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Addendum to the *Environmental Impact Statement* for a proposed Amendment to a Development Consent

Description: sect. 4.55(2) amendment to DA-263/2018 for *'…a Resource Recovery Facility for 95,000 tonnes per annum of construction and demolition waste including the installation of a weighbridge, hardstand, retaining walls and erection of a rural shed*."

Address: Lot 4 in DP 611519 (55) Martin Road Badgerys Creek NSW 2555.

Owner: Michael Antoun

Prepared for: AMJ Demolition and Excavations

Prepared by: Brent M Winning JP [B.Build (Hons.), GDURP, MAIB, RPIA, LREA]
Registered Planner, Building & Development Consultant

Reviewed by: Louise Popowitz [MUPE, BSc NatRes-NatMgt]
Consulting Planner

Report No: 18580 Rev.1

Date: 24 September 2019

Contents

1. BACKGROUND TO THE PROPOSED AMENDMENT APPLICATION

This Addendum to an Environmental Impact Statement ("EIS") has been prepared to accompany an application to modify Development Consent DA-263/2018 approved by the *Sydney South West Planning Panel* ("Planning Panel") with a Consent issued by Liverpool City Council ("Council") on 17/04/2019 for *'…a Resource Recovery Facility for 95,000 tonnes per annum of construction and demolition waste including the installation of a weighbridge, hardstand, retaining walls and erection of a rural shed.'*

The modification application is made pursuant to section 4.55(2) of the Environmental Planning and Assessment Act 1979.

This report should be read in conjunction with:

- *Environmental Impact Statement* prepared by *Benbow Environmental* dated 22/03/2018.
- *Minutes of Pre-Lodgement Meeting PL-59/2019* issued by Liverpool City Council – included at Annexure A of this Report.
- *Email from Bianca Thornton on behalf of the Department of Planning, Industry and Environment* dated 11/9/2019 – included at Annexure B of this report.
- *Email from Deanne Pitts on behalf of the NSW Environment Protection Authority* dated 11/9/2019 – included at Annexure C of this report.
- *Amended Architectural Plans and Visual Impact Assessment* Issue D prepared by *PTI Architecture* dated 23 September 2018 - included at Annexure D of this Report
- *Landscape plan updates* prepared by *Ecological Consultants Australia Pty Ltd* dated September 2019 – included at Annexure E of this Report
- *Civil and Stormwater Plans Issue B* prepared by *TOP Consulting* dated 6/9/2019 – included at Annexure F of this Report
- *Letter Report* prepared by *Transport & Urban Planning Pty Ltd #19115L1*, dated 29 August 2019 – included at Annexure G of this Report.

- *Noise Impact Assessment 191238_NIA_Rev3* dated 13 September 2018 prepared by *Benbow Environmental* – included at Annexure H of this Report.

- *Air Quality Statement 171127_AQIA_Rev 3* dated 13 September 2019 prepared by *Benbow Environmental* – included at Annexure I of this Report.

- *Letter Report – Revised Stormwater Management #2017-01* prepared by *Ultramark Pty Ltd* dated 24 September 2019 – included at Annexure J of this Report

2. THE PROPOSAL

The proposal is to modify Development Consent #DA-263/2018 to amend the site plans to facilitate a better traffic flow within the site for truck manoeuvring and other minor operational improvements, demolish the existing cottage and replace it with a new office building of similar size and footprint.

The proposal is supported by *Minutes of Pre-lodgement meeting (PL-59/2019)* held between the Applicant and Liverpool Council on 14 August 2019, amended expert reports and plans.

There is no change to the approved operational parameters of the facility in terms of operating hours, waste tonnages, truck types and movements, staffing numbers and carparking numbers.

3. SITE AND LOCATION DESCRIPTION

The subject land is located at Lot 4 in DP 611519 (55) Martin Road Badgerys Creek NSW 2555.

A detailed description of the site and its surrounds is contained in Section 2.0 of the *Environmental Impact Statement* prepared by *Benbow Environmental dated 22/03/2018*.

4. PROPOSED MODIFICATIONS

The applicant seeks to modify the following Conditions within Development Consent #DA-263/2018.

Approved Plans

1. *Development the subject of this determination notice must be carried out strictly in accordance with the following plans/reports marked, except where modified by the undermentioned conditions.*

Plan Name	Plan Number	Rev	Date	Prepared By
Location Plan	P513-PDA-01	A	05/11/2018	PTI Architecture
Overall Site Plan	P513-PDA-03	A	05/11/2018	PTI Architecture
Site Plan Part A	P513-A-PDA-04	D	05/11/2018	PTI Architecture
Site Plan Part B	P513-A-PDA-05	D	05/11/2018	PTI Architecture
Section	P513-PDA-06	D	05/11/2018	PTI Architecture
Shed Elevations	P513-PDA-07	C	13/08/2018	PTI Architecture
Sediment Control Plan	D1-17-040	A	16/01/2019	TOP Consulting Group
Stormwater Pit Collection	D2-17-040	A	16/01/2019	TOP Consulting Group
Stormwater Plan	D3-17-040	A	16/01/2019	TOP Consulting Group
Roof Stormwater Plan	D4-17-040	A	16/01/2019	TOP Consulting Group
Leachate Collection Plan	D5-17-040	A	16/01/2019	TOP Consulting Group
Concrete Layout Plan	S1-17-040	A	16/01/2019	TOP Consulting Group

Replace the approved plan set with the following amended plans:

