site are reproduced in Annexure B of the McLaren Report (**Appendix 8)**.

10.5 Traffic Assessment

10.5.1 Traffic Generation

Traffic generation associated with the proposed Resource Recovery Facility is based on the annual production (50-week year), truck capacities and expected daily input and output of materials.

The traffic generation has been calculated for weekday and weekend and summarised in **Tables 10-2** and **Table 10-3** respectively:

Table 10-2: Daily estimated truck movements

Product	In	Out
Raw waste materials	89 loaded	89 empty
Processed product from site	80 empty	80 loaded
Other materials for off-site recycling	1 empty	1 loaded
Residual waste to landfill	1 empty	1 loaded
Total	**171**	**171**

The estimated weekend movement are show in **Table 10-3** based on production of 1,000 tonnes per day and 50 working weekend days per annum.

Table 10-3: Daily estimated weekend movements

Product	In	Out
Raw waste materials	56 loaded	56 empty
Processed product from site	50 empty	50 loaded
Total	**106**	**106**

In addition to the above, it is estimated that 1 fuel delivery truck would access the Site per week to replenish the on-site fuel storage tank. **Table 10-4** breaks down the proposed arrival / departure rates of inbound and outbound trucks over a typical weekday (operating hours 6:00am to 7:00pm).

Period	Inbound	Outbound
6:00-8:00am	20	51
8:00-10:00am	37	51
10:00am-12:00pm	37	33
12:00-2:00pm	37	26
2:00-5:00pm	40	10
Daily Total	**171**	**171**

Table 10-4: Truck Traffic Generation

The total number of daily truck trips (entering and exiting the Site) will, therefore, be 342 on any given weekday.

The morning peak period occurs between 8:00am and 10:00am with a total of 88 truck trips.

The afternoon peak period will occur between 12:00pm and 2:00pm with a total of 63 truck trips.

For the purpose of analysis, and as a worst-case scenario, peak hour rates of 44 vehicle trips for the AM (18 inbound and 26 outbound) and 32 for the PM (19 inbound and 13 outbound) will be adopted.

Staff vehicle trips will occur predominately outside operating hours.

10.5.2 Traffic Assignment

The traffic assignment for the proposed development and associated vehicle trips will be similar to that described below:

Inbound 90% from the north feeding from the M5 and M7.

10% will travel from the local streets in the precinct.

Outbound 30% of outbound trips will travel to the north.

30% will travel to the south.

30% will travel to the west.

10% will travel throughout the local streets.

The masses of the trucks are expected to be:

- All empty vehicles will be less than 32-tonnes.
- 45% of full trucks will be greater than 40-tonnes.
- 55% of full trucks will be less than 32-tonnes.

The routes for different sized trucks both inbound and outbound depending on the tonnage of the individual truck are provided in **Figures 10-4 to 10-9**.

Figure 10-4: Inbound trucks less than 32 tonne.

Figure 10-5: Inbound trucks between 32 tonne and 40 tonne

Figure 10-6: Inbound trucks over 40 tonne

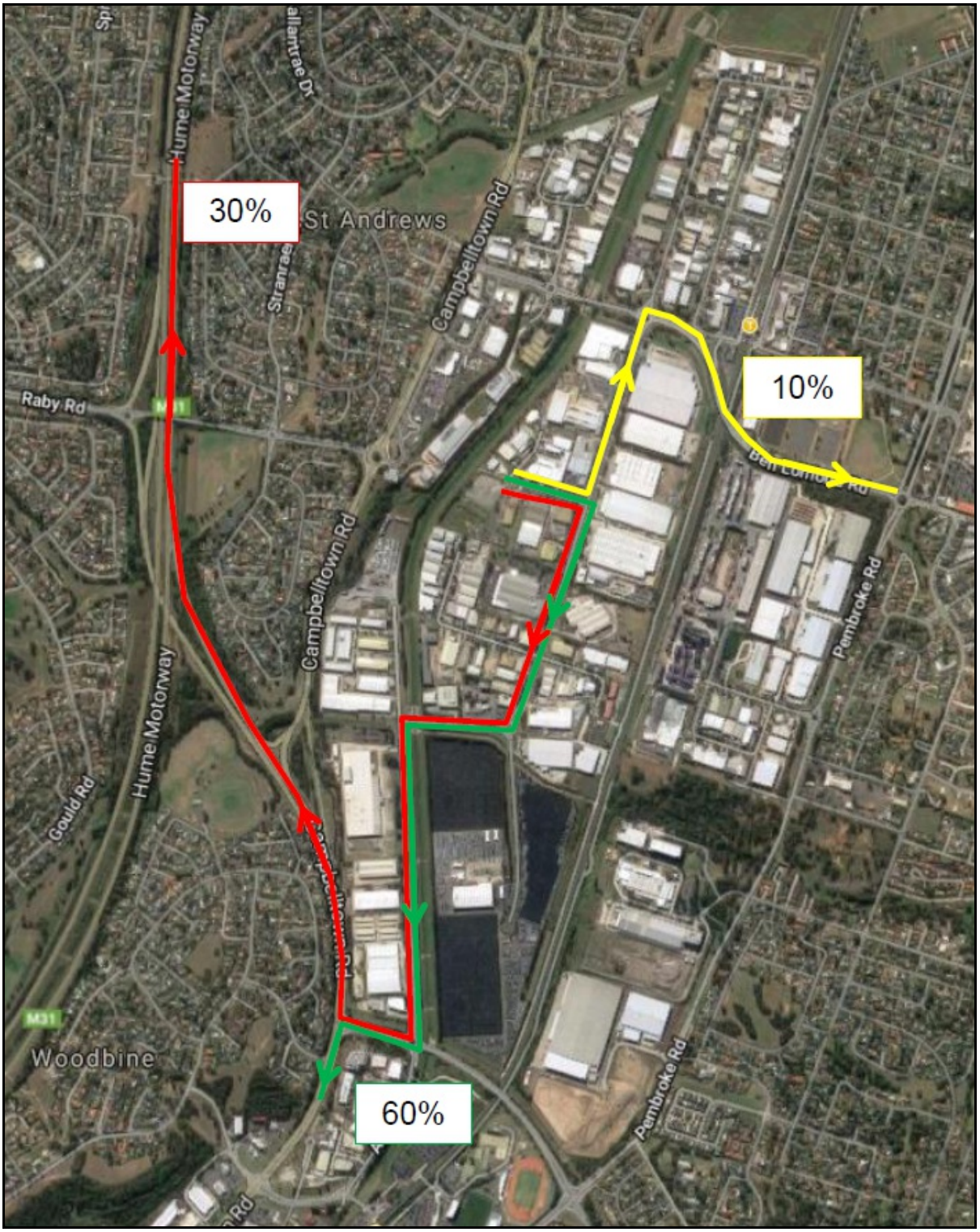


Figure 10-7: Outbound trucks under 32 tonne

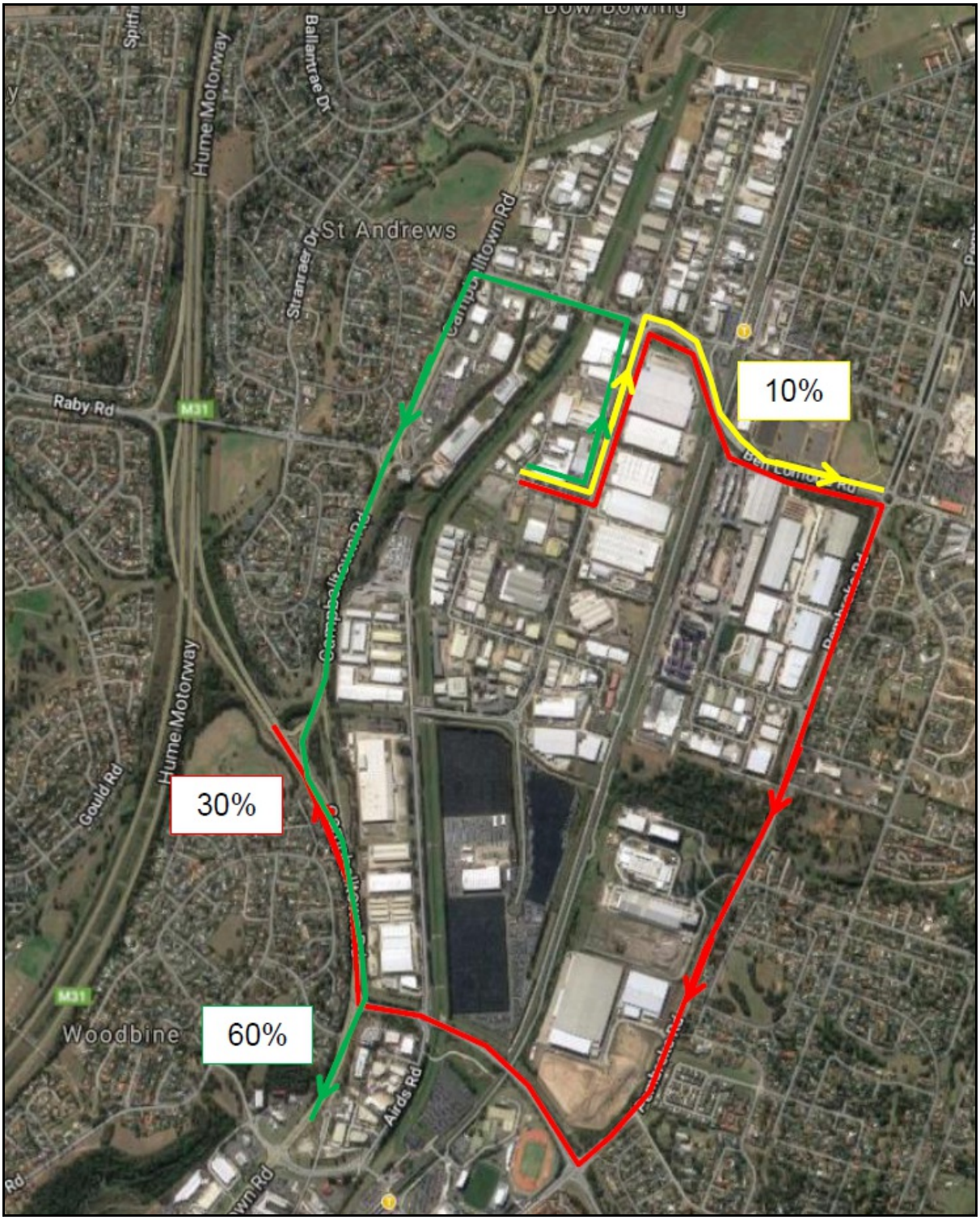


Figure 10-8: Outbound trucks between 32 tonne and 40 tonne

Figure 10-9: Outbound trucks greater than 40 tonne

10.5.3 Traffic Impact

The impact of the traffic generated by the proposal has been loaded onto the road network analysed in Section 2.3 of the McLaren Report. Analysis was carried out using the SIDRA 8.0 program with the results summarised in **Table 10-5** and the detailed output reproduced in Annexure G of the McLaren Report.

Intersection	Peak Hour	Degree of Saturation[1]	Average Delay[2] (sec/veh)	Level of Service[3]	Control Type	Worst Movement	95th Percentile Queue
FUTURE PERFORMANCE							
Airds Rd / Montore Rd	AM	0.18	1.8 (Worst: 12.2)	**NA** (Worst: A)	Give Way	RT from Montore Rd (W)	0.4 veh (3.2m) Airds Rd (N)
	PM	0.22	1.4 (Worst: 13.5)	**NA** (Worst: A)		RT from Montore Rd (W)	0.4 veh (2.9m) Airds Rd (N)
Airds Rd / Ben Lomond Rd	AM	0.67	7.6 (Worst: 17.3)	**A** (Worst: B)	Roundabout	RT from Airds Road (N)	7.3 veh (53.3m) Ben Lomond Rd (W)
	PM	0.70	10 (Worst: 22.3)	**A** (Worst: B)		RT from Airds Road (N)	8.2 veh (60.8m) Ben Lomond Rd (W)
Pembroke Rd / Ben Lomond Rd	AM	0.50	8.3 (Worst: 14.4)	**A** (Worst: A)	Roundabout	RT from Pembroke Rd (N)	4 veh (28.8m) Pembroke Rd (N)
	PM	0.74	12.3 (Worst: 25.6)	**A** (Worst: B)		RT from Pembroke Rd (N)	9.6 veh (68.7m) Pembroke Rd (N)
Rose Payten Dr / Smiths Creek Bypass / Pembroke Rd	AM	0.82	22.6	**B**	Signals	RT from Smiths Creek Bypass (SE)	16.4 veh (117.9m) Pembroke Rd (NE)
	PM	0.71	28.2	**B**		RT from Smiths Creek Bypass (SE)	23 veh (163.2m) Pembroke Rd (NE)
Campbelltown Rd / Campbelltown Rd	AM	0.85	20.1	**B**	Signals	RT from Rose Payton Dr (E)	26.7 veh (194.1m) Campbelltown Rd (N)
	PM	0.84	18.5	**B**		RT from Rose Payton Dr (E)	32.6 veh (233.9m) Campbelltown Rd (N)

Table 10-5: Future intersection performances (Sidra Intersection 8.0)

Notes:
(1) Degree of Saturation is the ratio of demand to capacity for the most disadvantaged movement.
(2) Average delay is the delay experienced on average by all vehicles. The value in brackets represents the delay to the most disadvantaged movement.
(3) Level of Service is a qualitative measure of performance describing operational conditions. There are six levels of service, designated from A to F, with A representing the best operational condition and level of service F the worst. The LoS of the intersection is shown in bold, and the LoS of the most disadvantaged movement is shown in brackets.

The loaded traffic has had little to no impact on the performance of all intersections in comparison to the results shown in **Table 10-1**. The traffic associated with the proposal has been readily accommodated by the surrounding road network.

10.5.4 Queuing at Entrance to Weighbridge

Six (6) standing bays are provided at the entrance to the Site before the weighbridge to accommodate vehicles waiting to enter the Site while another vehicle is being weighed and recorded. **Figure 10-10** shows the location of the standing bays.

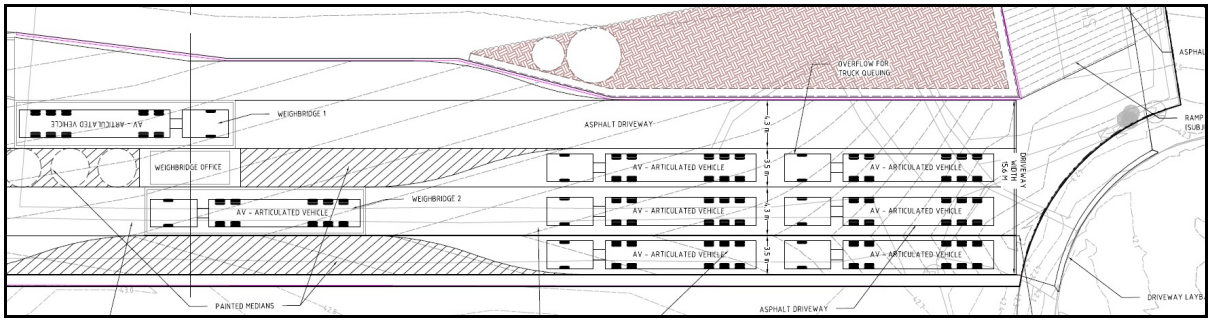


Figure 10-10: Diagram of the standing bays and weigh bridges (refer to Appendix 4 drawing PS02-F101 for further details.

Queue length calculations have been undertaken based on the above inbound traffic generation and the analysis is reproduced in Annexure H of the McLaren Report for reference.

Queuing Analysis

It is estimated that the weighbridge operation will take approximately 60 seconds per vehicle to complete, however, 95% of outgoing trucks entering the Site empty will not stop on the weighbridge as the empty masses will be known.

Based on a peak hour traffic generation of 19 vehicles and as a worst-case scenario, all trucks entering the Site are laden with material such they are required to stop on the weighbridge. The resulting 98th percentile queue is 2 vehicles which are accommodated on-site and represents compliance with the 98th percentile traffic demand.

10.6 Operational Plan of Management and Driver Code of Conduct

The traffic management component of the Operational Plan of Management (**OPM**) and Driver Code of Conduct (**DCC**) has been attached in Annexure I of the McLaren Report.

The traffic management component of the OPM and DCC outlines the following:

- Site inductions for drivers.
- Operational and management procedures.
- Driver safety and behaviour.
- Incident responses.
- Vehicular movement restrictions.

10.7 Conclusion

The proposed development is supportable on traffic grounds in terms of traffic flow efficiency, road safety and local amenity considerations.

The on-site parking supply, calculated on a merits-based approach, results in a requirement of 16 to 17 car parking spaces which will be adequate to serve the proposed staff and expected visitor numbers.

The proposed layout shows a total of 18 car parking spaces (including 1 disabled space) complying with the above recommendations.

All traffic will ingress and egress via one existing entry / exit driveway from Montore Road. The car parking design complies with the relevant Australian Standards, with the clockwise internal circulation the most practicable and safest operation.

The proposed development will operate with a capacity of 1,600t per day, generating a total of 342 vehicle trips during the day which includes a morning peak hour generation of 44 vehicle trips, with 32 vehicle trips in the afternoon peak hour. Analysis shows the surrounding road network can adequately cater for the additional traffic generated.

The haulage routes will predominantly favour the approaches from Ben Lomond Road to the north and Rose Payten Drive to the south, both of which are RMS approved B-Double routes.

To reduce impacts on local residents, drivers of laden heavy vehicles will be required under an Operational Plan of Management and Driver Code of Conduct to follow the routes outlined in Annexure I of the McLaren Report and to avoid Raby Road between Campbelltown Road and Eagle Vale Drive.