Plan Name	Plan Number	Rev	Date	Prepared By
Location Plan	P513-DA-01	D	23/09/2019	PTI Architecture
Site Plan	P513-DA-03	J	23/09/2019	PTI Architecture
Detailed Shed Plan	P513-DA-04	E	23/09/2019	PTI Architecture
Detailed Site Plan (Part) A – Lawson Road West	P513-DA-05	N	23/09/2019	PTI Architecture
Detailed Site Plan (Part) B – Martin Road East	P513-DA-06	J	23/09/2019	PTI Architecture
Shed Amenities Floor Plans	P513-DA-07	B	23/09/2019	PTI Architecture
Processing Shed Elevations	P513-DA-08	E	23/09/2019	PTI Architecture
Site Plan	P513-DA-03	J	23/09/2019	PTI Architecture
Section thru Processing Shed	P513-DA-09	C	23/09/2019	PTI Architecture
Section thru Stockpile Bunker	P513-DA-10	G	23/09/2019	PTI Architecture
New Office Building Ground Floor Plan	P513-DA-11	C	23/09/2019	PTI Architecture
New Office Building Elevations East & West	P513-DA-12	C	23/09/2019	PTI Architecture

New Office Building Elevations North & South	P513-DA-13	C	23/09/2019	PTI Architecture
Truck Entry Driveway Ramp Sections	P513-DA-14	B	23/09/2019	PTI Architecture
Staff Carpark Driveway Ramp Sections	P513-DA-15	B	23/09/2019	PTI Architecture
Fence Elevations for Acoustic	P513-DA-16	B	23/09/2019	PTI Architecture
Fence Elevations for Acoustic	P513-DA-17	B	23/09/2019	PTI Architecture
Sediment Control Plan	D1-17-040	C	11/09/2019	TOP Consulting Group
Stormwater Pit Collection	D2-17-040	B	6/09/2019	TOP Consulting Group
Stormwater Plan	D3-17-040	B	6/09/2019	TOP Consulting Group
Roof Stormwater Plan	D4-17-040	B	6/09/2019	TOP Consulting Group
Leachate Collection Plan	D5-17-040	B	6/09/2019	TOP Consulting Group
Concrete Layout Plan	S1-17-040	B	6/09/2019	TOP Consulting Group

Comment: The plan amendments are intended solely to facilitate improvements in the operational site layout particularly in regard to internal truck movements, and to replace the existing dwelling, which was to have been converted to an office, with a new purpose-designed office building.

5. ASSESSMENT OF PROPOSED MODIFICATIONS

The purpose of this Application is to improve the operational function of the site.

A brief discussion of and justification for the proposed amendments is provided hereunder.

5.1 Site layout, internal truck movements and installation of a second weighbridge

The approved working slab/platform has been extended towards the northern and southern boundaries and the approved shed position moved away from the northern boundary towards the south to allow for a counter-clockwise truck movement down the northern side of the shed, around the western end and onto the working platform.

The potential impact of this modification upon the public is increased noise from truck movements, this is addressed by the installation of a new noise barrier at the slab edge level to ameliorate any additional truck noise, with the noise barrier extending to all three sides of the working platform (ie north, west and eastern elevations.

This noise issue has been assessed within the *Noise Impact Assessment Report* (attached at Annexure I) and is fully compliant with the relevant criteria.

The addition of a second weighbridge allows for more flexibility in truck movements in and out of the site without any consequent delay in waiting for access to a single weighbridge, as was the case under the approved design.

The outcome of these modifications is:

i. Trucks have an improved traffic flow within the site.

ii. Potential overflow 'stack parking' for trucks is now entirely within the site and does not impact upon Martin Road.

iii. Less conflict between truck movements and workers within the site ie OH&S for workers.

The amended truck movements and swept paths has been assessed within the *Traffic Impact Assessment Letter Report* (attached at Appendix H) and is compliant with the relevant criteria.

5.2 Increased shed height and width, addition of an awning

The amended shed has increased in height and width to allow trucks to fully enter the shed to unload, whereas on the approved plan the trucks could only back to the doors of the shed to unload.

A high-level awning has been added to the southern side of the shed to allow for weather protection.

The main potential impact of these modifications is one of visual presentation to neighbours, this is addressed in the amended *Visual Impact Assessment* (attached at Annexure E) and by providing additional boundary screen planting, with the result assessed as being of low visual impact.

The outcome of this modification is that there is a superior noise benefit as the trucks are now totally, rather than partially, enclosed within the building. This issue has been assessed within the *Noise Impact Assessment Report* (attached at Annexure I) and is fully compliant with the relevant criteria.

5.3 New office and carpark

The amended plan seeks to demolish the existing disused brick veneer cottage, which was approved to be converted to a site office and replace it with a new single storey-purpose-designed office building of similar size and footprint as that on the approved plan.

This modification is sought for reasons of construction cost and efficiency of layout only, there are not expected to be any potential negative impacts.

The staff and visitor car park entry/exit to Martin Road has been separated from the main truck entry and now serves only the staff carpark. This modification has been included at the specific request of Liverpool Council's traffic engineer and is considered to be a superior outcome than the approved plan in terms of safety and amenity, as the light vehicle movements are now separated from the heavy truck site access.

The amended carpark and entry have been assessed within the *Traffic Impact Assessment Letter Report* and are compliant with the relevant criteria.

5.4 Stormwater Management, OSD and Water Quality

The proposed modifications to the slightly enlarged impervious working platform/slab and reduced boundary setbacks have been assessed by the project stormwater engineer and have been found to be of minimal impact. This has been addressed within the *Letter*

Report – Revised Stormwater Management (attached at Annexure K) and are compliant with the relevant criteria.

The only change to the approved stormwater plan is to slightly re-position the OSD tank and water quality system, which is located under the working platform concrete slab. There is no change to the capacity of the OSD tank or the water quality installation.

5.4.1 Easements

The modification application also seeks to re-align the existing easements that traverse the lower (western) section of the site and were previously located under the concrete slab, to now run down each of the northern and southern boundaries directly to the Lawson Road boundary.

Note: this is deemed to be a 'housekeeping' amendment to avoid conflict between the current location of the easements within the site and the OSD tank position under the slab.

The proposed relocation of the easements:

(i) has no additional effects upon the flood modelling contained within the original EIS and the Consent;

(ii) does not alter the modelled upstream area to the north and south of the site, nor alter the volumes of surface water captured by the easements;

(iii) does not change the position of the easements on the adjoining land to the north and south and where they intersect with the boundaries of the subject site;

(iv) does not change the volumetric capacity of the easements within the subject site;

(v) provides an additional discharge point to the Lawson Road table drain at the boundary.

In the context of the minor re-alignment of easements that are entirely within the site, there is no requirement for additional flood studies or modelling.

5.5 Landscaping

The proposed modifications have also been addressed with an amended landscape plan (attached at Annexure F) which includes additional planting in native species to the western and eastern street frontages for enhanced visual amelioration.

The stormwater water drainage swale that runs down the length of the site in the side setback zones (ie along the northern and southern boundaries) is proposed to be planted with local ground cover species (eg typically lomandra longifolia or similar) in accordance with the recommendations of the stormwater/flood consultant to accommodate water flow and water quality.

The chain wire boundary fencing will be planted with a low native climber.

5.6 Approved Operation

Note that the proposed amendments are to the site layout and structures only; **there are no changes** to the approved waste operation in terms of:

- Staff numbers.
- Operating hours.
- Tonnages received or stored.
- Types of materials received and processed.
- Overall truck numbers and types of trucks.
- Any other matter contained in Consent #DA-263/2018 that is not specifically covered in this modification application.

5.7 Liverpool Development Control Plan 2008

5.8 Part 1 General Controls for all Development

The objectives of this DCP are:

a) To provide more detailed provisions for regulating the carrying out of development.

b) To protect and improve the natural environment in the City of Liverpool.

c) To protect and improve the amenity of the City of Liverpool.

d) To protect personal safety and to minimise the risk of damage to areas subject to environmental hazards, particularly flooding.

e) To promote a high standard of urban and environmental design.

f) To conserve, protect and enhance the environmental heritage of the City of Liverpool.

g) To encourage a diversity of housing to meet the needs of the residents of the City of Liverpool.

h) To facilitate development that is environmentally sustainable.

There are also additional specific objectives for each section of each part of the DCP.

Response: This section of DCP 2008 generally sets out matters of potential environmental impact that may result from development. The Resource Recovery Facility being the subject of this Amendment Application has been fully designed to address all relevant environmental impacts, been the subject of a rigorous assessment undertaken by Council and found to be satisfactory by the Planning Panel as set out in Development Consent DA-263/2018.

The proposed minor amendments are limited to the site plan, internal traffic movements and built structures and do not seek to alter the approved parameters of the waste business, they constitute improvements to the site functionality only and have minimal environmental impacts. These matters have been assessed within the amended sub-consultant reports and found to be consistent with the original environmental assessments for noise, traffic, air quality, landscape, stormwater and flood impacts.

Accordingly, the proposal is not considered to be in conflict with any of the Objectives of Part 1 of LDCP 2008.

A further assessment of the Objectives and Controls for development in Rural zones is provided hereunder.

5.9 Part 5 Development in Rural and E3 Zones

Setbacks

Objectives

a) To ensure appropriate development on site.

b) That setbacks help maintain the rural character.

Response: Whilst the current zoning for the land within *Liverpool LEP 2008* is *RU1 Primary Production* it is important to take note of the *proposed future land use* within the *Western Sydney Aerotropolis Structure Plan*[1], which is nominated as being for **'Employment Land'** within the 'Badgerys Creek' sector**.** Refer to Figure 1.

Thus, any variations sought by this application to vary specific DCP Controls for the 'Rural' zone should be properly considered and assessed against the future land use as the current land use is a short-term, interim condition.

In context of assessment against the Rural zone Objectives, a) 'appropriate land use' should clearly contemplate the future 'Employment' zoning, and b) 'rural character' is a short-term consideration.