Part Eleven

HAZARD AND RISK ASSESSMENT

11.1 Introduction

The Secretary's Environmental Assessment Requirements includes a requirement for:

- *including a Preliminary Hazard Analysis (PHA) of the development, and an assessment of the potential fire risks of the development.*

The proposed Resource Recovery Facility has a number of potentially hazardous operations including:

- Re-fuelling of plant and equipment.
- Potentially contaminated run-off.
- Equipment, raw material and product fires.
- Acoustic and air quality impacts.

These operations have the potential to impact off-site or cause impact at the adjacent properties.

11.2 Methodology

Reference has been had to the methodology described in *Hazardous Industry Planning Advisory Paper No.6, Hazard Analysis Guidelines* prepared by the then Department of Urban Affairs and Planning.

The proposed development was considered in the context of its location, the quantity and type of dangerous goods likely to be stored and used, and safety management.

State Environmental Planning Policy No.33 - Hazardous and Offensive Development (**SEPP 33**) was also considered which aims, among other things:

(d) to ensure that in determining whether a development is a hazardous or offensive industry, any measures proposed to be employed to reduce the impact of the development are taken into account; and

(e) to ensure that in considering any application to carry out potentially hazardous or offensive development, the consent authority has sufficient information to assess whether the development is hazardous or offensive and to impose conditions to reduce or minimise any adverse impact.

11.3 Assessment

The proposed development is not a *Hazardous Industry*, *Potentially Hazardous Industry* or *Hazardous Storage Establishment* as defined in SEPP 33 as it would not pose a significant risk in relation to the locality to human health, life or property, or to the biophysical environment.

The proposed development is, however, *Potentially Offensive Industry*.

Notwithstanding, the following assessment is provided.

11.3.1 Hazard Analysis

The following potential hazards would exist on the Site as part of the proposed development:

- the storage and handling of dangerous goods.
- contaminated runoff.
- refuelling of plant and equipment.
- contaminated material deliveries.

11.3.1.1 Dangerous Goods Storage and Handling

Materials stored and handled at the proposed development include mobile plant which would be used at the proposed development including front end loaders and excavators. Diesel is to be stored in a 30,000 L purpose designed storage tank which is self bunding.

The Site processes waste materials which could contain contaminants. Rainwater impacting the Site could become contaminated by the materials stored in the open areas of the Site. Rainwater runoff could, therefore, cause damage to the biophysical environment adjacent to the proposed development. Release of potentially contaminated water could result in impact to these sensitive areas. To mitigate this potential, a Soil and Water Management Plan has been prepared, details of which are provided in **Part 9**. The Soil and Water Management Plan is copied as **Appendix 5**.

In addition, contaminants such as bottles, cans, drums, cylinders of dangerous goods could enter the Site mixed with waste materials. These materials could be released during processing, resulting in contaminated materials release, flammable liquid ignition and fire and flammable gas ignition and explosion.

11.3.1.2 Storage of Diesel

Diesel fuel would be stored in a purpose built, self bunded 30,000 L tank which would comply with the requirements of the relevant Australian Standard. **Figure 11-1** provides an example of the type of self bunding diesel tank to be installed on the Site.

Figure 11-1: Example of a self bunded fuel tank similar to that which would be used on the Site.

In the event of a release of diesel, there is a potential for the liquid to ignite, resulting in a fire. Local fire fighting may be required to contain the fire or to extinguish the fire itself. A dry powder type fire extinguisher would be installed adjacent to the diesel tank storage area.

In summary, there would be no impact off-site as a result of the storage of diesel fuel at the facility.

11.3.1.3 Contaminated Runoff

There is potential for leachate being produced from the operation of the facility.

Management measures

Pollutants which could potentially originate from the facility include suspended solids in site runoff, and oil, fuel or chemicals used on the Site.

The main source of potential water contamination is hydrocarbons from fuels and oils used by the plant on the Site. The risk of hydrocarbons entering the water system will be minimised by restricting all plant

and vehicle repair and maintenance to the designated workshop area. Bunding will be constructed around the workshop area to contain any leaks or spills and divert clean water around the Site. Refuelling is restricted to within the designated area.

Any spill or leaks are dealt with as per the Spill and Leaks Procedure. Waste and contaminated material is removed off- Site by a licenced waste contractor. Visual inspections of the workshop area and refuelling area will be undertaken to ensure bunding and other controls are adequate. Regular inspections will also assist in identifying potential risks to the environment.

Water collected in the sump will be tested prior to discharge for targeted analytes and either discharged through the normal water management system or other treatment or disposal options will be investigated.

11.3.1.4 Refuelling of Plant and Equipment

The proposed development would operate with a number of internal combustion engine powered components (e.g. front end loaders, excavators etc). This equipment would require periodical refuelling.

During the refuelling operation, there is a potential for fuel leaks and spills to occur from split or failed hoses, overfill of the truck/equipment or tanker/vehicle tank failure. A dedicated refuelling procedure would be established for mobile plant, and when such plant is refuelled.

11.3.1.5 Contaminated Materials Delivery

The waste to be received at the Site would be limited to that which the EPA Licence for the Site permits.

Visual inspections of waste as it arrives at the Site would be undertaken and any contaminated waste would be returned to the delivery truck and removed from the Site.

The proposed development has been designed such that the vast majority of materials delivered to the Site are recycled. Approximately 5% of the material delivered to the Site is material which cannot be recycled and that waste would be transported to recyclers or to landfill.

11.4 Risk Assessment

Each of the issues identified above, and other minor issues, have been addressed and, where appropriate, management and mitigation options have been developed.

Each of the potential environmental issues was ranked as being low, moderate, high or critical risk, the risk rating allocated being dependant upon the probability of the impact occurring and the potential consequences should the impact materialise.

Table 11-1 summaries the findings of the risk assessment which indicates that, in the absence of controls and mitigation measures, aspects of the proposed development pose a moderate to high risk to the environment. No critical risks were identified.

Aspects of the proposed development which have been identified as having a moderate to high environmental impact risk ranking have been the primary focus of the Environmental Impact Statement with appropriate mitigation measures identified. Aspects which were identified as having a low risk were also assessed, however, mitigation measures were considered either of lesser importance or unwarranted.

Ratings in **Table 11-1** were determined based on the following criteria:

Critical Recurring event during the life time of the operation.

High An event which may occur frequently during the life time of the operation.

Moderate An event which may occur during the life time of the operation.

Low An event which is unlikely to occur during the life time of the operation.

Table 11-1: Environmental Risk Rating Without Mitigation

Critical	High	Moderate	Low
None	None	Fire	Traffic
		Air Quality	Contaminated Land (following completion of RAP)
		Hazardous Materials	Groundwater
		Noise	Local Ecology
		Surface Water	

Table 11-2 provides a summary of each potential risk and mitigation measures proposed.

Table 11-2: Environmental Risk Rating Without Mitigation

Source of Risk	Nature of Risk and Potential Impact	Risk Rating	Mitigation Measures
Local Ecology	Destruction of any remaining ecological value to local terrestrial or riparian environment.	Low No significant terrestrial or riparian ecology remaining.	Stormwater treatment to minimise potential impact on any remaining riparian ecological value.
Noise	Noise from processing machinery. Noise from mobile machinery around the Site.	Moderate	All mobile plant would use approved exhaust mufflers.
Air Quality	Dust from sorting and screening process.	Moderate	Mist sprays are used to control dust.

Hazardous Materials	Storage and use of hazardous materials.	Moderate	External fuel storage in fully enclosed self-bunded tank. Approved spill kits and fire extinguishers would be provided. The workshop entrance would be graded to ensure runoff cannot enter and any inside spillage cannot escape.
Fire	Fire within the processing area.	Moderate	The proposed development complies with the relevant requirements of the BCA.
Surface Water	Stormwater pollution.	Moderate	Recognised pollution control systems in conjunction with rainwater harvesting.
Traffic	Additional traffic on local and regional road network	Low	The Environmental Management Plan for the Site will contain procedures for all truck drivers servicing the facility to ensure minimal impact to the local road network.

Part Twelve

FLORA AND FAUNA IMPACT ASSESSMENT

12.1 Introduction

The Secretary's Environmental Assessment Requirements includes a requirement for a Flora and Fauna Impact Assessment.

In order to ascertain the potential impact of the proposed development on the flora and fauna of the locality, Aquila Ecological Surveys has prepared a report titled *Flora and Fauna Assessment, Proposed Resource Recovery Facility, 7 Montore Road, Minto* (**the AES Report**) a copy of which is at **Appendix 9**.

12.2 Methodology

12.2.1 Literature Review

Prior to undertaking the field survey, a review of literature relevant to the Site and wider local area and region was undertaken. Documents and databases reviewed included:

- Vegetation mapping of Sydney Metropolitan Area by the NSW Office of Environment and Heritage.
- Point records of *Bionet* [the Atlas of NSW Wildlife].
- The Commonwealth Department of the Environment and Energy Protected Matters Search Tool.

12.2.2 Field Survey

Fieldwork was undertaken on 11 January 2019. Conditions during the survey were warm temperatures 24^{0}C, clear skies and no wind. In relation to a previous proposal, a survey was also conducted on 24 December 2012. Results from that survey are also drawn upon.

12.2.2.1 Vegetation

The vegetation survey involved random meanders through the Site and recording plant species present. Plants not readily identified in the field were collected for identification using standard texts. Checks were made against the Schedules 1 and 2 of the *Biodiversity Conservation Act 2016* (**BC Act**) and the

Environment Protection and Biodiversity Conservation Act 1999 (**EPBC Act**) for species, populations and communities of conservation significance.

12.2.2.2 Fauna

The vegetation community descriptions were used to describe the different fauna habitats which occur on the Site. The habitat surrounding the Site was also investigated to gain an appreciation of the relative importance of the habitat which occurs on the Site.

Notes were made of specific sources of native fauna food and shelter, such as dense shrubs, flowering trees, tree hollows and rock outcrops. The presence, or lack, of particular fauna habitat requirements was noted to enable predictions of species which would be likely to utilise the Site.

A search was made for indirect evidence of mammal presence such as droppings, burrows, tracks, diggings and bones. The stormwater pipe which discharges into Bow Bowing Creek just west of the Site was checked for the presence of roosting microchiropterans (insectivorous bats). Habitat types and the degree of disturbance were assessed to enable predictions of mammal species presence.

A reptile search was undertaken throughout the Site involving looking under rocks, bark, fallen timber and leaf litter. Debris found near moist habitats was checked for the presence of frogs and the type of moist habitats present was noted to allow predictions of frog species likely to occur.

12.3 Results

12.3.1 Literature Review

12.3.1.1 Vegetation Mapping

Vegetation mapping by the National Parks and Wildlife Service, Tozer et al and the Office of Environment and Heritage indicates there is no remnant native vegetation on or adjacent to the Site.

12.3.1.2 Threatened Species

Appendix 1 of the AES Report (**Appendix 9**) details the conservation status, habitat requirements and likelihood of occurrence at the Site of those threatened flora and fauna species which have been detected or are considered to have suitable habitat within five kilometres of the Site.

12.3.2 Survey Results

12.3.2.1 Flora

Vegetation Description

The Site has been cleared for some time and the northern third of it has been levelled and occupied by offices and plant of Coates Hire.

Vegetation on the Site is characterised by rank growth of introduced pasture grasses and broad-leaf weeds. Common species are Kikuyu Grass (*Pennisetum clandestinum*), Rhodes Grass (*Chloris gayana*), African Lovegrass (*Eragrostis curvula*), Purple-top (*Verbena bonariensis*), Fireweed (*Senecio madagascariensis*) and Fennel (*Foeniculum vulgare*). Patches of Blackberry *(Rubus ulmifolius*) are also present. There is a line of planted Swamp Oaks (*Casuarina glauca*), Ribbon Gums (*Eucalyptus viminalis*) and Manna Gums (*E. mannifera*) along the western boundary and a few Swamp Oaks near the eastern boundary.

Conservation Significance of the Vegetation

The vegetation on the Site is highly modified and has no conservation significance.

Flora Species

A list of flora species detected at the Site is provided in Appendix A of the AES Report (**Appendix 9**). No threatened flora species were found at the Site. Due to the unsuitability of the habitat of the Site, none of those threatened species listed in Table 1 of the AES Report are considered likely to be present in the soil seedbank and are not apparent above ground.

Under the *Biosecurity Act 2015*:

> *"all plants are regulated with a general biosecurity duty to prevent, eliminate or minimise any biosecurity risk they may pose. Any person who deals with any plant, who knows (or ought to know) of any biosecurity risk, has a duty to ensure the risk is prevented, eliminated or minimised, so far as is reasonably practicable."*

Of those species recorded, the following are priority weeds in the Greater Sydney Area:

- African Olive (*Olea europaea subsp cuspidata*)
- Chilean Needle Grass (*Nassella neesiana*)
- Cape Broom (*Genista monspessulana*)
- Fireweed (*Senecio madagascariensis*).

In the core infestation area of African Olive (which includes the Campbelltown LGA), land managers have a duty under the Act to prevent spread from their land where feasible and reduce impacts from the plant

on priority assets. The plants on Site would be removed as part of the redevelopment of the Site.

Apart from the prohibition on importing or selling these species, there are no particular control measures relevant to Chilean Needle Grass, Cape Broom or Fireweed in the Campbelltown LGA.

Chilean Needle Grass (*Nassella neesiana*) is also a weed of national significance as are Montpellier Broom (*Genista monspessulana*), Fireweed (*Senecio madagascariensis*) and Blackberry (*Rubus ulmifolius*).

12.3.2.2 Fauna

Fauna Habitat Features

The vegetation description broadly outlines fauna habitat. Other features which influence the range and abundance of fauna are:

- The Site is within an industrialised and urbanised area limiting the range of abundance of habitat features which may favour the presence of native fauna species.
- There are no tree hollows or stags (standing dead trees) suitable for habitation by vertebrate fauna.
- A small drainage ditch occurs in the middle of the Site. Although this may harbour common frog species such as the Eastern Common Froglet (*Crinia signifera*), no frogs, tadpoles or egg congregations were observed in the pond.
- No suitable roosting niches for microchiropterans were found in the stormwater culvert which discharges into Bow Bowing Creek near the north-western corner of the Site.

Fauna detected during the field survey

A narrow range of fauna species was detected during the site surveys. Species detected were Grey Goshawk (*Accipiter novaehollandiae*), White-faced Heron (*Egretta novaehollandiae*), Galah *(Eolophus roseicapilla*), Sulphur-crested Cockatoo (*Cacatua galerita*), Rainbow Lorikeet (*Trichoglossus haematodus*), Musk Lorikeet (*Glossopsitta concinna*), Superb Fairy-wren (*Malurus cyanea*), Red Wattlebird (*Anthochaera carunculata*), Noisy Miner (*Manorina melanocephala*), White-plumed Honeyeater (*Lichenostomus penicillatus*), Willie Wagtail (*Rhipidura leucophrys*), Grey Butcherbird *(Cracticus torquatus*), Australian Mudlark (*Grallina cyanoleuca*), Australian Raven (*Corvus coronoides*), Common Myna (*Sturnus tristis*), and Garden Skink (*Lamprophilus delicata*).

Whilst the lack of fauna is to some degree a reflection of the brevity of the field survey, it is also a function of the limited habitat value of the Site and its environs.

Threatened Fauna

No fauna species listed as threatened on the BC Act or the EPBC Act were detected during the survey. Due to the unsuitability of the habitat of the Site, none of those threatened species listed in Table 1 of the AES Report are considered likely to inhabit the Site.

12.4 Impact of the Proposed Development

12.4.1 Biodiversity Conservation Act 1999

Under **Section 7.9** of the *Biodiversity Conservation Act 1999*, an application for development consent under **Part 4** of the *Environmental Planning and Assessment Act 1979* for State Significant Development is to be accompanied by a Biodiversity Development Assessment Report (**BDAR**) unless the Planning Agency Head and the Environment Agency Head determine that the proposed development is not likely to have any significant impact on biodiversity values.

The proposed Resource Recovery Facility is not likely to have a significant effect on biodiversity values. An application for a BDAR waiver has been prepared in accordance with the requirements of NSW Department of Planning and Environment *Biodiversity development assessment report waiver determinations for SSD and SSI applications 2018*. The BDAR waiver was granted in November 2019 a copy of which is attached to the AES Report at **Appendix 9**.

12.4.2 SEPP 44 Koala Habitat

An assessment of the Site was undertaken to ascertain its suitability as Koala habitat. The procedures involved in such an assessment are outlined in *State Environmental Planning Policy No. 44 - Koala Habitat Protection*.

Step 1 - Is the land potential Koala habitat? - **Yes**

Ribbon Gum, which is listed as a Koala feed tree in the schedule to the Policy, occurs on the Site and constitutes more than 15% of the trees, therefore, the land is potential Koala habitat.

Step 2 - Is the land core Koala habitat - **No**

No signs of the Koala inhabiting the Site were detected during the field survey. The Site is disjunct from the known population of the Koala in the east of the Campbelltown LGA, therefore, the development application may proceed without a Plan of Management being prepared for the Koala.

12.4.3 Commonwealth Environmental Protection and Biodiversity Conservation Act (EPBC Act)

Under the EPBC Act, an action will require approval from the Minister if the action has, will have, or is likely to have, a significant impact on a matter of National Environmental Significance (**NES**).

Amongst other things, NES matters include those threatened species, migratory species, communities and World Heritage areas listed.

No NES matters occur on or adjacent to the Site, therefore, referral to the Federal Minister for the Environment to determine whether the proposed action is a controlled action is not required.