[1] (https://www.planning.nsw.gov.au/~/media/Files/DPE/Plans-and-policies/western-sydney-aerotropolis-stage-1-plan-08-2018.ashx)

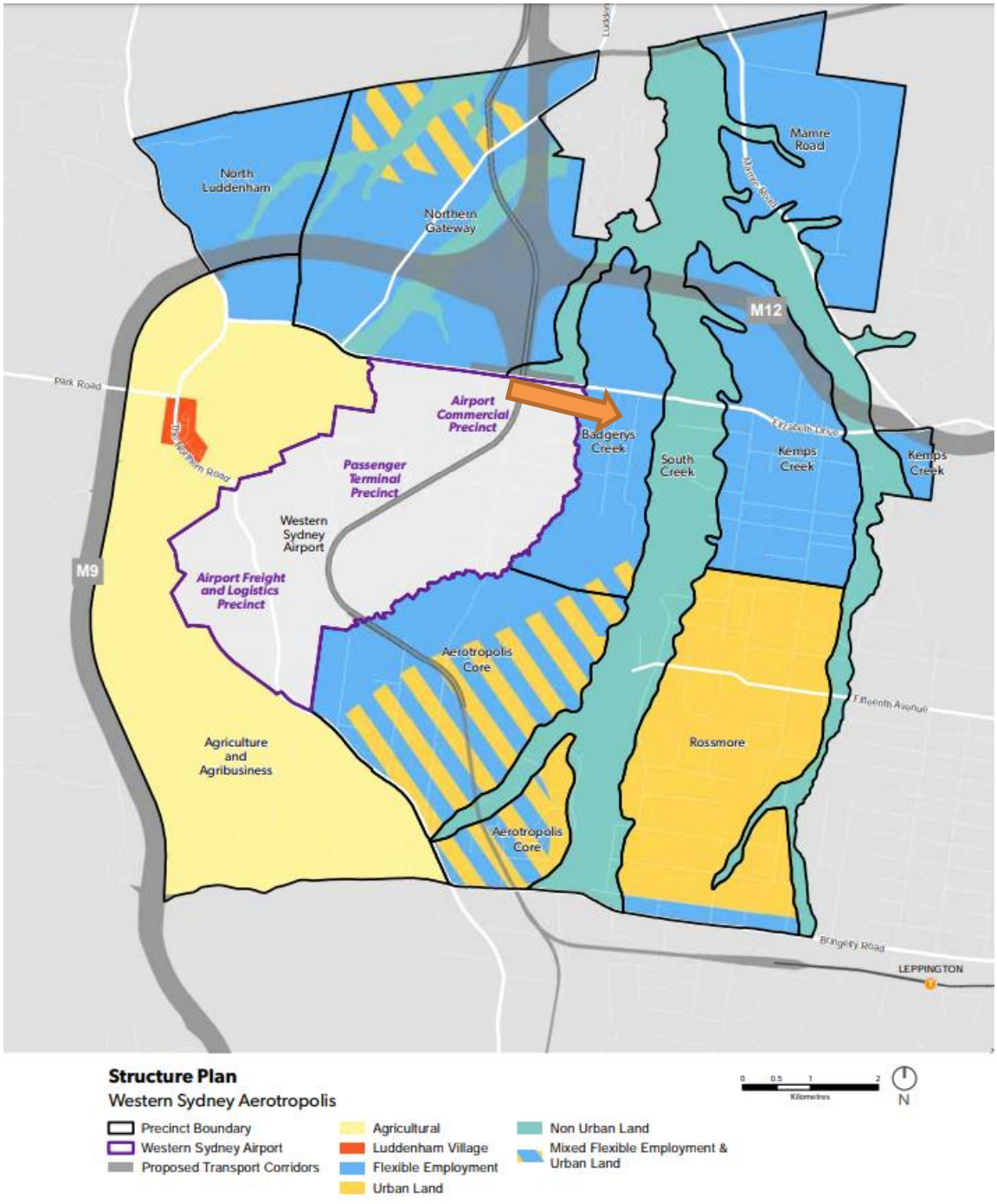


Figure 1 - extract from the Western Sydney Aerotropolis Structure Plan. Site location is arrowed.

Controls

Site Coverage Maximum site coverage: 10% except where otherwise specified for particular land uses.

Response: The proposed extra hardstand/concrete slab area increases the existing site coverage to a minor extent, however neither the approved nor the amended plan comply with the Site Coverage control.

There is minimal environmental impact from the proposed site coverage over the approved plan.

Setbacks

Setback from Street frontage

1. Dwellings shall be setback as set out in the following table:

Table 1 Front Setbacks

Setback	Front Setback
Land within the RU1, RU2, or RU4 zone	20m
Land with a Frontage to Greendale Road	50m
Land that is classified as part of the Growth Centres	15m
Land within the E3 zone	20m

2. Minimum setback to secondary frontage from a public street: 10m.
3. Variation of the setback requirement may be considered in areas within the South West Growth Centre, where planning for new residential release is sufficiently advanced.

Response: The front setback to Martin Road is unchanged. The new single storey office building is located in the same position as the existing single storey dwelling, which is to be demolished.

There is negligible environmental impact from the proposed new office building over the approved plan.

Setback from other boundaries

1. Minimum setback to side boundaries: 2m except where otherwise specified for particular land uses.
2. Minimum setback to rear boundaries: 10m except where otherwise specified for particular land uses.

Response: The rear setback to Lawson Road is unchanged.

The side boundary setbacks are to the concrete slab, not the structures that sit upon the working platform.

The northern boundary side setback is **2.5 m** to the slab with the shed set back to **11.035 m**, which represents an increased setback over the current approved shed position.

The southern boundary side setback is **2.005 m** to the slab.

The new shed position is an improved environmental outcome over the current approval due to the increased side setback.

Building Design, Style and Streetscape

Objectives

a) To protect the scenic, historic and cultural value of Liverpool's natural and built environment.

b) To protect significant views and vistas to and from public places.

c) To maintain the existing streetscape and rural aesthetic of the area.

d) To minimise the visual impact of any large development in rural zones.

e) To promote a high standard of urban design, particularly along Classified Roads.