12.5 Environmental Management Measures and Safeguards

The only specific environmental management measure which is recommended in relation to ecological issues is the removal and/or control of weeds which should be done as per the recommendation of the NSW Department of Primary Industries.

Part Thirteen

SITE CONTAMINATION

13.1 Introduction

State Environmental Planning Policy No.55 - Remediation of Land (**SEPP 55**) aims:

> *.... to promote the remediation of contaminated land for the purpose of reducing the risk of harm to human health or any other aspect of the environment.*

Clause 7 of SEPP 55 states:

7. (1) A consent authority must not consent to the carrying out of any development on land unless:

(a) it has considered whether the land is contaminated, and

(b) if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and

(c) if the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.

(2) Before determining an application for consent to carry out development that would involve a change of use on any of the land specified in subclause (4), the consent authority must consider a report specifying the findings of a preliminary investigation of the land concerned carried out in accordance with the contaminated land planning guidelines.

(3) The applicant for development consent must carry out the investigation required by subclause (2) and must provide a report on it to the consent authority. The consent authority may require the applicant to carry out, and provide a report on, a detailed investigation (as referred to in the contaminated land planning guidelines) if it considers that the findings of the preliminary investigation warrant such an investigation.

(4) The land concerned is:

(a) land that is within an investigation area,

(b) land on which development for a purpose referred to in Table 1 to the contaminated land planning guidelines is being, or is known to have been, carried out,

(c) to the extent to which it is proposed to carry out development on it for

residential, educational, recreational or child care purposes, or for the purposes of a hospital land:

(i) in relation to which there is no knowledge (or incomplete knowledge) as to whether development for a purpose referred to in Table 1 to the contaminated land planning guidelines has been carried out, and

(ii) on which it would have been lawful to carry out such development during any period in respect of which there is no knowledge (or incomplete knowledge).

13.2 Preliminary State 1/Stage 2 Environmental Site Assessment

Environmental Investigation Services has prepared a report titled *"Preliminary Stage 1 / Stage 2 Environmental Site Assessment"* a copy of which is at **Appendix 13**.

The scope of work included the following:

- a review of site information including background and site history information;
- a site inspection to identify Areas of Environmental Concern (**AEC**);
- preparation of a Preliminary Conceptual Site Model (**PCSM**);
- design and implementation of a sampling, analysis and quality plan (**SAQP**);
- interpretation of the analytical results against the adopted Site Assessment Criteria (**SAC**);
- a Data Quality Assessment;
- a Tier 1 Risk Assessment and review of PCSM, and
- preparation of a report presenting the results of the assessment.

A review of the site history information has indicated the following:

- The aerial photographs and land title records suggest that the Site has been used for a mixture of residential and commercial purposes from 1899 to the present day;
- The historical business directories search did not identify any particular land uses within a buffer of 150 metres of the Site which were considered to have had the potential to migrate and resulted in contamination of the Site;
- Council records indicated that consent was granted for erection of a waste recycling depot in 1989 and for storage, processing, cutting, sawing and selling railway sleepers,

timber and firewood in 1998;

- A review of the SafeWork NSW records did not identify any licences to store dangerous goods on the Site, and
- NSW EPA records indicated that the Site was formerly licenced/regulated under the POEO Act for waste storage, transfer, separating or processing.

The PCSM identified the following AEC at the Site:

Fill Material	The Site may have potentially been historically filled to achieve existing levels. The fill may have been imported from various sources and can contain elevated concentrations of contaminants.
Pesticides	The historical aerial photographs indicated that the Site may have been used for farming/agricultural purposes prior to the 1970s. The use of pesticides during this period could have resulted in potential contamination.
Hazardous Building Material	The buildings on the Site have been constructed prior to the 1990s. Hazardous building materials were used for construction purposes during this period. The material can pose a potential contamination source during demolition/development.

Soil samples were obtained from 33 sampling points which meets the minimum sampling density recommended by the EPA. The sampling locations were placed in accessible areas of the Site. Ten (10) additional samples were collected from the two (2) stockpiles on the Site. Selected samples were analysed for a range of Contaminants of Potential Concern (**CoPC**) as outlined in the SAQP. The results were assessed against the SAC.

The results of the testing identified the following contamination issues.

Elevated Contaminants of CoPC above Human Health SAC

Fragments of asbestos cement were identified in the two (2) stockpiles and on the site surface. In addition to this, matted material containing asbestos was identified in shallow surface soils. Due to the discrete nature of asbestos containing materials (**ACM**), it is considered likely that more ACM will be exposed during works on the Site. The matted material could be crushed by hand pressure and was, therefore, considered friable.

The contamination in this location is considered to pose a moderate to high risk to human receptors at the Site in the current site configuration and will require remediation and/or management.

Elevated Contaminants of CoPC above Ecological SAC

Concentrations of Benzo(a)Pyrene were encountered above the Ecological SAC adopted for the investigation. These contaminants can pose a risk to the environmental receptors.

Elevated concentrations of zinc and B(a)P in criteria (TP4, TP7, TP11, TP21, TP27 and TP31) were not considered to pose an unacceptable risk to ecological receptors for the following reasons:

1. The Site is in an urban setting and located in an industrial area, therefore, it would be reasonable to assume there are no endangered species on the Site.

2. The existing flora does not show any significant signs of stress.

3. The data indicate that the elevated concentrations are confined to a shallow surface layer of fill which can be easily penetrated by roots.

Conclusion

Based on the scope of works undertaken, Environmental Investigation Services is of the opinion that the CoPC identified at the Site pose a risk to the receptors and its is considered that the Site can be made suitable for future industrial use provided that the following recommendations are implemented to better manage the identified risks:

1. Undertake a Detailed Soil Investigation for Asbestos in accordance with the Western Australian Asbestos Guidelines 2009 (endorsed in NEPM 2013).

2. Prepare an Asbestos Management Plan for future site excavation and/or construction works.

3. Where necessary, prepare an Environmental Management Plan for the ongoing management of contamination remaining on the Site.

4. In the event that unexpected conditions are encountered during development work or between sampling locations which may pose a contamination risk, all works should stop and an environmental consultant should be engaged to inspect the Site and address the issue.

13.3 Additional Site Investigation

Following from the Environmental Investigation Services site investigation, EI Australia (**EI**) was commissioned to undertake additional site investigation.

EI has prepared as report titled *"Additional Site Investigation"*, dated 24 March 2020, a copy of which is at **Appendix 14**.

The primary objectives of the EI investigation were to:

- Delineate the contamination identified by previous site investigations, by means of additional intrusive sampling and laboratory analysis for relevant contaminants of concern.

- Make recommendations for the appropriate management of any contaminated soils.

To achieve the above objectives, the following scope of works was completed:

Desktop Study

- Review of relevant topographical, geological, hydrogeological and soil landscape maps for the project area;
- Review all previous environmental reports relating to the Site;
- Present a conceptual site model, based on the available information;
- Preparation of a Work, Health, Safety and Environmental Plan;
- Preparation of a fieldwork plan, including proposed test pit / bore (sampling) locations, and
- Review of Dial-Before-You-Dig and client-supplied plans, to predict the location of existing buried / underground services on-site.

Fieldwork and Laboratory Analysis

- A detailed site walkover inspection, performed in collaboration with a licensed services locator, whom utilised electro-magnetic equipment to search for buried services;
- Construction of test pits / boreholes at sixty (60) locations, distributed in a triangular grid pattern across the Site;
- Soil sampling within fill soils at each of the locations, and
- Laboratory analysis of selected soil samples for the contaminants of potential concern (**COPC**).

Site observations were recorded during walkover inspections on 18 September 2019 and 4 October, 2019.

A summary of these observations is detailed below.

Photographs taken during the inspections are presented in Appendix D of the EI report.

- The Site was comprised of two distinct sections (halves). The northern half was a storage and maintenance yard, leased by Coates Hire. The southern half was vacant land, with overgrown grasses.
- An unsealed road ran along the eastern site boundary, linking the two portions of the property.
- A shelter station for forklifts was present within the Coates Hire yard.
- Medium-sized aggregate was present across large parts of the site surface, including the unsealed driveway.
- Two soil stockpiles were present in the southern half of the Site, with overgrown vegetation extruding from each:

- Stockpile 1 (**SP1**) approximately 125m^3, and
- Stockpile 2 (**SP2**) approximately 250m^3.

- A dilapidated shed was located in the southern half of the Site.
- An accumulation of old mattresses, gas canisters and general rubbish was present next to the shed in the southern half of the Site.
- Machinery, storage containers and truck tyres were present in the vicinity of the southern and south-eastern site boundaries.
- The Site appeared to have been raised for levelling purposes (i.e. filled, at least in part). most notably along the northern, western and southern boundaries, where a step down of 0.5-1m was evident.
- Bow Bowing Creek was located approximately 30m west of the Site, within a stormwater easement. A stormwater pipe was inferred to run between the exterior northern boundary of the Site through the alley.
- No part of the Site displayed any visual evidence of the presence of an underground petroleum storage system (**UPSS**). No underground storage tank (**UST**) was expected to be present.
- No chemical container of environmental significance was observed on the Site during either of the inspections. No above-ground storage tank (**AGST**) was present.
- No suspicious (petroleum hydrocarbon, chlorinated solvent or hydrogen sulphide) odour was detected on the Site during either of the inspections.

Sampling Rationale

The sampling component of the EI study was initially planned in accordance with the following rationale:

- Sampling soils from sixty (60) test pits / boreholes, distributed on a triangular grid across the Site which complemented the previous Environmental Investigation Services (2018) pattern, to further characterise and delineate contamination within in situ fill soils, and
- Laboratory analysis of representative soil samples for the identified contaminants of concern (asbestos, in particular).

In practice, seventy two (72) sampling locations were ultimately selected, based on conditions at the time of the field work, most significantly the presence of the two stockpiles (SP1 and SP2) in the southern half of the Site.

Test pit / bore locations are illustrated in Figure A.3 of the EI report, extracts from which are at **Figure 13-1**.

Figure 13-1: Test pit / Bore Locations

Soil Investigation Results

Site Sub-Surface Conditions

Based on the logs for the investigative test pits and boreholes, the general site lithology was described as a layer of anthropogenic filling (up to 1m BGL), overlying residual clays. Shale bedrock was assumed to be encountered at depth.

Fragments of bonded fibre cement sheeting (**FCS**) were observed within the shallow fill at EI test pits TP115 and TP125. During the EIS (2018) site assessment, matted (friable) asbestos material was identified within the fill at test pit TP14, while bonded asbestos fragments were observed in surface soils from the southern portion of the Site (**SS01**), as well as within the soils comprising two stockpiles, identified as "Northern Stockpile" and "Central Stockpile" (both no longer present by the time of the Additional Site Investigation).

Stockpile Observations

At the time of the Additional Site Investigation, soil stockpiles SP1 and SP2 were present in the southern half of the Site, with vegetation extruding from each. Samples were obtained from both stockpiles for chemical analysis (SP1: SP1-1 and SP1-2; SP2: SP2-1, SP2-2 and SP2-3).

The materials comprising these stockpiles were described as follows:

- Stockpile 1 (SP1):

  FILL: Sandy CLAY; brown, low to medium plasticity clays, fine to medium grained sands, some fine to coarse, sub-angular to angular gravels (including shale gravel), fragments of ceramics, brick, soft and hard plastics evident, plant root fibres, moist, no odour.

- Stockpile 2 (SP2):

  FILL: Sandy CLAY; brown, low to medium plasticity clays, fine to medium grained sands, some fine to coarse, sub-angular to angular gravels (including shale gravel), fragments of ceramics, brick, metal and hard plastics evident, plant root fibres and fine branches / twigs, moist, no odour.

Soil and Stockpile Characterisation

With reference to Table 8-1 and Table B.2 of the EI report, individual sample concentrations of HMs, PAH, TRH, BTEX, pesticides and PCBs all complied with the adopted SILs applicable to commercial / industrial land use. Asbestos was identified in (fill) samples from eight of the test pit locations, all of which were within the southern half of the Site (TP107, TP114, TP115, TP118, TP123, TP125, TP305 and TP306). Except in the case of TP305_0.2-0.6, the concentrations of asbestos in these samples all exceeded the corresponding SIL. With respect to the TP305 sample, the asbestos was present entirely as bonded fragments (i.e. >7mm ACM), the reported total concentration of 0.04% w/w being below the corresponding HSL of 0.05% w/w.

The absence of asbestos in SP1 and SP2 indicated that the materials comprising these stockpiles were General Solid Waste in accordance with the EPA (2014) Waste Classification Guidelines. This needs to be confirmed, however, by way of a formal waste classification certificate, which should be completed prior to any off-site disposal.

Asbestos Risk

ACMs (bonded fragments and/or friable forms) were identified by EI at eight (8) sampling locations within the southern half of the Site (TP107, TP114, TP115, TP118, TP123, TP125, TP305 and TP306), the amounts exceeding the HSLs in each case, except at TP305. During the Environmental Investigation Services (2018) site assessment, matted (friable) asbestos material was identified within the fill at TP14, while bonded ACM fragments were observed in surface soils at location SS01, as well as within the two stockpiles, identified as "Northern Stockpile" and "Central Stockpile" (both no longer present by the time of the Additional Site Investigation).

The source of the asbestos was probably due to importing fill materials of unknown origins (and quality), for site levelling (including stockpile flattening) as possibly the case with the "Northern Stockpile".

Based on the presence of both bonded and friable ACM at several locations across the southern half of the Site, EI perceived there was a moderate to high risk to (future) human receptors. Remediation of the land was, therefore, necessary, in order for it to be suitable for the proposed development. Figure A.

of the EI report indicates the recommended (minimum) remediation areas, and extract from which is at **Figure 13-2**.

To date, no asbestos materials have been identified in any of the examined soils from the northern half of the Site, however, this finding should be treated with caution, as the EI sampling for this (occupied) part of the Site involved borehole drilling, which is less suited to asbestos investigation compared with test pitting. Although use of the drill rig created less disturbance to the surface, identification of asbestos soils was limited to that which was visible on the auger flights. Test pits are advantageous in that more soils are visible to the sampler, thus providing an easier means for identification. EI, therefore, recommends that the surface of the northern half of the Site be inspected periodically during the proposed remediation (and on-going development), to check the presence of ACM.

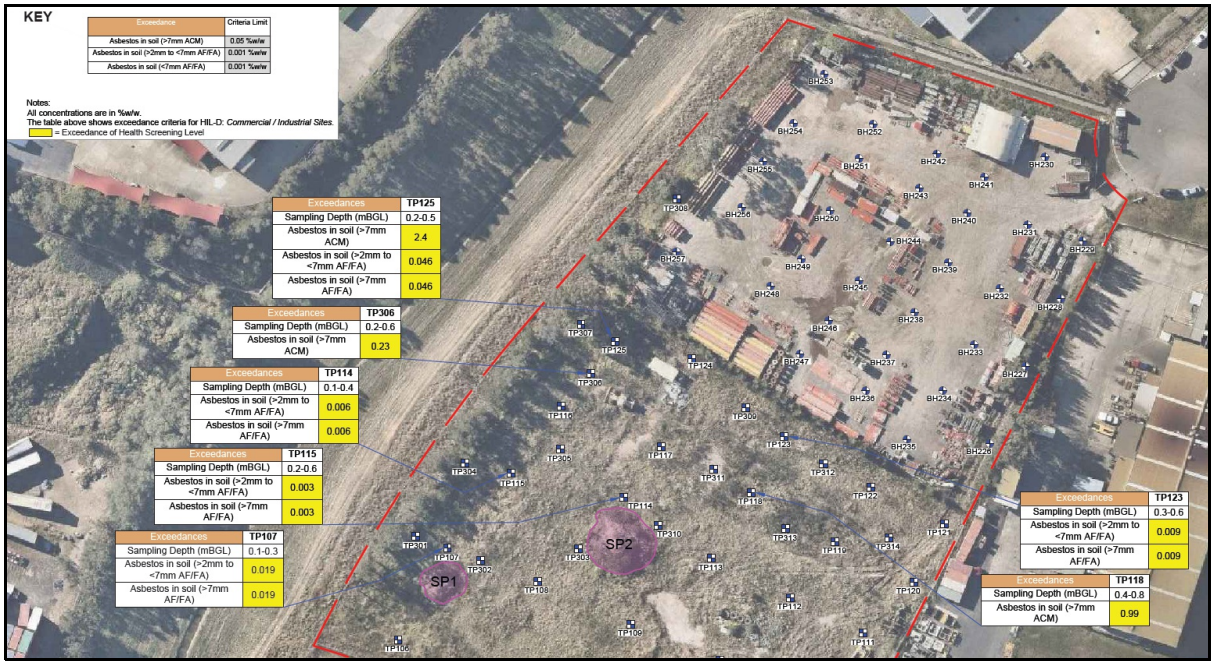


Figure 13-2: Analytical Exceedance Plan (refer Figure A4 of the EI Report)

The EI Additional Site Investigation concludes:

- The previous EIS (2018) site assessment identified matted (friable) asbestos material within fill at test pit TP14 in the southern portion of the Site, while bonded ACM fragments were observed in surface soils at location SS01, as well as within the two stockpiles, identified as "Northern Stockpile" and "Central Stockpile" (both no longer present by the time of this ASI).

- Information received from Concrete Recyclers identified that the "Central Stockpile" was removed from the Site to an EPA licensed facility.

- Areas where the "Northern Stockpile" was previously identified were inaccessible during the investigation. EI assumed the majority of this stockpile had been flattened out across the Site.

- Based on the soil sampling and analysis completed by EI for this ASI:

  - The sub-surface was comprised of a layer of anthropogenic filling (up to 1m

BGL), overlying residual clays (and shale at depth).

- Individual sample concentrations of HMs, PAH, TRH, BTEX, pesticides and PCBs all complied with the adopted SILs applicable to commercial / industrial land use.

- Asbestos was identified in (fill) samples from eight of the test pit locations, all of which were within the southern half of the Site (TP107, TP114, TP115, TP118, TP123, TP125, TP305 and TP306). Except in the case of TP305_0.2-0.6, the concentrations of asbestos in these samples all exceeded the corresponding SIL.

- The absence of asbestos in SP1 and SP2 indicated that the materials comprising these stockpiles were General Solid Waste in accordance with the EPA (2014) Waste Classification Guidelines.

- The asbestos contamination appeared to be limited to the southern half of the Site.

Based on the findings of the EI Additional Site Investigation, EI concluded the ACM at the Site posed a moderate to high risk to (future) human receptors. Remediation of the land was, therefore, necessary, in order for it to be suitable for the proposed (Resource Recovery Facility) development.

13.4 Remedial Action Plan

Following from the EI Additional Site Investigation, EI was commissioned to prepare a Remedial Action Plan for the Site, a copy of which is at **Appendix 15**.

The main objective of the Remedial Action Plan (**RAP**) is to guide remediation of the Site, by providing detailed procedures which comply with relevant guidelines, yet prevent adverse effects on human and environmental receptors.

The remediation objective will be achieved by:

- Outlining the legislative framework relevant to the works;
- Providing a summary of the previous investigations of the Site, including the Site setting and contamination status;
- Definition of remediation goals and acceptance criteria;
- Review of available remediation technologies, with identification of the most appropriate method of site clean-up;
- Description of work procedures which are compliant with relevant environmental legislation;
- Guidance on approvals and licences required for the remediation works;

- Provision of information to assist the contractor in their preparation of a Work, Health and Safety Plan (**WHSP**) and other site management/planning documents;
- Identification of the key stakeholders and their responsibilities, and

- Provision of a Sampling and Analytical Quality Plan (**SAQP**) which will validate the effectiveness of the remediation.

The **Proposed Remediation and Validation Plan** is shown in **Figure 13-3**.

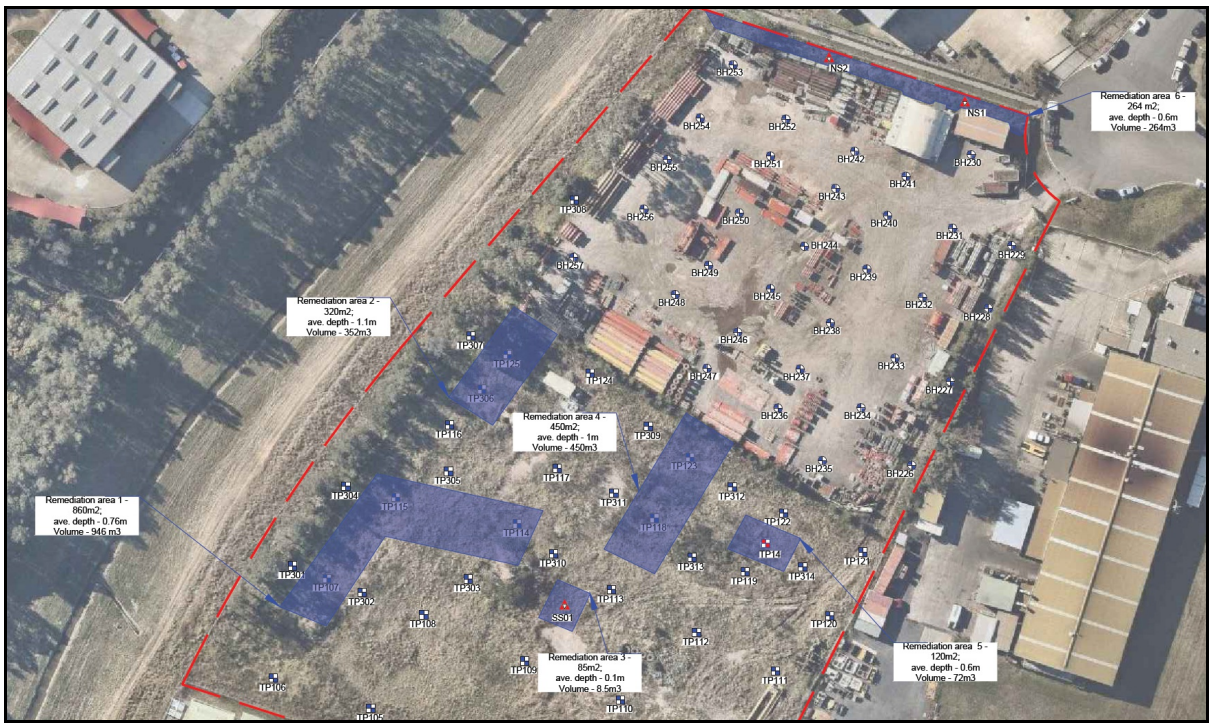


Figure 13-3: Proposed Remediation and Validation Plan (refer to **Appendix 15** for details).

Remediation Goals

The remediation goals for the RAP are consistent with the NSW EPA SEPP 55 guidelines and Council's contaminated land policy, and include:

- Meeting the conditions of the planning consent and to render the Site suitable for the proposed land use(s);

- Demonstrating that the proposed remediation strategy for the Site is environmentally justifiable practical and technically feasible;

- Adopting clean-up criteria appropriate for the future use of the Site to mitigate possible impacts to human health and the environment;

- Consideration of the principles of ecologically sustainable development in line with Section 9 of the *Contaminated Land Management Act 1997*;

- Minimising waste, as per the *Waste Avoidance and Resource Recovery Act 2001*;

- To remediate all contamination at the Site so there are no unacceptable risks to on-site and off-site receptors, and

- Demonstrating that the plans for site management of remediation work consider work health and safety, environmental management, and site contingencies.

The proposed remediation criteria are outlined in **Table 13-1** and were selected from available published guidelines which are endorsed by national or state regulatory authorities, with due consideration of the exposure scenario which is expected for various parts of the Site, the likely exposure pathways and the identified potential receptors.

Table 13-1: Proposed Remediation Criteria for Soil

Adopted Guidelines	Rationale
NEPC (2013) Soil HILs and HSLs	**Soil Health-based Investigation / Screening Levels (HILs / HSLs)** All soil samples will be assessed against the NEPC (2013) HIL-D / HSL-D thresholds for commercial/industrial sites, consisting of single or multi-storey buildings supported by ground-level slabs. Since asbestos represents the contaminant of concern for this site, soil asbestos results will be assessed against the NEPC (2013) HSL thresholds for "all forms of asbestos", which are derived from the WADOH (2009) criteria.

Prior to being removed from the Site, excavated soils must be classified in accordance with the EPA (2014) Waste Classification Guidelines. Under these guidelines, fill/soils may be classified into the following groups: General Solid Waste, Restricted Solid Waste, or Hazardous Waste, subject to chemical assessment using NATA-registered laboratory methods for total and leachable (**TCLP**) contaminant levels.

Any soils containing asbestos would also be classified as Special Waste - Asbestos Waste. In accordance with the *NSW Waste Regulation 2014*, waste soils must only be disposed to a waste facility which is appropriately licenced to receive the incoming waste. It is, therefore, recommended that confirmation is obtained from the waste facility prior the materials being removed from the Site.

REMEDIATION TECHNOLOGY

Under the NEPC (2013) *National Environmental Protection (Assessment of Site Contamination) Amendment Measure*, the preferred hierarchy for site remediation and/or management is:

- On-site treatment of the contamination so that it is destroyed or the associated risk is reduced to an acceptable level, and

- Off-site treatment of excavated soil, so that the contamination is destroyed or the associated risk is reduced to an acceptable level, after which soil is returned to the Site, or, if the above are not practicable:

- Consolidation and isolation of the soil on-site by containment with a properly designed barrier, and

- Removal of contaminated material to an approved site or facility, followed, where necessary, by replacement with appropriate material, or

- Where the assessment indicates remediation would have no net environmental benefit or would have a net adverse environmental effect, implementation of an appropriate management strategy.

When deciding which option to choose, the sustainability (environmental, economic, and social) of each option should be considered, in terms of achieving an appropriate balance between the benefits and effects of undertaking the option.

For the Site, a number of remediation options were reviewed to examine the suitability of each method, the surrounding properties, geological and hydrogeological limitations and the following considerations:

- Development requirements (industrial, with limited access to soils and landscaped areas);
- Prioritisation of works in areas of most concern;
- Ability of remedial method to treat contamination with respect to material and infrastructure limitations;
- Remedial timetable;
- Defensible method to ensure the Site is remediated to appropriate levels / validation criteria, and
- Regulatory compliance.

Preferred Remediation Option

Based on the available remedial technologies, the proposed site development (Resource Recovery Facility) the potential risks to human health and the environment, as well as the relative cost effectiveness of feasible remedial techniques, the preferred remedial option for the Site is:

- Offsite disposal of impacted soils to licensed waste facilities. All wastes shall be transported to appropriate, EPA-licensed facilities, after formal classification. All excavated (remediation) areas shall be validated by base and wall, soil sampling, and
- Site reinstatement with validated, imported (or recovered) excavated natural materials (where required).

On-site consolidation (encapsulation) and/or capping of impacted materials will be considered a secondary option, where economic constraints dictate.

Remediation Works

Site characterisations revealed the presence of bonded and friable asbestos contamination across the Site, which made it unsuitable for the proposed industrial use. The remedial tasks required are as follows:

- Excavation and off-site disposal of friable asbestos materials at locations TP14 (EIS, 2018) and TP123 (EI, 2020); and

- Excavation and off-site disposal of fill materials at locations NS1, NS2 and SS01 (EIS, 2018) and TP107, TP114, TP115, TP118, TP125 and TP306 (EI, 2020), followed by hand picking of asbestos fragments and processing of oversize materials (to remove bricks/concrete).

A qualified environmental scientist, performing the role of Environmental Management Coordinator, will be appointed to the project, to ensure that critical stages of the Site remediation are appropriately supervised and documented, with the relevant data collected for environmental reporting purposes. These will include, though not necessarily be limited to, site induction of personnel in relation to contamination hazards and environmental management issues, marking of remediation areas, inspection of environmental monitoring systems, implementation of specified control measures and validation sampling.

Remediation Sequence

The sequence of work for the remediation is proposed in **Table 13-2**, with an indicative time frame for each task.

Table 13-2: Summary of Remediation Sequence

Task	Timeframe	Description of Work
Preliminaries / Site Establishment / Removal of equipment	Weeks 1-2	• Development of pre-work plans (construction environmental management plan, occupational health and safety plan, hazardous material survey), approvals and permits to commence work. • Establishment of site pollution monitoring and control measures to be maintained for the duration of the works as outlined in management plans. • Removal of Coates Hire equipment.
Remedial Works and Validation	Weeks 3-5	• Conduct remedial removal works for impacted soils in impacted areas (friable ACM areas). • Following excavation of bonded ACM hotspots, conduct emu-pick and mechanical screening. • Waste streams to be kept separate to prevent cross-contamination. • Sampling of processed stockpiles to confirm absence of ACM. • Following removal of fill, natural surfaces are to be inspected and sampled to validate removal of contaminated soils from the Site.
Bulk Excavation and Backfill (if required)	Weeks 6-8	• Excavation of the Site for soils not required for the proposed development.

Reporting	Weeks 9-11	• All findings and investigation methodologies of the remedial works will be reported within a validation report.

Waste Management

Prior to any soil material being removed from the Site, a formal waste classification certificate will be completed, in accordance with the EPA *Waste Classification Guidelines*.

Soil samples designated for waste classification will be collected at a rate of one sample per 25m^3 (minimum of three per stockpile), up to 250m^3. For soil exceeding 250m^3 but less than 2,500m^3, a minimum of 10 samples is required and 95% UCL statistical calculations of contaminant concentrations may be compared to the criteria. Samples are to be analysed for metals / metalloids, total recoverable hydrocarbons (TRH), the monocyclic aromatic hydrocarbons benzene, toluene, ethyl benzene and xylenes (BTEX), polycyclic aromatic hydrocarbons (PAH), organochlorine / organophosphorus pesticides (OCP / OPP), polychlorinated biphenyls (PCBs) and asbestos.

Any unexpected asbestos identified will be treated as an unexpected find and the unexpected finds protocol will be engaged.

Results of analyses will be compared to the waste classification criteria set out in the NSW EPA *Waste Classification Guidelines* and a classification certificate will be provided, to enable off-site disposal.

Ensuring that the waste fill/soil streams are kept separate, material will be loaded, transported, and disposed off-site to waste landfill facilities which are appropriately licensed to receive the materials corresponding to the documented waste classifications.

In accordance with the *POEO (Waste) Regulation 2014*, waste movements will be tracked and disposal receipts (dockets) will be maintained by the site manager and copies provided to the Environmental Scientist for final reporting purposes.

Validation Reporting

All fieldwork, chemical analyses, discussions, conclusions and recommendations will be documented in a final validation report for the Site. The validation report will be prepared in accordance with requirements of the OEH *Guidelines for Consultants Reporting on Contaminated Sites* and EPA *Guidelines for the NSW Site Auditor Scheme* and will confirm that the Site has been remediated to a suitable standard for the proposed development.

The Site Validation Report will be submitted for Council and/or Site Auditor review at the completion of the remediation works program.

Part Fourteen

WASTE MANAGEMENT PLAN

14.1 Introduction

The Secretary's Environmental Assessment Requirements stipulate that the Environmental Impact Statement must contain a Waste Management Plan (**WMP**) including:

- *identify, classify and quantify the likely waste streams that would be handled/stored/disposed of at the facility.*
- *describe how this waste would be treated, stored, used, disposed and handled on site, and transported to and from the site, and the potential impacts associated with these issues, including current and future offsite waste disposal methods.*
- *details on the location and size of stockpiles of unprocessed and processed recycled waste at the site.*
- *identify proposed sources of the waste.*
- *the measures that would be implemented to ensure that the development is consistent with the aims, objectives and guidance in the NSW Waste Avoidance and Resource Recovery Strategy 2007 and Draft NSW Waste Avoidance and Resource Recovery Strategy 2013-21.*

This WMP applies to both the construction and operation of the proposed development.

14.2 Objectives of the Waste Management Plan

The principal objective of this WMP is to identify all potential wastes likely to be received and generated at the Site during development and operational phases of the development, including a description of how waste would be handled, processed and disposed of (or re-used/recycled).

The specific objectives of this WMP are as follows:

- To encourage the minimisation of waste production and maximisation of resource recovery.
- To identify procedures for waste management.

14.3 Better Practice for Waste Management and Recycling

14.3.1 Waste Management Hierarchy

The WMP aims to meet the principles of the waste management hierarchy, by promoting waste as a resource through the following in order of preference:

- Waste avoidance through prevention or reduction of waste generation. Waste avoidance is best achieved through better design and purchasing choices.
- Waste reuse, without substantially changing the form of waste.
- Waste recycling through the treatment of waste that is no longer usable in its current form to produce new products.
- Waste disposal, in a manner which causes the least harm to the natural environment.

Figure 14-1 demonstrates a classification of waste management options, as detailed in the *NSW Waste Avoidance and Resource Recovery Strategy 2014-2021*.

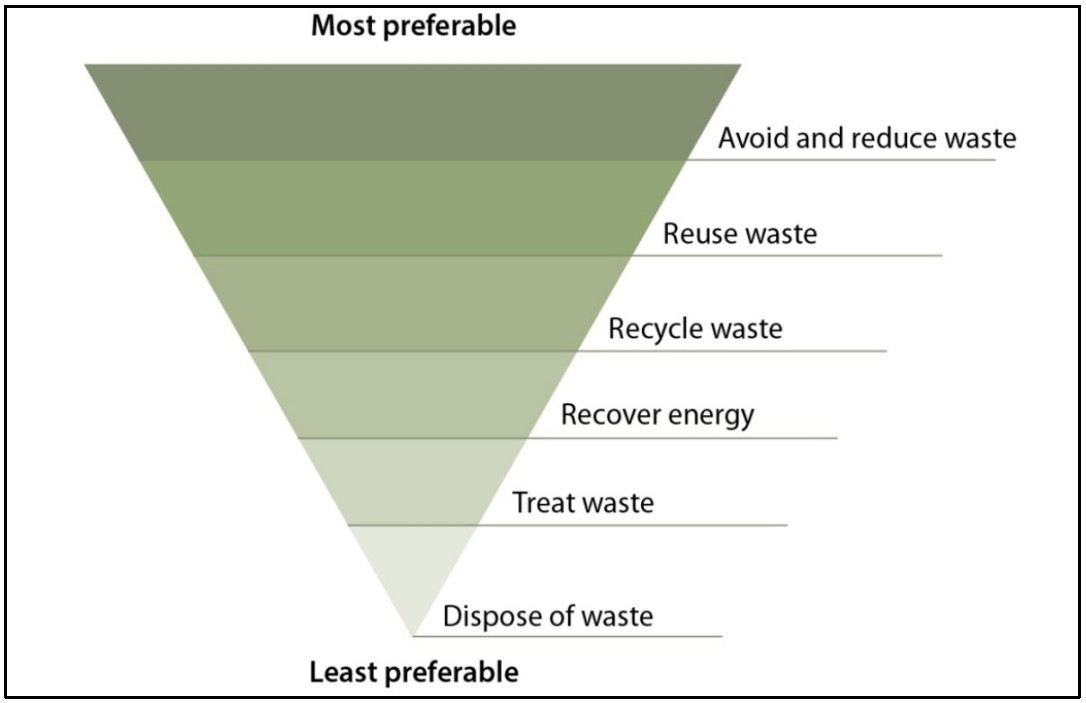


Figure 14-1: The waste hierarchy.