Response: The proposal addresses the Objectives as follows:

a) The proposed amendments have no more effect upon the *"…scenic, historic and cultural value of Liverpool's natural and built environment…"* than does the currently approved development.

b) There are no significant view lines to or from the subject site.

c) The proposed amendments have no more effect upon the *"…existing streetscape and rural aesthetic…"* than does the currently approved development. Arguably the increased shed setback to the side boundary further reduces subjective bulk and scale than the current shed position. Again, the future 'Employment' land use and changing nature of the precinct should be taken into consideration.

d) This Objective is in the same terms as for pt. c). The visual impact of the shed is modulated by the additional and significant side setback, whilst the increased shed height is ameliorated by the site topography which falls away from the Martin Road, thus reducing subjective bulk and scale from the public viewpoint. This is illustrated by the 'Visual Impact Assessment' that accompanies the Application.

Additionally, the concept landscape plan proposes enhanced screening in the form of new native vegetation and plantings in the front and rear setback zones to Martin Road and Lawson Road respectively. Side boundary fencing is to be planted with native climbers to screen the slab soffit.

e) The site is not located adjoining a classified road; the purpose-built Resource Recovery Facility represents high quality 'best practice' design for this type of facility within an urban landscape.

The proposal is considered to be consistent with the Objectives of this section of Part 5 of LDCP 2008.

Height

Controls

Height in Rural Areas

Note: Height is generally not controlled by the *Liverpool LEP 2008* in rural zones. This is due to the varying and differing uses that can be found within rural zones, each with significant variations in height. Therefore the following restrictions generally apply.

Further Restrictions on Height:

All development must fit in with the surrounding areas, and conserve and protect the rural nature of the area. Therefore the above heights are a guide only, and a merit based assessment will occur for all development above 8.5m for a dwelling, and above 8.5m for a non-residential building.

Roof design

1. The roof pitch of a building is not to exceed 36 degrees.
2. Gabled and hipped rooflines are to be incorporated into the design of a building.

Response: As discussed above, the shed height is considered to be appropriate for the intended industrial (waste recovery) use and future 'Employment' land zoning, with the additional height ameliorated by the increased side setback and screen planting. The amended shed height is well justified by the improved operational outcome within the facility, and the improved noise outcome resulting from allowing the trucks to fully enter the shed to unload materials.

The new office building remains a single storey structure, consistent with the existing single storey dwelling now to be demolished.

Both structures have roofs <36 degrees.

Building Materials and Colours

Building Materials

1. Materials must complement the rural landscape. Examples include stained timbers, brickwork, mud bricks, metal roofs and similar materials sympathetic to the Australian rural heritage.
2. Buildings and structures must complement the rural landscape where possible. However Council will consider the use of the building when assessing building materials.

Colours

1. Natural earth colours and natural vegetation colours are to be emphasised on all buildings. (Examples include light ochres, silver greys, grey blues and olive greens.)
2. Highly reflective (shiny) colours are to be avoided for roofs and walls of buildings, including sheds.

Response: The shed walls, roof and noise barriers are to be of 'Pale Eucalypt' Colorbond non-reflective material.

The new office building will be of traditional masonry construction. Refer to the architectural plans for details.

Streetscape, Rural Landscape and Views

Streetscape

1. Natural vegetation should be retained in setback to the street.
2. Buildings shall directly address the street frontage.

Response: The existing remnant native vegetation to the Martin Road and Lawson Road setbacks is to be retained and enhanced through bushland regeneration and new plantings, as per the landscape plan.

The new office building addresses Martin Road.

Rural landscape

1. Except for driveways, no paved areas or "hard surfaces" are permitted in the front setback.
2. All development should attempt to maintain the existing natural environment.

Response: The front setback zone consists of driveways only, with the balance of this area to be soft landscaping treatment.

Views, Scenic landscape and built features

1. Buildings shall not be sited that obstruct views and vistas.
2. Any significant natural and built features should be maintained.

Response: There are no significant view lines to or from the subject site that are impacted by the proposal, indeed increasing the northern side setback for the shed allows for a potential view corridor to be maintained along this boundary between the subject site and any building that may be constructed upon the neighbouring site at some future time. This would not be as easily achieved with the current approved plan.

Landscaping

Landscaping for rural landscape

Landscaping for rural landscape is generally applied for dwellings, out buildings and other buildings. While dense planting in garden beds may form part of the landscape treatment the primary aim is to provide tree planting to enhance the rural landscape. In particular the landscaping shall involve the following:

1. The trees shall provide a canopy for the streetscape and rural landscape.
2. Shrubs may be used and preferably in mulched garden beds.

Landscaping for screening

Landscaping for screening is generally applied to uses such as Intensive Plant Agriculture, Intensive Livestock Agriculture, Extractive Industries, outside storage areas and large storage buildings. The aim is to minimise the view of such buildings and items. It will involve the provision of trees and shrubs in mulched garden beds. In particular the landscaping shall involve the following:

1. The trees shall provide a canopy for the streetscape and soften the appearance of the rural environment, without unduly concealing approved on site signage.
2. Mulched garden beds shall incorporate ground covers that will cover the ground area.
3. Large shrubs shall be used under the tree canopy to screen the building or item.
4. Shrubs shall only be planted in mulched garden beds.

Response: A detailed landscaping plan has been provided that addresses the relevant criteria and the specific design issues for the site and proposed facility.