At the top of the hierarchy, avoiding and reducing the generation of waste is the most preferred approach. This is because it preserves resources, avoids the use of additional resources to manage waste which would have been generated, and aims to eliminate disposal costs. The goal is to maximise efficiency and avoid unnecessary consumption through such positive behaviours as:

- selecting items with the least packaging or which require the least resources to produce.
- avoiding disposable goods or single-use materials.
- buying products which are recycled, recyclable, repairable, refillable, reusable or biodegradable.
- using leftover food rather than throwing it away.

Where avoiding and reducing waste is not possible, the next most preferred option is to reuse the materials without further processing, avoiding the costs of energy and other resources required for recycling. For example, many household and industrial items can be repaired, reused, sold or donated to charities.

The next step in the hierarchy is recycling, which involves processing waste materials to make the same or different products. This includes composting, which recycles nutrients back into the soil. Recycling keeps materials in the productive economy and benefits the environment by decreasing the need for new materials and waste absorption.

Recycling a product generally requires fewer resources than drawing virgin materials from the environment to create a new one.

Where further recycling is not feasible, it may be possible to recover the energy from the material and feed that back into the economy where this is acceptable to the community.

Some materials may be inappropriate to reuse, recycle or recover for energy and instead require treatment to stabilise them and minimise their environmental or health impacts.

Finally, the waste hierarchy recognises that some types of waste, such as hazardous chemicals or asbestos, cannot be safely recycled and direct treatment or disposal is the most appropriate management option.

14.3.2 Benefits of Implementing Better Practice for Waste Management and Recycling

The following benefits would accrue from the implementation of better practice for waste management and recycling on the Site.

- Enhanced social and environmental reputation of an organisation.
- Reduced costs associated with waste disposal.
- Benefits to all stakeholders and the wider community.
- Improved environmental outcomes.

14.4 Waste Management Plan

Ineffective waste management can lead to environmental pollution, offensive odours, litter, attraction of vermin and occupational safety and hygiene issues.

Effective waste management reduces costs through the reuse of resources and minimisation of fees associated with removal, transportation and disposal of waste, and improves environmental outcomes locally, regionally and globally.

The construction and operational stages of development has little potential for waste generation.

Site Preparatory Works

Minimal earthworks would be required to achieve a level site for the proposed development. The site works would include cut and fill of a small part of the Site to reach the desired finished level.

The initial earthworks volume has a fill balance of approximately 80m^3. The imported fill will be excavation or tunnel sandstone which will be supplied with VENM certificates. The hardstand material imported, 6,432m^3 will be crushed concrete under the EPA recovered aggregate exemption 2014.

The Construction Site Manager will identify opportunities for waste avoidance.

Site Operation

Operation of the Site has the potential to generate the following waste:

- Office wastes.
- Packaging wastes (i.e. cardboard, paper, plastic / shrink wrap, pallets).
- Maintenance wastes.

Waste Avoidance

Waste avoidance measures may include:

- Avoiding printing where ever possible.
- Printing double sided to avoid paper and printer toner / ink cartridge wastes.
- Providing ceramic cups, mugs, crockery and cutlery rather than disposable items in kitchen and staff common areas.
- Purchasing consumables in bulk to avoid unnecessary packaging.

Re-use

Establish systems to transport products in re-useable packaging where possible.

Recycling

Recycling opportunities include:

- Paper recycling trays provided in office areas for scrap paper collection and recycling.
- Printer toners/ink cartridges collected in allocated bins for appropriate contractor recycling.
- Development of purchasing policy to include purchase of recycled products.
- Providing recycling collections within each of the offices (e.g. plastics, cans and glass and also paper and cardboard if not collected separately).
- The office and amenities will have its own waste and recycling storage area where the recycling and garbage bins will be stored prior to collection.

14.4.1 Reuse, Recycling and Disposal

Effective management of construction materials and demolition/construction waste, including options for reuse and recycling where applicable and practicable, will be conducted.

Only wastes which cannot be cost effectively reused or recycled are to be sent to landfill or appropriate disposal facilities.

The following procedures are to be implemented:

- Green waste will be mulched and re-used in landscaping on-site or taken off-site for landscape works.
- Steel will be recycled off-site.
- Timber will be recycled off-site.
- Waste oil will be recycled or disposed of in an appropriate manner.
- All glass which can be economically recycled will be.
- Container and paper/cardboard recycling will be provided on-site for employee use or these items will be sorted recycling at an appropriately licensed facility.
- All garbage will be disposed of via a Council approved system.

14.4.2 Waste Storage and Servicing

The facility will be managed to ensure effective source separation and appropriate collection of waste.

Dedicated skips would be used for:

- timber.
- steel/scrap metal.
- general waste.

All waste placed in stockpile areas/skips for disposal or recycling shall be adequately contained to ensure that the waste does not fall, blow, wash or otherwise escape from the Site.

Where possible, recycling bins will be provided in common areas for plastic and glass bottles, soft drink cans, aluminium and tin cans to ensure these items do not end up at landfill. Specialised bins for cigarette butts should also be provided outside the lunchroom/office.

14.4.3 Special Wastes

Contaminated / Hazardous Wastes

- All contaminated and hazardous wastes (i.e. fluorescent tubing, batteries, e-wastes) will be recycled at an appropriately licensed facility.
- E-waste (electronic waste such as computers, mobile phones, printer toners and ink cartridges) and batteries containing heavy metal contaminants will be recycled at an appropriately licensed recycling facility.

Liquid Waste

- Liquid, semi-liquids or moist substances will not be placed in waste containers, unless securely wrapped or contained to prevent the substance from leaking.
- Any liquid wastes or dangerous goods wastes should be disposed of by a suitably qualified contractor to an appropriately licensed disposal facility.
- No liquid wastes or wash down waters should be disposed of via the stormwater drainage system.

14.4.4 Spills Management

Containment measures for spillages should be provided at appropriate locations and in close proximity to staff car park areas, dangerous goods storage areas and main warehouse operation areas (e.g. a spill kit containing non-combustible absorbent material).

Material Safety Data Sheets should also be located nearby spill kit areas for advice on spillage clean up and disposal.

Part Fifteen

ABORIGINAL AND CULTURAL HERITAGE ASSESSMENT

15.1 Aboriginal Objects Due Diligence Assessment

Niche Environment and Heritage Pty Ltd (**Niche**) was commissioned to undertake a Preliminary Aboriginal Cultural Heritage Assessment to assess any potential for Aboriginal heritage within the Site. A copy of that report is at **Appendix 17**.

The aim of the assessment was to assess whether Aboriginal Objects and/or Places are present or are likely to occur within or in close proximity to the Site and/or if those Aboriginal Objects and/or places may be harmed by the proposed works and if further investigation is required.

The *National Parks and Wildlife Act 1974* (**NPW Act**) provides statutory protection for Aboriginal objects by making it illegal to harm Aboriginal objects and Aboriginal places. The NPW Act provides two tiers of offence against which individuals or corporations who harm Aboriginal objects or Aboriginal places can be prosecuted. The NPW Act defines Aboriginal objects and Aboriginal places as:

> ***Aboriginal object*** *means any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains.*
>
> ***Aboriginal place*** *means any place declared to be an Aboriginal place under section 84.*

Under Section 89A of the NPW Act, a person who is aware of the location of an Aboriginal object and does not, in the prescribed manner, notify the Secretary thereof within a reasonable time is guilty of an offence, unless the person believes, on reasonable grounds, that the Secretary is aware of the location of that Aboriginal object.

Under Section 85 of the NPW Act, the Chief Executive of the NSW Office of Environment and Heritage (as the delegate of the Secretary of the Department of Premier and Cabinet) is the authority for the proper care, preservation and protection of Aboriginal objects and Aboriginal places in NSW. This legislative responsibility applies to Aboriginal objects and Aboriginal places as defined under the NPW Act.

The *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* sets out a process for individuals and organisations to follow to determine whether an Aboriginal object will be harmed by an activity.

The Site has gone through an extensive stage of ground surface clearing and earthworks, significantly in 2013 and likely prior to 1961. The surrounding area has changed significantly with the development of industries within the area.

It is highly unlikely that Aboriginal objects have survived within the Site.

15.1.1 Heritage Registers

Aboriginal Heritage Information Management System (AHIMS)

An extensive search AHIMS was conducted on the 27 February 2019 (AHIMS Client Service ID #402422) over a 3km^2 area centred on the Site.

No Aboriginal sites were recorded within 200m of the Site.

A total of three (3) registered Aboriginal sites were located within the wider area. The closest sites were over 1.2km from the Site as described in Table 2 of the Niche report below.

Site features	Total
Artefact (isolated)	2
Potential Archaeological Deposit (PAD) and Artefact	1
Total	**3**

Other heritage registers

Searches of the Australian World Heritage Database, the Commonwealth Heritage List, National Heritage List, State Heritage Register, State Heritage Inventory, the Campbelltown Local Environmental Plan 2015 and the Campbelltown Control Plan were conducted on the 27 February 2019.

The searches concluded that there are no recorded historic or Aboriginal heritage items within the Site and that the Site does not fall within the visual catchment of any nearby heritage items.

15.1.2 Previous heritage assessments within or relevant to the Site

The Site is located within a built up industrial area and has not previously been assessed for Aboriginal heritage values.

The archaeology of the Site, prior to disturbance, likely reflected the Cumberland Plain model. The landscape units upon which the Site is situated typically possess moderate potential to contain sub-surface archaeological deposits, and the most probable archaeological site types which may be found in the area include low intensity background artefact scatters and isolated finds with higher densities in association with the South Creek soil landscape. This potential, however, has been removed by the history of earthworks across the Site.

There is no potential for grinding grooves or rock shelters because there is no exposed sandstone geology within the Site.

There is no potential for modified trees on the Site.

15.1.3 Aboriginal objects due diligence assessment

Is the proposed activity a low impact activity as defined by the Regulation?

No.

The proposed development is not a low impact activity as defined under section 80B of the *National Parks and Wildlife Regulation 2009* because:

- It involves earthworks associated with new installation/construction.

Step 1 Will the activity disturb the ground surface or any culturally modified trees?

The proposed development involves earthworks and will disturb the ground surface, however, the proposal will not disturb any Aboriginal culturally modified trees as the property is cleared of mature vegetation.

Step 2a Are there any relevant confirmed site records or other associated landscape feature information on AHIMS (or other heritage registers)?

No.

No Aboriginal sites are located within the Site. While the Site is located within landscapes known to contain Aboriginal objects, the archaeological potential has been removed by the extensive earthworks which have been undertaken within the Site.

Step 2b Are there any other sources of information of which a person is already aware?

No.

Step 2c Are there landscape features that are likely to indicate the presence of Aboriginal Objects?

No.

The Site is located within 200m of Bow Bowing Creek, a feature identified by the Due Diligence Code as likely to contain Aboriginal objects, however, the Site has been highly disturbed through site clearing and extensive areas of earthworks. Bow Bowing Creek is now a concrete lined channel and is highly modified.

Step 3 Can the harm or the activity be avoided?

Not applicable.

The desktop assessment indicates that Aboriginal objects are unlikely to occur within the Site. There is no compelling reason to move or avoid the proposed development as the Site has been previously disturbed.

Step 4 Does a desktop assessment and visual inspection confirm that there are Aboriginal

Objects or that they are likely?

No.

The desktop assessment confirmed that Aboriginal objects are unlikely due to the high degree of land disturbance to the Site.

Step 5 Further investigations and impact assessment

No.

The desktop assessment confirmed that Aboriginal objects are unlikely due to the high degree of past land use and disturbance of the Site.

No further investigation or impact assessment is required.

15.1.4 Conclusion

On the basis of the assessment undertaken by Niche, it is unlikely that Aboriginal objects have survived within the Site due to the high level of disturbance and modification to the ground surface. The land modification practices within the Site have disrupted the ground surface to such an extent that the possibility of in-situ deposits is low.

No Aboriginal heritage constraints were identified for the proposed development and no further investigation or impact assessment is required.

It is recommended that:

- In the unlikely event that any Aboriginal objects are found, all activities must stop and an appropriately qualified archaeologist engaged to assess the findings, and notification is provided to the Office of Environment and Heritage.
- In the unlikely event that human remains are found, stop work, secure the site and notify the NSW Police and the Office of Environment and Heritage.

15.2 Historical Archaeological Assessment

Niche Environment and Heritage Pty Ltd (**Niche**) was commissioned to prepare a Historical Archaeological Assessment (**HAA**) for the proposed Resource Recovery Facility. A copy of the Niche report is at **Appendix 17**.

The aim of the HAA is to identify and assess the heritage significance of listed items within the Site in order to assess the impacts of the proposed development on nearby heritage items.

The design methods for the proposed resource recovery facility have been assessed in accordance with

the *Statements of Heritage Impact* guidelines published by the NSW Heritage Office and Department of Urban Affairs & Planning, originally published as part of the NSW Heritage Manual.

15.2.1 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (**EPBC Act**) is the Australian Government's central piece of environmental legislation. It provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places.

Under the EPBC Act, protected heritage items of significance are listed on the National Heritage List (**NHL**) or the Commonwealth Heritage List (**CHL**). The NHL provides protection to places of cultural significance to the nation of Australia, while the CHL comprises natural, Aboriginal and historic heritage places owned and controlled by the Commonwealth. These lists can be searched online via the Australian Heritage Database, which also includes places on the Register of the National Estate (**RNE**) which was closed in 2007 but is maintained on a non-statutory basis as a publicly available archive and educational resource.

There are no items within the Site.

15.2.2 Heritage Act 1977

Archaeological features and deposits are afforded statutory protection by the "relics provisions" of the NSW Heritage Act 1977. A relic is defined as:

> ***relic*** *means any deposit, artefact, object or material evidence that:*
>
> *(a) relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and*
>
> *(b) is of State or local heritage significance.*

Land disturbance or excavation which will or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed is prohibited under the provisions of the Act, unless carried out in accordance with a permit issued under s.140 or s.139 of the Act.

There are no items within the Site.

A search of the State Heritage Register (**SHR**) found two (2) items which have State heritage significance within close proximity to the Site:

- Stone Cottage (Item ID#01388)
- "Hollylea" and former Plough Inn (Item ID#00343).

15.2.3 State Heritage and Conservation (s.170) Registers

Under s.170 of the *Heritage Act 1977*, NSW government agencies are required to maintain a register of heritage assets under their control or ownership.

Each government agency is responsible for ensuring that the items entered on its register under s.170 are maintained with due diligence in accordance with State Owned Heritage Management Principles.

Items listed on s.170 Heritage and Conservation Registers are listed on the State Heritage Inventory (**SHI**).

There are no items within the Site.

Searches of the relevant s.170 registers found the following items within close proximity to the Site:

- Keira Villa
- Minto (Bow Bowing Ck) Underbridge
- Stone Cottage.

15.2.4 Campbelltown Local Environmental Plan 2015

Heritage items within the Campbelltown LGA are listed in **Schedule 5** of the Campbelltown LEP 2015. These items are subject to the planning controls and provisions set out in **Clause 5.10 (Heritage Conservation)** of the LEP, which states that Council may, before granting consent to any development on land on which a heritage item is located, or on land which is within the vicinity of land on which a heritage item is located, require a heritage management document be prepared which assesses the extent to which the carrying out of the proposed development would affect the heritage significance of the heritage item concerned.

There are no Heritage Items within the Site.

There are Heritage Items listed in **Schedule 5** of the LEP within close proximity to the Site:

- Milestone XXX (Item ID#188)
- Milestone XXXI (Item ID#189)

The location of all nearby heritage items is shown in Figure 3 of the Niche report.

15.2.5 Early history of Campbelltown

In 1809, 34 settlers had received land grants in the newly named Minto district (named after Lord Minto,

the Governor- General of India) to the north of Campbelltown. Many of these early settlers were Irish, including surveyor James Meehan, who allocated himself a large portion of land (now Macquarie Fields).

As the district became more closely settled, a town was needed further south than Liverpool. On 1 December 1820, Governor Macquarie laid the foundations for the township of Campbelltown. James Meehan had reserved the town site in 1815 when he surveyed the road from Liverpool to Appin.

In 1820, Campbelltown was formally established and named in honour of Mrs Elizabeth Macquarie's maiden name of Campbell. By 1826, the town plan was formalised. The initial land grants were allocated in 1827 but were not occupied until 1831.

Transportation

In October 1811, Governor Macquarie proposed the construction of a road from Sydney to Liverpool. By 1814, the road had been constructed and soon extended to Appin. It was little more than a dirt track but was to become an important communication road for the area.

Heritage items such as Menangle House, the Plough Inn, Old Doyle's Railway Hotel sprung up as a result of the roads construction and were associated with early roads, fords and bridges.

Agriculture and Pastoralism

The small land grants in the district surrounding Campbelltown engaged mainly in mixed farming, cropping and the grazing of primarily sheep and cattle with much of the produce sent to the Sydney markets. Agricultural activity in the area regularly suffered from disease, market fluctuations, competition and lack of water.

Development of Minto

The name Minto originally applied to an extensive district south-west of Parramatta, west of the Georges River and north of Appin.

Military officers, who had deposed Governor Bligh in 1808, began making land grants to increase the agricultural productivity of the struggling colony. Under the government of Macquarie, William Redfern, an ex-convict surgeon, was granted 320 hectares of land in the region. Redfern called his country estate Campbellfield as a compliment to Mrs Macquarie. His land covered much of the future Campbelltown suburb of Minto.

Under Redfern and his wife Sarah, vineyards and sheep farms prospered on the Campbellfield estate. After Redfern died in 1833, Campbellfield began to fall in to disrepair and after an unsuccessful attempt to sell of allotments in 1843, the estate trustees simply leased out the land for rough grazing.

In the 1870s, Campbellfield's railway station opened, connecting local primary producers with wider markets. In 1882, the station was renamed Minto with nearby land subdivided and becoming the nucleus of Minto village. For decades, Minto remained a village, home to dairy farmers, orchardists, vignerons and local tradespeople. Like many rural communities, Minto was relatively resilient during the 1930s depression.

In the 1950s, Minto had a population of just over 500, but was overtaken by post-war plans to move industry and population to Sydney's west. Successive schemes designated Campbelltown as a growth

centre. From 1970, sewage works, rail electrification and the construction of the Liverpool-Minto freeway opened up the district. Local employment was encouraged with the development of an industrial estate at Minto.

15.2.6 Nearby heritage items

Milestones Group

Campbelltown Road has provided the main link between Sydney and Campbelltown since the earliest settlement in the area. Of the ten (10) milestones in the Campbelltown area, six (6) were found in various conditions. Previous heritage studies have identified the milestones as having Historical and Group Significance and gave an indication of distance between towns.

Minto (Bow Bowing Ck) Underbridge

The original single-track railway from Granville to Liverpool (part of the Main South line to Goulburn) was completed in 1857 and had timber beam bridges. By the 1880s, the volume of traffic was sufficient to justify an upgrade and duplication of the line. Commissioner Eddy was appointed in 1888 and embarked on major upgrades of the railways, including the extensive duplication works.

The depression of the 1890s resulted in cost-cutting for construction of rail infrastructure, which included the increased use of local materials rather than expensive imported iron. The Sydney region has extensive deposits of Wianamatta clay, ideal for making bricks. As a result, all of the major bridge arches were rebuilt using these locally produced bricks. The practice of brick arch underbridge construction continued until the 1920s, prolonged because of the First World War. The construction of the Bow Bowing Creek Underbridge was typical of this practice.

The Minto Underbridge is a 9-span arch bridge supported by intermediate brick piers and brick abutments at each end. The arches are semi-circular in elevation, with brick impost courses at the junction of arch and pier.

Stone Cottage (Item ID #01388)

The cottage is believed to have been used for farm hands working at Campbellfield for Dr William Redfern.

The house was purchased by Mr & Mrs Briggs in 1949 with 22.5 acres. Prior to that, it had not been occupied for about ten years.

Holylea and former Plough Inn (Item ID #00343)

The Plough Inn was a single storey inn of three rooms built between 1816 and 1821 on land purchased by William Ray (former convict). By c.1900, the site was operating as a private boarding school and by c.1914 a private residence.

By c.1830, a two storey sandstock brick residence was built as the main accommodation building for the inn (Holly Lea). By 1922, Arthur Payten owned and lived in the building.

15.2.7 Assessment of significance

There are no items of heritage significance located within the Site, however, searches of the relevant databases identified a number of heritage listed items nearby.

Milestone XXX and XXXI

The statement of significance has been adapted from the State Heritage Inventory entry for Milestone XXX and XXI.

> *Of historical significance as one of seven extant sandstone milestones (of an original group of 10) placed along Campbelltown Road between Campbelltown and Denham Court at 1 mile intervals in 1854 by order of the Commissioners of the Roads Trust. The milestones are of historical significance as physical evidence of the 1850s road network in Campbelltown and mid-19th Century road administration, and are features which once formed an integral part of the State's early road networks. The milestones are historically associated with the surveyor's obelisks originally located at Campbelltown and in Macquarie Place, Sydney (which is extant). The milestones are of aesthetic/technical significance as examples of mid-19th century stone masonry. The milestones are now rare in the state, particularly as a group of extant milestones following an early road alignment.*

Minto (Bow Bowing Ck) Underbridge

The statement of significance has been adapted from the State Heritage Inventory entry for Minto (Bow Bowing Ck) Underbridge.

> *The Minto Underbridge is significant as an early structure from the first major use of brick arch construction within the NSW rail network using output from local brickworks, for the duplication of existing lines. The use of locally produced brick was a consequence of the economic depression of the 1890s, and reflected wider economic and social issues that played an important role in the state's history. The bridge is a good and early example of brick arch railway viaduct construction and is representative of the development and expansion of transport infrastructure in the Campbelltown district during the 19th century. It is of high integrity, retaining its original fabric in a good condition, and has aesthetic significance as an archetypal brick arch rail viaduct and a remnant of the local 19th century landscape. The aesthetic significance of the underbridge has been impacted by the recent construction of the Southern Freight Line directly to the north of the underbridge.*

Stone Cottage

The statement of significance has been adapted from the State Heritage Inventory entry for Stone Cottage.

> *An early stone cottage (c.1830s) of high significance for its association with the use of convict labour in the settlement and the agricultural development of the Macarthur Region. The cottage allows a rare insight into the relationship between convict labourers and overseas and their role in establishing a reliable food source for the colony.*

15.2.8 Potential Archaeological Impacts

The nature of the Site, as seen through historical aerial photographs, presents an area which has been subject to land form modifications and soil stripping in 2013 with the nearby the Bow Bowing Creek modified into a concrete lined channel prior to 2002.

The proposed development would involve ground disturbance, however, due to past land form and cutting disturbances, no constraints were found during the desktop analysis.

15.2.9 Direct impacts to Heritage Items

There are no heritage listed items located within the Site, nor were any unlisted heritage items identified during historical research. As such, the Niche assessment has found that there are no direct impacts to any heritage listed items.

Similarly, no identified potential areas of significant archaeological relics have been identified within the Site. Consequently, any physical development at the Site would not result in any impacts to significant archaeological relics.

15.2.10 Indirect (visual) impacts to Heritage Items

Due to the distance of the nearby heritage items from the Site, there are no unobstructed sight lines between the proposed development and the following four (4) heritage items.

- Milestone XXX (Item ID#I88)
- Milestone XXXI (Item ID#I89)
- Minto (Bow Bowing Creek) Underbridge (s.170)
- Holylea and former Plough Inn (Item ID #00343)

Each of these items is considered significant in part because of their landscape and their heritage views and vistas which assist in preserving the early nineteenth century rural character of each item.

The Site would not be visible from any of these items, and in particular, the significant views within each site (associated with sight lines between nineteenth century structures and the pastoral landscape which surrounds them), the proposed development would not result in any impacts to these heritage items.

15.2.11 Conclusion

Based on the results of the desktop assessment and the review of historical aerial photography, the following conclusions are made.

- The Site has been subject to vegetation, landform and ground surface clearing.
- There are no listed heritage items located within the Site.
- There are four (4) locally listed heritage items listed located more than 500 metres from the Site.
    - Milestone XXX (Item ID#I88)
    - Milestone XXXI (Item ID#I89)
    - Minto (Bow Bowing Creek) Underbridge (s.170)
    - Holylea and former Plough Inn (Item ID #00343)
- There would be no indirect (visual) heritage impacts on these items from the proposed development.
- No further assessment is required.
- In the event that historical archaeological relics are unexpectedly exposed during any future ground excavation, ground disturbing works should stop in the affected area and a suitably qualified historical archaeologist be engaged to assess the extent, condition and likely significance of the remains. Depending on the significance of the relics, notification of the discovery may be required in accordance with s.146 of the Heritage Act 1977 and further approval may be required if impacts are proposed.

Part Sixteen

DRAFT STATEMENT OF COMMITMENTS

16.1 Introduction

The Secretary's Environmental Assessment Requirements stipulate that the Environmental Impact Statement must:

> *"consolidated summary of all the proposed environmental management and monitoring measures, highlighting commitments included in the EIS.*

This part of the Environmental Impact Statement provides a draft Statement of Commitments which describes the management measures which Camolaw Pty Ltd is prepared to implement with regard to the environmental management of the Site, and the mitigation and monitoring of potential environmental impacts associated with the operation of the proposed Resource Recovery Facility.

Camolaw Pty Ltd is committed to the following objectives:

- To provide a long term, fully licensed Resource Recovery Facility capable of recycling mixed Construction and Demolition (**C&D**) waste.
- To protect the health and safety of site workers and the general public, and ensure business viability by compliance with relevant legislation, standards and regulating authorities.
- To ensure site operations do not significantly impact the potential environmental receptors and comply with the following environmental legislation:
  - the *Environmental Planning and Assessment Act 1979*, and
  - the *Protection of the Environment Operations Act 1997*.
- To encourage and facilitate community participation in the recycling of construction and demolition waste.
- To protect the surrounding environment through the implementation and management of environmental controls and contingency measures.
- To operate the Resource Recovery Facility in a manner which is sympathetic to the amenity of the area in which it is located.

16.2 General Commitments

1. The development will be undertaken in accordance with the Environmental Impact Statement

prepared by Nexus Environmental Planning Pty Ltd (**the EIS**), including accompanying appendices.

2. The development will be undertaken in accordance with the following drawings:

   - Drawings prepared by Martens and Associates Pty Ltd as contained in **Appendix 4** of the EIS.
   - Drawings prepared by Conzept Landscape Architects as contained in **Appendix 18** of the EIS.
   - Drawings prepared by Macarthur Design & Drafting as contained in **Appendix 4**.
   - Drawing prepared by Optima X Prime as contained in **Appendix 4**.

3. The Project will be conducted and operated in accordance with this Statement of Commitments.

4. Camolaw Pty Ltd will develop a program of informing both the NSW Department of Planning, Industry and Environment and Council of construction staging and operation of the Resource Recovery Facility throughout the development process.

5. Camolaw Pty Ltd will obtain the necessary approvals and permits to undertake both construction and operation of the Resource Recovery Facility.

6. A copy of the approved and certified plans, specifications and documents, including conditions of approval will be kept on the Site at all times.

7. All building works will be carried out in accordance with the Building Code of Australia.

16.3 Environmental Management Plan

An Environmental Management Plan (**EMP**) will be developed for both the construction and operation stages of the Resource Recovery Facility.

The key principles of the EMP will be to provide:

- An environmental management tool for the construction and operation of the proposed Resource Recovery Facility.
- A means of identifying baselines for monitoring the impact of the Resource Recovery Facility.
- An outline of reporting requirements associated with the Resource Recovery Facility.
- The processes for interaction between Camolaw Pty Ltd and the relevant government authorities.

- The means by which compliance with the Secretary's requirements and the requirements of the Environmental Protection Licence will be achieved.

The EMP will contain sub-sections which will provide details of the management of the Resource Recovery Facility to minimise potential impacts discussed in the EIS. Sub-sections of the EMP will include:

- Induction and Training.
- An Erosion and Sediment Control Plan which will cover both establishment and operation of the facility.
- A Construction and Operational Noise Management Plan which will detail measures to minimise acoustic impact during establishment and operation of the facility.
- An Air Quality Management Plan which will detail measures to be employed to minimise air quality impacts during both establishment and operation of the facility.
- A Waste Management Plan.
- A Stormwater Management Plan.
- A Traffic Management Plan.
- A Complaints Register.
- A Hazard Reduction Plan.
- A Remedial Action Plan.

Following are drafts of the relevant sections of the EMP, refinement of which will be undertaken following receipt of consent for the proposed development.

Table 16-1 provides a summary of the Statement of Commitments.

TITLE	EMP 1 - INDUCTION AND TRAINING
Consent/Licence Ref.	Insert relevant Conditions of Consent. Insert relevant POEO Licence Conditions.
Objectives	To ensure all persons working on the site are aware of their environmental obligations, site environmental issues and control measures, as well as roles and responsibilities.
Procedures	1. Environmental induction for all employees and contractors before starting work. Induction to cover the following issues: (i) requirements of the EMP; (ii) specific environmental issues on the Site and control measures; (iii) roles and responsibilities for environmental management, and (iv) environmental incident procedures. 2. Retraining sessions within one month of changes to relevant sections of the EMP. 3. Retraining sessions within one month to persons identified by *Complaints Register* as not conforming to procedures. 4. All truck drivers entering the site for the first time to be provided with the *Site Induction for Drivers* form.
Monitoring	Status of inductions to be checked monthly.
Reporting	Record of all inductions and retraining, including name and date provided, to be retained on site.
Responsible Person	Environmental Officer responsible for ensuring all persons working on the Site are properly inducted and retraining provided as required.
Information/References	Insert relevant EMPs and Policies.

TITLE	EMP 2 - EROSION AND SEDIMENT CONTROL
Consent/Licence Ref.	Insert relevant Conditions of Consent. Insert relevant POEO Licence Conditions.
Objectives	To minimise and manage erosion and sedimentation on the site and ensure that sediment laden runoff is not discharged from the site.
Procedures	1. The Site is graded to direct all surface runoff to site basins prior to reuse or discharge from the Site to meet water quality objectives. The driveway and the entry section of the car park are excluded from capture. 2. Sedimentation basins are located in the north and south of the Site. Both basins are below ground concrete pits. 3. A floating pump will be located in each basin for extraction of clean water to on-site tanks for reuse in dust suppression and sand washing. 4. Detailed design of the proposed basins is to be undertaken in accordance with Landcom (2004) during the construction certificate stage. 5. Construct all erosion and sedimentation controls as per **Appendix 5** of the Environmental Impact Statement and relevant EPA requirements. 6. Divert runoff to sediment basins as a primary means of sediment trapping. 7. Inspect drainage and sediment controls monthly and conduct maintenance as required to ensure effectiveness. Where erosion is observed to be occurring, implement rehabilitation/stabilisation measures.
Monitoring	Monthly inspection of all drainage and sediment controls on site, including water storage, pumps and pipes.
Reporting	As required by Conditions/Licence.
Responsible Person	Environmental Officer or person(s) authorised by Environmental Officer.
Information/References	Insert relevant EMPs and Policies.

TITLE	EMP 3 - NOISE MANAGEMENT PLAN
Consent/Licence Ref.	Insert relevant Conditions of Consent. Insert relevant POEO Licence Conditions.
Objectives	To ensure that construction and operation noise complies with EPA regulations. To minimise impact of noise to surrounding properties. To ensure employees are not subject to noise levels above those specified in the OH&S legislation.
Procedures	1. Standard construction work hours will be as follows: • Monday to Friday 7.00 am to 6.00 pm. • Saturday 8.00 am to 1.00 pm. • No work on Sundays or public holiday. 2. Ensure mobile plant used is fitted with residential grade silencers. 4. Plant based at the site must incorporate "quacker" style reversing alarms. 5. Implement any acoustic impact mitigation measures outlined in the Acoustic Impact Assessment at **Appendix 6** of the EIS.
Monitoring	As required by Conditions/Licence.
Reporting	As required by Conditions/Licence.
Responsible Person	Environmental Officer to organise monitoring and reporting as required. Truck drivers responsible for required actions to reduce noise.
Information/References	Insert relevant EMPs and Policies.

TITLE	EMP 4 - AIR QUALITY MANAGEMENT PLAN
Consent/Licence Ref.	Insert relevant Conditions of Consent. Insert relevant POEO Licence Conditions.
Objectives	To minimise dust generation and air pollution to prevent impact on surrounding development as detailed in the Air Quality Impact Assessment at **Appendix 7** of the EIS. To ensure employees are not subjected to dust levels above those specified in the OH&S legislation.
Procedures	1. Minimise the area of disturbance. 2. Maintain dust suppression and dust extraction devices to all processing equipment and areas. 3. Maintain the sprinkler system including fine sprays on the conveyors of the processing plant and stockpile sprinklers. 4. Use water cart to suppress dust on roads, truck loading areas and non permanent stockpiles during dry conditions on days of operation. 5. 10 km/hr speed limit on internal roads to minimise dust generation. 6. All loaded vehicles entering and leaving the Site to be covered. 7. Regular maintenance of mobile and fixed equipment to minimise exhaust emissions.
Monitoring	As required by Conditions/Licence.
Reporting	As required by Conditions/Licence.
Responsible Person	1. Drivers responsible for adherence to speed limits, covering loads, regular vehicle maintenance. 2. Site supervisor responsible for ensuring processing plant operator(s) maintain dust suppression equipment on the plant. 3. Environmental Officer or person(s) authorised by Environmental Officer responsible for dust and air quality monitoring and reporting, implementation of dust suppression controls.
Information/References	Insert relevant EMPs and Policies.

TITLE	EMP 5 - WASTE MANAGEMENT PLAN
Consent/Licence Ref.	Insert relevant Conditions of Consent. Insert relevant POEO Licence Conditions.
Objectives	To minimise waste generated, maximise reuse and recycling, and ensure wastes are managed effectively to minimise impact on the environment.
Procedures	1. Maintain separate receptacles for recyclables to be taken off site for recycling. 2. Non-recyclable waste to be disposed of at registered landfill. 3. No putrescible material to be disposed of on site. 4. Encouragement of employees to adopt waste-reducing practices.
Monitoring	Monthly inspection of on-site sorting and storage of recyclables.
Reporting	As required by Conditions/Licence.
Responsible Person	All staff are responsible for correct management and disposal of waste. Environmental Officer to educate new staff of waste minimisation procedures.
Information/References	Insert relevant EMPs and Policies.