5.10 Amenity and Environmental Impact

Objectives

a) To minimise the Environmental impact of such issues as pollution, noise, traffic, odour and ensure that the local amenity is not affected.

b) To restrict the size & intensity of some uses, where they may have an adverse effect on surrounding properties.

c) To ensure that any future aircraft noise will be of minimal disturbance to development within the vicinity of the airport site.

Response: The proposal addresses the clause Objectives as follows:

a) Environmental impacts have been fully considered within the amended sub-consultant reports that accompany the Application. The proposed amendments impose negligible environmental impacts over the current approved plans.

b) The '…size and intensity…' of the development is unchanged from that described in the Consent, the only changes are to the site layout, which impose minimal impacts. Again, the surrounding rural land-use is in a transition period to 'Employment', a use which is consistent with the approved development.

c) According to the *Noise Impact Assessment*, the site is located in a zone where the ANEF is between 30 and 35. The proposed development is not a noise sensitive development and would be best classed as "other industrial" under AS2021; acceptable in all ANEF zones. Furthermore, aircraft noise is not a relevant consideration to this modification application under cl.4.55(s2) as it has already been assessed as part of the original Development Application process and a Consent properly issued.

The proposal is considered to be consistent with the Objectives of this section of Part 5 of LDCP 2008.

5.11 Consultation

The Applicant has undertaken the following consultation in the preparation of the proposed amendment:

(i) **Liverpool City Council:** A pre-lodgement meeting was held with Council on 13 August 2019. Council raised no objection to the proposed amendments but asked that certain matters be attended to within the Application, including amended consultants' reports. The Minutes have been provided as Annexures to the Application.

(i) **NSW Department of Planning, Industry and Environment**: email sent to Bianca Thornton (Planning Officer, Industry Assessments) seeking clarification of any required amendments to the SEARs 1182. No objection was raised to the proposal by Ms Thornton and no further interaction is required. An email to this effect is attached an Annexure I.

(ii) **Environment Protection Authority:** A briefing meeting was held with Deanne Pitts (Senior Operations Officer, Waste Compliance) and Celeste Forestal (Senior Operations Officer) at the NSW EPA Goulburn Street office on 19 August 2019. No objections were raised to the proposal by either officer. An email to this effect is attached an Annexure J.

6. SECTION 4.15 EVALUATION ASSESSMENT

We have also considered the proposed amendments against s.4.15 of the EP&A Act 1979 (as amended), these being:

4.15 Evaluation

(1) Matters for consideration--general

In determining a development application, a consent authority is to take into consideration such of the following matters as are of relevance to the development the subject of the development application:

(a) the provisions of:

(i) any environmental planning instrument, and

(ii) any proposed instrument that is or has been the subject of public consultation under this Act and that has been notified to the consent authority (unless the Planning Secretary has notified the consent authority that the making of the proposed instrument has been deferred indefinitely or has not been approved), and

(iii) any development control plan, and

(iiia) any planning agreement that has been entered into under section 7.4, or any draft planning agreement that a developer has offered to enter into under section 7.4, and

(iv) the regulations (to the extent that they prescribe matters for the purposes of this paragraph),

that apply to the land to which the development application relates,

(b) the likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality,

(c) the suitability of the site for the development,

(d) any submissions made in accordance with this Act or the regulations,

(e) the public interest.

In this regard, we make the following observation.

The proposal has been assessed against the relevant planning instruments and is compliant with the prescriptive controls. The variation sought results in a development that is consistent with the relevant Objectives of the LEP/DCP and has negligible impact upon the natural and built environments. The subject property remains suitable for the development as modified.

The requested modification of the development consent would have minimal economic or social impact and would not be antipathetic to the public interest.

7. SECTION 4.55(2) ASSESSMENT

Section 4.55(2) of the Act empowers Council to modify a Development Consent if:

(a) it is satisfied that the development to which the consent as modified relates is substantially the same development as the development for which consent was originally granted and before that consent as originally granted was modified (if at all),

The development resulting from the proposed modification would be substantially the same as the development approved by *Sydney South West Planning Panel* on 17/04/2019. The proposed development would be of a consistent scale and for a resource recovery usage as that previously approved. The modified development would be substantially the same as the approved development both qualitatively and quantitatively. Section 4.55(2)(a) is therefore satisfied.

8. SUMMARY and RECOMMENDATION

The proposed amendments that are the subject of this sect.4.55(2) application represent an enhanced site layout for operational efficiencies, would not offend any development standard or the Objectives underlying *Liverpool Local Environment Plan 2008* and *Liverpool Development Control Plan 2008 and* can be well supported on merit grounds.

I recommend therefore that the sect.4.55(2) application be supported and that Conditions be modified as requested.

CLARON CONSULTING PTY LTD

Brent M Winning JP **[B.Build, MAIB, GDURP, RPIA, LREA]**
Registered Planner, Project Manager and Development Consultant

9. ANNEXURE A – Minutes of Pre-Lodgement Meeting

LIVERPOOL CITY COUNCIL

Our Ref: PL-59/2019
Contact: Customer Service
Ph: 1300 36 2170
Date: 10 September 2019

CLARON CONSULTING PTY LTD
PO BOX 542
LINDFIELD NSW 2070

Dear Sir/Madam,

Pre - Development Application Advice

Reference Number:	PL-59/2019
Proposed Development:	Proposed modifications under Section 4.55(2) of the Enviomental Planning and Assessment Act, seeking amendments to DA-263/2018, which approved a Resource Recovery Facility
Property Address:	55 Martin Road, Badgerys Creek Lot 4 DP 611519
Date of Meeting:	**13 August 2019**
Present at Meeting:	**Council Representatives:**