TITLE	EMP 6 - STORMWATER MANAGEMENT PLAN
Consent/Licence Ref.	Insert relevant Conditions of Consent. Insert relevant POEO Licence Conditions.
Objectives	To ensure discharge of stormwater from the Site is clear of sediment, downstream ecosystems are protected, and on-site re-use of water is maximised.
Procedures	1. Install and maintain water management structures as per EIS **Appendix 5** to contain and treat all rainfall and runoff. 2. Erosion and sediment control works to be implemented in accordance with EMP 2. 3. Minimise the area of disturbance. 4. Maintain sediment basins and water storage devices on site to store stormwater collected on the site for re-use in dust mitigation.
Monitoring	As required by Conditions/Licence.
Reporting	As required by Conditions/Licence.
Responsible Person	Environmental Officer or person(s) authorised by Environmental Officer.
Information/References	Insert relevant EMPs and Policies.

TITLE	EMP 7 - TRAFFIC MANAGEMENT PLAN
Consent/Licence Ref.	Insert relevant Conditions of Consent. Insert relevant POEO Licence Conditions.
Objectives	To minimise the impact of trucks on the local road network and local residents, and to comply with approved access and vehicle movements.
Procedures	1. All new truck drivers to be provided with *Site Induction for Drivers* form at the site entrance. 2. Drivers provided with Site Traffic Management Policy. 3. All loads must be fully covered prior to leaving the Site. 4. 10 kph speed limit on internal road. 5. All vehicles are to enter and leave the Site in a forward direction.
Monitoring	1. All loads to be inspected at site entrance to make sure they are covered. 2. Complaints register to be used to record traffic management complaints.
Reporting	As required by Conditions/Licence.
Responsible Person	1. Environmental Officer responsible for weekly inspections of site entrance for waste accumulation, monthly inspections of road pavements for damage condition. 2. Truck drivers responsible to comply with permitted hours of operation.
Information/References	Insert relevant EMPs and Policies.

TITLE	EMP 8 - COMPLAINTS MANAGEMENT
Consent/Licence Ref.	Insert relevant Conditions of Consent. Insert relevant POEO Licence Conditions.
Objectives	To ensure any site problems brought to the attention of Camolaw Pty Ltd by the local community and/or relevant authorities are documented and acted upon to avoid re-occurrence.
Procedures	1. Complaints telephone number signposted at front gate. Telephone number, along with postal and email address for complaints advertised on website. 2. All complaints/concerns raised by local community/relevant authorities to be recorded on *Complaints Register* by Environmental Officer. *Complaints register* to be retained on site. 3. All complaints to be bought to the attention of the Environmental Officer immediately. 4. Environmental Officer to identify and initiate appropriate action in response to complaint and follow-up contact with complainant. 5. Any complaints received to be reviewed to ascertain if site management requires amendment.
Monitoring	1. All complaints to be recorded in *Complaints Register*. 2. *Complaints Register* to be checked monthly.
Reporting	Summary of complaints to the EPA as part of Annual Return for Licence.
Responsible Person	1. All persons who receive telephone complaints are responsible for completing the *Complaints Register* and notifying the Environmental Officer within 24 hours. 2. Environmental Officer responsible for initiating follow-up action and contact with complainant.
Information/References	Insert relevant EMPs and Policies.

TITLE	EMP 9 - HAZARD REDUCTION
Consent/Licence Ref.	Insert relevant Conditions of Consent. Insert relevant POEO Licence Conditions.
Objectives	To ensure any potential hazards are mitigated.
Procedures	1. Spill kits in the workshop, processing buildings and adjacent to the diesel fuel tank will be installed. 2. Staff will be trained in spill cleanup procedures and use of the spill kits at the Site. 3. A dry powder fire extinguisher will be installed in the workshop and adjacent to the diesel fuel tank. 4. Staff will be trained in the use of first attack fire fighting. 5. A procedure for the refuelling of mobile plant will be developed and implemented.
Monitoring	1. All incidents will be recorded detailing measures taken to mitigate impact. 2. Spill kits and firefighting equipment to be checked monthly.
Reporting	Summary of incidents to the EPA as part of Annual Return for Licence.
Responsible Person	1. Environmental Officer responsible for initiating follow-up action and monitoring of equipment.
Information/References	Insert relevant EMPs and Policies.

TITLE	EMP 10 - REMEDIAL ACTION PLAN
Consent/Licence Ref.	Insert relevant Conditions of Consent. Insert relevant POEO Licence Conditions.
Objectives	To ensure any site contamination is remediated. To guide remediation of the Site, by providing detailed procedures which comply with relevant guidelines, yet prevent adverse effects on human and environmental receptors.
Procedures	1. Meeting the conditions of the planning consent and to render the Site suitable for the proposed land use(s). 2. Demonstrating that the proposed remediation strategy for the Site is environmentally justifiable practical and technically feasible. 3. Adopting clean-up criteria appropriate for the future use of the Site to mitigate possible impacts to human health and the environment. 4. Consideration of the principles of ecologically sustainable development in line with Section 9 of the *Contaminated Land Management Act 1997*. 5. Minimising waste, as per the *Waste Avoidance and Resource Recovery Act 2001*. 6. Remediate all contamination at the Site so there are no unacceptable risks to on-site and off-site receptors. 7. Demonstrating that the plans for site management of remediation work consider work health and safety, environmental management, and site contingencies.
Monitoring	1. All fieldwork, chemical analyses, discussions, conclusions and recommendations will be documented in a final validation report for the Site. 2. The validation report will be prepared in accordance with requirements of the OEH Guidelines for Consultants Reporting on Contaminated Sites and EPA Guidelines for the NSW Site Auditor Scheme and will confirm that the Site has been remediated to a suitable standard for the proposed development.
Reporting	The Site Validation Report will be submitted for Council and/or Site Auditor review at the completion of the remediation works program.
Responsible Person	1. Environmental Officer and Site Auditor.
Information/References	Insert relevant EMPs and Policies.

16.4 Monitoring and Reporting

During both the construction and operational stages of the development, environmental reporting is essential to ensure that the facility operates within the parameters set down in the consent for the development and the relevant legislation and licences which guide the operation of the facility.

Reporting will include details of:

- The parties who are responsible for the on-site Management Plan at the Site.
- The methods of communication with regard to matters contained in the EMP.
- Contact details of those responsible for the operation of the EMP.
- Compliance reports.
- Remedial action taken as a result of the reporting on an incident.
- Details of auditing carried out in compliance with consent and licence conditions.
- Details of any monitoring such as air quality, acoustic monitoring and water quality monitoring.

Table 16-1: Table of Commitments

Management Measure	Objectives	Proposed Actions
Induction and Training	• To ensure all persons working on the site are aware of: - their environmental obligations - site environmental issues and control measures - their roles and responsibilities.	1. Environmental induction for all employees and contractors before starting work. Induction to cover the following issues: (i) requirements of the EMP; (ii) specific environmental issues on the Site and control measures; (iii) roles and responsibilities for environmental management, and (iv) environmental incident procedures. 2. Retraining sessions within one month of changes to relevant sections of the EMP. 3. Retraining sessions within one month to persons identified by *Complaints Register* as not conforming to procedures. 4. All truck drivers entering the site for the first time to be provided with the *Site Induction for Drivers* form.
Erosion and Sediment Control	• To minimise and manage erosion and sedimentation on the site and ensure that sediment laden runoff is not discharged from the site.	1. The Site is graded to direct all surface runoff to site basins prior to reuse or discharge from the Site to meet water quality objectives. The driveway and the entry section of the car park are excluded from capture. 2. Sedimentation basins are located in the north and south of the Site. Both basins are below ground concrete pits.

		3. A floating pump will be located in each basin for extraction of clean water to on-site tanks for reuse in dust suppression and sand washing. 4. Detailed design of the proposed basins is to be undertaken in accordance with Landcom (2004) during the construction certificate stage. 5. Incoming site runoff is directed firstly to a sedimentation pit, capturing coarse sediments. Water is pumped from this pit to holding tanks for reuse on-site. 6. Flows unable to be pumped to on-site tanks due to holding tank capacity being reached or incoming flows exceeding basin storage volume are directed to an overflow pit from which a pipe flows to Bow Bowing creek. 7. Outlet pipes from the two basins will discharge to Bow Bowing Creek via existing headwalls. In the northern basin, pit/pipes have been sized to carry all storms up to and including the 100 year ARI storm. In the southern basin, pit/pipes have been sized for the 10 year ARI storm. Flows exceeding the pipe capacity will be directed to Bow Bowing Creek via the emergency overflow weir. The emergency overflow weir is designed to convey the 100 year ARI storm. Preliminary stormwater outlet designs are provided in the Martens Report. 8. Sediment and erosion control measures are to be maintained in good working order, and be repaired or replaced throughout the entire duration of the works.

		9. Sediment and erosion control measures are to be installed, inspected and approved prior to commencement of excavation works. 10. Daily inspection of stockpiles and bunds will be undertaken with issues noted and remedial actions undertaken as soon as feasible where any such issues arise. 11. Entrance street sweeping will be undertaken as required during and after excavation and construction until the Site is fully established. 12. The contractor will maintain dust control until final completion of works. The controls will be as per the Air Quality Report (**Appendix 7**). 13. During windy weather, large, disturbed, unprotected areas will be kept moist (not wet) by sprinkling with water to keep dust under control. 14. Erosion and sediment control measures are not to be removed until all site disturbance works are completed and the Site is rehabilitated.
Noise Management	• To ensure that construction and operation noise complies with EPA regulations. • To minimise impact of noise to surrounding properties.	1. Standard construction work hours will be as follows: • Monday to Friday 7.00 am to 6.00 pm. • Saturday 8.00 am to 1.00 pm.

	• To ensure employees are not subject to noise levels above those specified in the OH&S legislation.	• No work on Sundays or public holiday. 2. Ensure mobile plant used is fitted with residential grade silencers. 3. Plant based at the site must incorporate "quacker" style reversing alarms.
Air Quality Management	• To minimise dust generation and air pollution to prevent impact on surrounding development. • To ensure employees are not subjected to dust levels above those specified in the OH&S legislation.	1. Minimise the area of disturbance. 2. Maintain dust suppression and dust extraction devices to all processing equipment and areas. 3. Maintain the sprinkler system including fine sprays on the conveyors of the processing plant and stockpile sprinklers. 4. Use water cart to suppress dust on roads, truck loading areas and non permanent stockpiles during dry conditions on days of operation. 5. 10 km/hr speed limit on internal roads to minimise dust generation. 6. All loaded vehicles entering and leaving the Site to be covered. 7. Regular maintenance of mobile and fixed equipment to minimise exhaust emissions. Mitigation options to reduce energy consumption and greenhouse gas emissions include:

		1. Avoid prolonged idling of equipment: Develop a policy about idling times and monitor unnecessary operation. 2. Throttle down and switch off equipment when not in use. 3. Fill fuel tanks to 95% of capacity to allow for expansion and reduce spillage. 4. Perform regular inspection and maintenance. 5. Log fuel use by vehicle and machinery to help identify fuel leaks and poorly performing vehicles. 6. Consider the use of biofuels (Biodiesel or ethanol). 7. Using vehicles with greenhouse gas emissions ratings of a minimum of 7.5 for passenger vehicles and 6 for light commercial vehicles, as described in the Green Vehicle Guide (www.greenvehicleguide.gov.au).
Waste Management	• To minimise waste generated, maximise reuse and recycling, and ensure wastes are managed effectively to minimise impact on the environment. • To encourage the minimisation of waste production and maximisation of resource recovery. • To identify procedures for waste management.	1. Maintain separate receptacles for recyclables to be taken off site for recycling. 2. Non-recyclable waste to be disposed of at registered landfill. 3. No putrescible material to be disposed of on site. 4. Encouragement of employees to adopt waste-reducing practices.

		5. Paper recycling trays provided in office areas for scrap paper collection and recycling. 6. Printer toners/ink cartridges collected in allocated bins for appropriate contractor recycling. 7. Development of purchasing policy to include purchase of recycled products. 8. Providing recycling collections within each of the offices (e.g. plastics, cans and glass and also paper and cardboard if not collected separately). 9. The office and amenities will have its own waste and recycling storage area where the recycling and garbage bins will be stored prior to collection. 10. Green waste will be mulched and re-used in landscaping on-site or taken off-site for landscape works. 11. Steel will be recycled off-site. 12. Timber will be recycled off-site. 13. Waste oil will be recycled or disposed of in an appropriate manner. 14. All glass which can be economically recycled will be. 15. Container and paper/cardboard recycling will be provided on-site for employee use or these items will be sorted recycling at an appropriately licensed facility.

		16. All garbage will be disposed of via a Council approved system. 17. All contaminated and hazardous wastes (i.e. fluorescent tubing, batteries, e-wastes) will be recycled at an appropriately licensed facility. 18. E-waste (electronic waste such as computers, mobile phones, printer toners and ink cartridges) and batteries containing heavy metal contaminants will be recycled at an appropriately licensed recycling facility. 19. Liquid, semi-liquids or moist substances will not be placed in waste containers, unless securely wrapped or contained to prevent the substance from leaking. 20. Any liquid wastes or dangerous goods wastes should be disposed of by a suitably qualified contractor to an appropriately licensed disposal facility. 21. No liquid wastes or wash down waters should be disposed of via the stormwater drainage system.
Stormwater Management	• Develop a stormwater management system to prevent potential off-site water quality and quantity impacts. • Develop a stormwater reuse system. • Demonstrate compliance with relevant Water Sharing Plans (WSP).	1. Install and maintain water management structures as per EIS **Appendix 5** to contain and treat all rainfall and runoff. 2. Erosion and sediment control works to be implemented in accordance with EMP 2. 3. Minimise the area of disturbance. 4. Maintain sediment basins and water storage devices on

	• Provide an impact assessment of the proposed development on the adjacent Bow Bowing Creek environment. • Provide an assessment of predicted wastewater loads. • Assess groundwater impacts. • To ensure discharge of stormwater from the Site is clear of sediment, downstream ecosystems are protected, and on-site re-use of water is maximised.	site to store stormwater collected on the site for re-use in dust mitigation. 5. Incoming site runoff is directed firstly to a sedimentation pit, capturing coarse sediments. Water is pumped from this pit to holding tanks for reuse on-site. 6. Flows unable to be pumped to on-site tanks due to holding tank capacity being reached or incoming flows exceeding basin storage volume are directed to an overflow pit from which a pipe flows to Bow Bowing creek. 7. Outlet pipes from the two basins will discharge to Bow Bowing Creek via existing headwalls. In the northern basin, pit/pipes have been sized to carry all storms up to and including the 100 year ARI storm. In the southern basin, pit/pipes have been sized for the 10 year ARI storm. Flows exceeding the pipe capacity will be directed to Bow Bowing Creek via the emergency overflow weir.
Traffic Management	• To minimise the impact of trucks on the local road network and local residents. • To comply with approved access and vehicle movements.	1. All new truck drivers to be provided with *Site Induction for Drivers* form at the site entrance. 2. Drivers provided with Site Traffic Management Policy. 3. All loads must be fully covered prior to leaving the Site. 4. 10 kph speed limit on internal road. 5. All vehicles are to enter and leave the Site in a forward direction.

Hazard Reduction	• To ensure any potential hazards are mitigated.	1. Spill kits in the workshop, processing buildings and adjacent to the diesel fuel tank will be installed. 2. Staff will be trained in spill cleanup procedures and use of the spill kits. 3. A dry powder fire extinguisher will be installed in the workshop and adjacent to the diesel fuel tank. 4. Staff will be trained in the use of first attack fire fighting. 5. A procedure for the refuelling of mobile plant will be developed and implemented.
Remedial Action Plan	• To ensure any site contamination is remediated. • To guide remediation of the Site, by providing detailed procedures which comply with relevant guidelines, yet prevent adverse effects on human and environmental receptors.	1. Meeting the conditions of the planning consent and to render the Site suitable for the proposed land use(s). 2. Demonstrating that the proposed remediation strategy for the Site is environmentally justifiable practical and technically feasible. 3. Adopting clean-up criteria appropriate for the future use of the Site to mitigate possible impacts to human health and the environment. 4. Consideration of the principles of ecologically sustainable development in line with Section 9 of the *Contaminated Land Management Act 1997*. 5. Minimising waste, as per the *Waste Avoidance and Resource Recovery Act 2001*.

		6. Remediate all contamination at the Site so there are no unacceptable risks to on-site and off-site receptors. 7. Demonstrating that the plans for site management of remediation work consider work health and safety, environmental management, and site contingencies.
Complaints Management	• To ensure any site problems brought to the attention of Camolaw Pty Ltd by the local community and/or relevant authorities are documented and acted upon to avoid re-occurrence.	1. Complaints telephone number signposted at front gate. Telephone number, along with postal and email address for complaints advertised on website. 2. All complaints/concerns raised by local community/relevant authorities to be recorded on *Complaints Register* by Environmental Officer. *Complaints register* to be retained on site. 3. All complaints to be bought to the attention of the Environmental Officer immediately. 4. Environmental Officer to identify and initiate appropriate action in response to complaint and follow-up contact with complainant. 5. Any complaints received to be reviewed to ascertain if site management requires amendment.

Part Seventeen

DEVELOPMENT JUSTIFICATION AND ALTERNATIVES

17.1 Development Need and Justification

The Secretary's Environmental Assessment Requirements includes a requirement for:

- *need for the proposed development.*
- *justification for the proposed development.*

The Metropolitan Plan for Sydney 2036 is an integrated, long–term planning framework which will manage Sydney's growth and strengthen its economic development to 2036.

It is estimated that 770,000 additional homes will be required in the Sydney basin by 2036. Many of those homes, together with associated infrastructure such as roads and public transport will be located in the South West Growth Centre as shown in **Figure 17-1**.

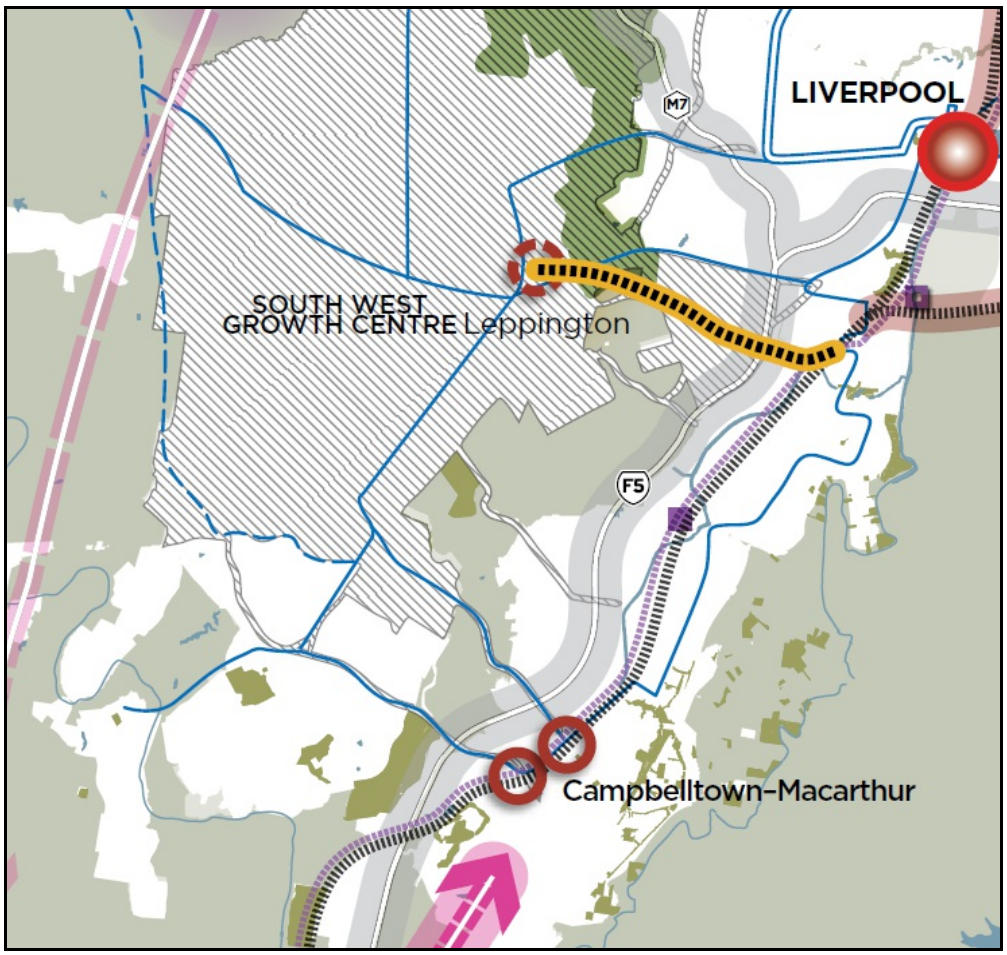


Figure 17-1: South West Growth Centre of the Metropolitan Plan for Sydney 2036

Concrete Recyclers has facilities at the following locations which cover the north east region of Sydney:

- Camellia
- Kurnell
- Wetherill Park (contracting to Fairfield Council)
- Terrey Hills (Contracting to Northern Beaches Council).

The proposal at Minto will cater for the growth area of the South West Growth Centre of Sydney.

There is currently no producer of recycled concrete and brick of any size in the South West Sydney Growth Centre. Currently, waste is transported from the region to recyclers at Eastern Creek and Wetherill Park.

Recycled products from the current Concrete Recyclers facility at Camellia are transported to the South West Growth Centre down the M7 to the growth areas in Camden, Narellan and Oran Park. There will be reduced truck movements by having a facility located at the Site in Minto.

The Minto site will also be used to wash and recycle excavation sand which will then be supplied to subdivisions and building sites in the region. Currently, washed sand for these projects is being transported from Newcastle.

As detailed in **Part 2** of this Environmental Impact Statement, the NSW government and the NSW Environment Protection Authority has released the *NSW Waste Avoidance and Resource Recovery Strategy 2014-21* which states, among other things:

> *Effective waste management is a fundamental responsibility for the NSW community as well as the global community. Without it, we risk compromising our environment, our health and our economy.*
>
> *The NSW Waste Avoidance and Resource Recovery (WARR) Strategy 2014–21 is a key component of the Government's vision for the environmental, social and economic future of the state that will be supported financially by the Waste Less, Recycle More initiative.*
>
> *The primary goal of this strategy is to enable all of the NSW community to improve environment and community well-being by reducing the environmental impact of waste and using resources more efficiently.*
>
> *Using resources efficiently and keeping materials circulating in the productive economy can also help to create jobs and grow the NSW economy.*
>
> *WARR Strategy 2014–21 objectives and targets*
>
> ***Avoid and reduce waste generation***
>
> - *By 2021-22, reduce the rate of waste generation per capita.*
>
> ***Increase recycling***
>
> - *By 2021-22, increase recycling rates for:*

- *municipal solid waste from 52% (in 2010-11) to 70%*
- *commercial and industrial waste from 57% (in 2010-11) to 70%*
- *construction and demolition waste from 75% (in 2010-11) to 80%.*

Divert more waste from landfill

- *By 2021-22, increase the waste diverted from landfill from 63% (in 2010-11) to 75%.*

Manage problem wastes better

- *By 2021-22, establish or upgrade 86 drop-off facilities or services for managing household problem wastes statewide.*

Reduce litter

- *By 2016-17, reduce the number of litter items by 40% compared with 2011-12 levels and then continue to reduce litter items to 2021-22.*

Reduce illegal dumping

- *From 2013-14, implement the NSW Illegal Dumping Strategy 2014-16 to reduce the incidence of illegal dumping statewide.*

The objectives of the proposal are:

(a) To establish a commercially viable Resource Recovery Facility which is capable of recovering waste from the waste stream for reuse.

(b) To assist the NSW State government in achieving its objectives for the recovery and recycling of waste as detailed in the *NSW Waste Avoidance and Resource Recovery Strategy 2014-2021*.

(c) To establish an environmentally responsible and sustainable industry which would create employment.

The proposed development would assist in achieving the above targets of the State government through the removal of construction and building demolition waste from the waste stream which might otherwise have been diverted to landfill.

17.2 The Principles of Ecologically Sustainable Development

Schedule 2 of the *Environmental Planning and Assessment Regulation 2000* provides the parameters for an Environmental Impact Statement with regard to the principles of ecologically sustainable development, being:

(1) The reasons justifying the carrying out of the development or activity in the manner

proposed, having regard to biophysical, economic and social considerations, including the following principles of ecologically sustainable development:

*(a) the **precautionary principle**, namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.*

In the application of the precautionary principle, public and private decisions should be guided by:

(I) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and

(ii) an assessment of the risk-weighted consequences of various options,

*(b) **inter-generational equity**, namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations,*

*(c) **conservation of biological diversity and ecological integrity**, namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration,*

*(d) **improved valuation, pricing and incentive mechanisms**, namely, that environmental factors should be included in the valuation of assets and services, such as:*

(I) polluter pays, that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,

(ii) the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,

(iii) environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.

17.2.1 The Precautionary Principle

This Environmental Impact Statement has assessed the possible alternatives to the proposed development in terms of environmental risk. Investigations have been undertaken to identify risk associated with the proposed development in terms of hazardous impacts, air quality, traffic, acoustic amenity and visual amenity.

None of the potential risks identified during the assessment of the proposed development would pose a threat of serious irreversible environmental damage. Where potential impacts have been identified, mitigation measures have been put into place which would mitigate those potential impacts.

17.2.2 Inter-generational Equity

The principle of inter-generational equity requires that the present generation ensures that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations.

The proposed development is for the establishment of a Resource Recovery Facility on the Site for the collection and recovery of construction and building demolition waste which will be reused and recycled.

The proposed development would divert construction and building demolition waste from the waste stream which might otherwise have been directed to landfill, thus minimising the environmental impacts to existing landfill operations, assisting in extending the lifespan of such landfill operations, and, hence, assisting in stalling the need for the creation of new landfill sites.

17.2.3 Conservation of Biological Diversity and Ecological Integrity

There would be no impact to biological diversity or ecological integrity as a result of the proposed development.

17.2.4 Improved Valuation, Pricing and Incentive Mechanisms

The proposed development is one where waste from construction and building demolition in the Sydney area would be received as an incentive to recycle waste rather than dispose of that waste to landfill. The money saved by industry and the State government in waste disposal costs is such that there is an economic incentive to recycle waste.

The proposed development would provide:

- Increased life to existing landfill operations by the removal of construction and building demolition waste from the waste stream.
- A means by which the waste reduction targets of the State government can be achieved.
- An avenue whereby what would otherwise be waste becomes a valuable resource and, hence, improves its value.

17.3 Development Alternatives

17.3.1 Location

Camolaw Pty Ltd has incurred considerable expense in the investigation of suitable sites in the Sydney metropolitan area for the proposed Resource Recovery Facility such that the environmental impact of such a facility would be minimal.

There is a shortage of land in the Sydney metropolitan area which is large enough to accommodate a Resource Recovery Facility such as that which is proposed while at the same time being sufficient distance from potentially affected land uses to ensure that such a facility operates in harmony with other land uses.

Notwithstanding a continued review of the available industrial land, it has been concluded that the most cost effective and environmentally acceptable location is the subject site.

17.3.2 Production Method

The proposed means by which waste from construction and demolition waste would be received, processed and recycled to the market is state of the art practice.

There are no practical cost effective alternatives to those proposed as part of the proposed development.

17.3.3 Non Development

The proposed operation of the Resource Recovery Facility from the Site by Camolaw Pty Ltd is a business decision made to promote the most cost effective means by which its business can expand in the Sydney area. The non development option would not promote the efficient reuse of waste and would not assist the State government in its goal to reduce the waste stream to landfill.

No significant environmental benefit would be gained by non development.

Part Eighteen

CONCLUSIONS

18.1 Introduction

Consultation with the Secretary of the then Department of Planning and Environment has resulted in a number of Key Issues being identified for assessment as part of the preparation of this Environmental Impact Statement.

In accordance with the requirements of the Secretary, consideration has been given to the likely impacts to the environment which might potentially result from the use of the Site as a Resource Recovery Facility.

Key issues which have been identified are:

- the potential for the proposed development to impact on the acoustic environment of the Site and its surroundings;
- the potential for activity associated with the proposed development to affect air quality in the environs of the Site;
- the potential for traffic generated by the proposed development to impact on the local road network;
- the potential for visual impact to the locality associated with the buildings and other structures, and
- the potential for site contamination to impact on the health of both the people accessing the proposed development and the environment of the locality.

18.2 Acoustic Impact

There is potential for the activities associated with the proposed development to impact the existing acoustic environment of both the Site and its environs.

A comprehensive acoustic impact assessment has been undertaken.

Operational noise impacts associated with the use of the Minto site have been assessed in accordance with criteria recommended for operational noise and for traffic noise.

The proposed Resource Recovery Facility has been assessed based on the relevant guidelines from the NSW Environment Protection Authority.

The predicted operational noise levels indicate noise from the proposed facility will comply with the L_{Aeq}

and L_{Amax} criteria between 6:00am and 6:00pm under neutral weather conditions at all considered receivers.

The predicted noise levels from the construction of the facility have been assessed against the NSW Interim Construction Noise Guidelines. The predicted noise levels indicate that the construction works will readily comply with the relevant criteria.

Trucks from the proposed facility would access the major arterial road network via Airds Road, Ben Lomond Road and Rose Payten Drive. None of these sub-arterial roads have residential receivers. No traffic noise impact is expected.

18.3 Air Quality

There is potential for the proposed development to impact the existing air quality in the environs of the Site.

Potential dust impacts associated with the day-to-day operational activities for the proposal have been assessed in general accordance with the Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales.

Quantitative assessments of potential dust impacts from the operation of the proposal have been conducted, based on TAPM meteorological simulations and the AERMOD dispersion modelling system.

The deployment of appropriate dust mitigation and operational measures as outlined in the Wilkinson Murray Report (**Appendix 7**) will minimise the potential occurrence of excessive dust emissions from the proposal and ensure that air quality impacts are lower than those predicted. The recommended mitigation measure are:

- Level 2 (>2 l/m²/hr) water spray or chemical suppressant on unsealed haul roads – 84% reduction.
- Watering stockpile/exposed areas – 50% reduction.
- Minimisation of wind erosion due to wind speed reduction provided by the existing infrastructure surrounding the site – 30% reduction (control factor for "wind breaks").
- Traffic speed restrictions of 10 km/hr for all on-site vehicles.

The results of the dispersion modelling indicate that dust and particulate matter concentrations due to the operation of the proposal can be adequately managed on site to mitigate impacts.

18.4 Traffic Impact

The proposed development is supportable on traffic grounds in terms of traffic flow efficiency, road safety and local amenity considerations.

The on-site parking supply, calculated on a merits-based approach, results in a requirement of 16 to 17 car parking spaces which will be adequate to serve the proposed staff and expected visitor numbers.

The proposed layout shows a total of 18 car parking spaces (including 1 disabled space) complying with the above recommendations.

All traffic will ingress and egress via one existing entry / exit driveway from Montore Road. The car parking design complies with the relevant Australian Standards, with the clockwise internal circulation the most practicable and safest operation.

The proposed development will operate with a capacity of 1,600t per day, generating a total of 342 vehicle trips during the day which includes a morning peak hour generation of 44 vehicle trips, with 32 vehicle trips in the afternoon peak hour. Analysis shows the surrounding road network can adequately cater for the additional traffic generated.

The haulage routes will predominantly favour the approaches from Ben Lomond Road to the north and Rose Payten Drive to the south, both of which are approved B-Double routes.

To reduce impacts on local residents, drivers of laden heavy vehicles will be required under an Operational Plan of Management and Driver Code of Conduct to follow the routes outlined in Annexure I of the McLaren Report and to avoid Raby Road between Campbelltown Road and Eagle Vale Drive.

18.5 Visual Impact

A development such as that which is proposed has potential to impact on the visual environment in that it would comprise of processing machinery and there would be stockpiles of processed material on the Site.

The visual assessment has considered the range of potential visual impacts which could ensue as a result of the establishment of the proposal as well as the range of potential public and private domain locations from which it may potentially be visible.

The catchment from where the Site can be seen is limited due largely to the topography of the Site and its surrounding area. The activity on the Site is not visible from the residential development to the west of Campbelltown Road. It is, however, possible to obtain limited views to the Site from the industrial development in the locality. Any development on the Site as proposed would be seen as part of the industrial vista provided by the varied industrial development in the Minto Industrial Area.

All machinery associated with the proposed development is to be located within purpose built buildings and the stockpiles of unprocessed and processed materials would be screened from the majority of the adjoining industrial development through side boundary walls and landscaping.

In light of the above, it is concluded that there would be no visual impact associated with the proposed development.

18.6 Site Contamination

Soil samples were obtained from 33 sampling points on the Site which meets the minimum sampling density recommended by the EPA. The sampling locations were placed in accessible areas of the Site. Ten (10) additional samples were collected from the two (2) stockpiles on the Site. Selected samples were analysed for a range of Contaminants of Potential Concern (**CoPC**).

The results of the testing identified the following contamination issues.

Elevated Contaminants of CoPC above Human Health SAC

Fragments of asbestos cement were identified in the two (2) stockpiles and on the site surface. In addition to this, matted material containing asbestos was identified in shallow surface soils. Due to the discrete nature of asbestos containing materials (**ACM**), it is considered likely that more ACM will be exposed during works on the Site. The matted material could be crushed by hand pressure and was, therefore, considered friable.

Elevated Contaminants of CoPC above Ecological SAC

Concentrations of Benzo(a)Pyrene were encountered above the Ecological SAC adopted for the investigation. These contaminants can pose a risk to the environmental receptors.

Further site investigations were undertaken to:

- Delineate the contamination identified by previous site investigations, by means of additional intrusive sampling and laboratory analysis for relevant contaminants of concern.

- Make recommendations for the appropriate management of any contaminated soils.

The additional site investigation concluded the ACM at the Site posed a moderate to high risk to (future) human receptors. Remediation of the land was, therefore, necessary, in order for it to be suitable for the proposed (Resource Recovery Facility) development.

Remediation Works

The remedial tasks required are as follows:

- Excavation and off-site disposal of friable asbestos materials at locations TP14 (EIS, 2018) and TP123 (EI, 2020); and

- Excavation and off-site disposal of fill materials at locations NS1, NS2 and SS01 (EIS, 2018) and TP107, TP114, TP115, TP118, TP125 and TP306 (EI, 2020), followed by hand picking of asbestos fragments and processing of oversize materials (to remove bricks/concrete).

Validation Reporting

All fieldwork, chemical analyses, discussions, conclusions and recommendations will be documented in a final validation report for the Site. The validation report will be prepared in accordance with requirements of the OEH *Guidelines for Consultants Reporting on Contaminated Sites* and EPA *Guidelines for the NSW Site Auditor Scheme* and will confirm that the Site has been remediated to a suitable standard for the proposed development.

18.7 Conclusion

The proposed development is for a Resource Recovery Facility to be located in the Minto Industrial Estate.

The assessment undertaken of the impact the proposed development would have on the environment of the Site and its locality has been canvassed in the main body of the Environmental Impact Statement.

With implementation of the recommended attenuation measures discussed in this Environmental Impact Statement, there would be no impact to the environment of the Site which would be considered significant.

It is concluded that the proposed development is an acceptable land use for the Site.