Name	Title
Adam Flynn	Senior Planner
Peter Oriehov	Planner
Victor Lim	Traffic
Juliana Naidovski	Environment & Health
Danka Radovic	Development Engineer

Applicant Representatives:

Name	Company
Brent Winning	Claron Consulting
Louise Popowitz	Claron Consulting
Peter Israel	PTI
Dino Di Pietrantonio	PTI
Rob Peterson	Ultramark
Michael Antoun	Owner

EXECUTIVE SUMMARY

Zoning:	RU1 – Primary Production under Liverpool Local Environmental Plan 2008
Permissible Development:	Development for the purpose of a resource recovery facility (RRF) is a prohibited development in the RU1 Primary Production zone pursuant to LLEP 2008 for which the site is zoned. However, a RRF is identified as permitted with consent pursuant to the State Environmental Planning Policy (Infrastructure) 2007 which permits waste or resource management facilities within a prescribed zone.

Relevant Environmental Planning Instruments & Codes	• State Environmental Planning Policy No. 33 – Hazardous and Offensive Development
	• State Environmental Planning Policy No. 55 – Remediation of Land
	• Sydney Regional Environmental Plan No. 20 – Hawkesbury-Nepean River (No 2 - 1997) (Deemed SEPP)
	• State Environmental Planning Policy (Sydney Region Growth Centres) 2006
	• State Environmental Planning Policy (Infrastructure) 2007
	• State Environmental Planning Policy (State and Regional Development) 2011
	• (Commonwealth) Environment Protection and Biodiversity Act 1999
	• Threatened Species Conservation Act 1995
	• Contaminated Land Management Act 1997
	• Protection of the Environment Operations Act 1997
	• Native Vegetation Act 2003
	• Biodiversity Conservation Act 2016
	• Liverpool Local Environmental Plan 2008
	• Liverpool Development Control Plan 2008
	  ○ Part 1: General Controls for All Development
	  ○ Part 5: Development in Rural and E3 Zones

Relevant external referrals:	• Environmental Protection Authority (EPA) • Natural Resource Access Regulator • Roads and Maritime Services • Endeavour Energy • Department of Infrastructure and Regional Development

Issue / Planning Control	Comments
Planning	EIS / SEARs Council would expect that a revised EIS or addendum to the EIS be submitted with the application, detailing how the modification continues to meet the previously issued SEARs. It is advised that the applicant consult with the Department of Planning and Environment as to whether revised SEARs would be required for this modification. *Please note that SEARs require further consultation with the Department 2 years after issue.* Designated Development The proposal is considered to be *designated development* as specified under clause 32 in Schedule 3 of the Environmental Planning and Assessment Regulations 2000. Integrated Development The proposal is regarded as 'nominated integrated development' as it triggers requirements pursuant to s.91 EPA Act 1979, requiring approval from the Environment Protection Authority (EPA). The adequacy of the structure is at the discretion of the EPA as they are the licensing authority for the proposed resource recovery facility. Consultation with the EPA regarding the proposal prior to lodgement is highly recommended to ensure the proposed enclosure is suitable to address environmental impacts including but not limited to noise, dust and water issues. Liverpool DCP The proposal must consider Part 1 and Part 5 of Liverpool Council's DCP. In particular setbacks, height, building materials, colours, streetscape and rural landscape. Western Sydney Airport The subject site lies under the flight path for the proposed Western Sydney Airport. The proposal must consider its relationship to the Australian Noise Exposure Forecast (ANEF) contours and permissibility under LEP Clause 7.18. Additionally, given the site's proximity to the future airport, significant consideration will be given to potential environmental impacts.

	Decision Making Authority The Sydney South West Planning Panel would act as the determining body due to the development being classified as '*particular designated development*' under Clause 7 of Schedule 7 of the State Environmental Planning Policy (State and Regional Development) 2011.
Environment & Health	Air Quality A review of the Air Quality Impact Statement (Report no. 171127_AQIA_Rev3) prepared by Benbow Environmental dated February 2018 submitted with the original application may be applicable for the proposed amended application. So that Council can ensure air quality will not be a concern and can demonstrate due diligence, an appropriately qualified consultant is to provide a statement confirming that the original report is still applicable. If the consultant is unable to do so, an amended Air Quality Assessment may be required. Note: A 'suitably qualified and experienced air quality consultant' is a person who is a Certified Air Quality Professional CAQP member administered by the Clean Air Society of Australia and New Zealand (CASANZ) or is a Certified Environmental Practitioner (CEnvP) administered by the Environment Institute of Australia and New Zealand (EIANZ). Noise An amended Acoustic Report with consideration for the amendments noted is to be provided by a suitably qualified acoustic consultant. The report is to consider, however not be limited to, the new fencing proposed, as well as the enclosed nature of the sheds and the operations within them. Note: 'Suitably qualified acoustic consultant' means a consultant who is a member of the Australian Acoustical Society, Institution of Engineers Australia or the Association of Australasian Acoustical Consultants (AAAC). Diesel Storage System The amended plans are to demonstrate the location of the Diesel tank and Engine, hydraulic and lubricating oil storage area/s.

	The following submission requirements are to be incorporated into any written correspondence provided to the applicant: • Further Acoustic Assessment • Statement from Air Quality Consultant confirming no further investigation necessary (if not, further Air Quality Assessment). • Location of Diesel tank and liquid storage area/s on site plan
Traffic	• A Traffic Impact Statement addressing traffic generation, impacts on the surrounding road network and parking provision is to be submitted. • Swept path analysis for driveway access, internal circulation and parking bays is to be submitted for assessment. • Internal and external pedestrian crossing points and facilities are to be clearly identified and included in the submission. • A separate access to the staff car park located off Martin Road away from truck access would be welcomed. • Clear delineation of driveway access and internal circulation.
Development Engineering	<u>Key Engineering Issues</u> 1. Water Quality Treatment 2. Building over the existing drainage system. 3. Relocation of drainage easement <u>Stormwater</u> • The modification includes the relocation of the stormwater drainage system. The applicant shall demonstrate through full engineering analysis (modelling), prepared by a suitably qualified civil engineer experienced in hydraulic design, that there is no adverse effect on Council's stormwater system and adjoining properties. The application for relocation of the easement is to be submitted as part of your development application. • Stormwater drainage for the site must be in accordance with Council's Development Control Plan.

	• A stormwater concept plan shall be submitted with the application. • The stormwater concept plan shall be accompanied by a supporting report and calculations. • On-site detention is required to be provided for the site. • A water quality treatment device shall be provided in accordance with Council's Development Control Plan. <u>Earthworks</u> • No retaining walls or filling is permitted for this development which will impede, divert or concentrate stormwater runoff passing through the site. • Earthworks and retaining walls must comply with Council's Development Control Plan. • Proposed fill material must comply with Council's Development Control Plan.

Note:
This Pre-Lodgement advice is only a preliminary review of the concept development and the comments provided, written or otherwise, must not be considered as assessment of your proposal. Council is unable to make a recommendation on the proposal until such time as a full merit assessment of a lodged Development Application and its supporting documentation is undertaken.

The advice provided in no way fetters the discretion of Council in the assessment and determination of any potential application for the site. Additionally, any matters not identified in the below advice may emerge during the consideration of the complete application.

Information to be submitted with a Development Application

The following information is required to be submitted with any potential application. All the requested information is required to be submitted to enable a complete, proper and timely assessment of the application.

Please be advised that any potential application will not be accepted for lodgement unless all the required information is submitted *(please note, this list is not exhaustive, and other relevant plans/information may be required if necessary)*.

Architectural Plans
• Survey Plan (confirming no building encroachments to easements, if any), • Architectural plans (site plan, floor plans, elevations and sections), ensuring that all survey details including boundaries and other site constraints are shown on the architectural plans) • Site analysis • Coloured perspectives • Colour schedule of external building materials, colours and finishes • Landscaping plan prepared by a qualified Landscape Architect • Stormwater Drainage plan • Demolition plan and statement, clearly identifying all structures to be demolished
Reports and Other Supporting Documents
• Revised EIS or addendum to EIS detailing how modification continues to meet the previously issued SEARs. • Traffic and Parking Assessment • Erosion and sediment control plan • Contamination Investigation/s and subsequent Remedial Action Plan (if applicable) • Acoustic Assessment • Visual Assessment • Noise Management Plan • Construction Noise Assessment • Operational Environmental Management Plan • Wastewater Report • Justification for any modification or removal of easements on the site • Details and plans of any truck wash bay/stand • Air Quality Impact Assessment • Waste Management Plan (for demolition, construction and on-going waste management) • Statement relating to Hazardous Materials/Goods (SEPP 33 – Hazardous and Offensive Development), including details of hazardous substances (use and storage, including diesel) • Details of any revised SEARs from the EPA • Details of any new/updated Pre-DA meetings with the EPA, Department of Planning, Industry and the Environment, or Department of Infrastructure, Transport, Cities and Regional Development

• Written justification of any variations to LLEP 2008 development standards in accordance with Clause 4.6 of the LLEP 2008 • Written justification of any variations to LDCP 2008 controls
Submission Requirements
• 2 x CD Rom / USB containing electronic copies of all above documents accurately titled. • 1 x copies of the above reports/plans. Plans are to be no larger than A3 size.

Please do not hesitate to contact Peter Oriehov or Adam Flynn on **1300 36 2170** if you wish to discuss this matter further.

Yours faithfully

Adam Flynn
Senior Development Planner
DEVELOPMENT ASSESSMENT

FlynnA@liverpool.nsw.gov.au

10. ANNEXURE B – Email from NSW Department of Planning, Industry and Environment

RE: Resource Recovery Facility, 55 Martin Road, Badgerys Creek (Lot 4 DP 611519) - SEAR 1182 - propose...

Reply | Reply All | Forward | ...

BT

Bianca Thornton <Bianca.Thornton@planning.nsw.gov.au>
To Brent Winning

Wed 11/09/2019 9:30 AM

You replied to this message on 11/09/2019 9:56 AM.

Hi Brent

Thank you for your email. Requesting SEARs for designated development is still done via email at this stage.

Your inquiry appears to be about a modification to an approved DA (rather than amendments to a DA currently under assessment). The Department does not provide SEARs for modifications to designated development and therefore has no further comments.

If you have any further questions, feel free to contact me.

Kind regards

Bianca Thornton
Environmental Assessment Officer

Industry Assessments | Department of Planning, Industry and Environment
T 02 8217 2040 | **E** bianca.thornton@planning.nsw.gov.au
320 Pitt Street, Sydney NSW 2000
www.dpie.nsw.gov.au

NSW GOVERNMENT | Planning, Industry & Environment

The Department of Planning, Industry and Environment acknowledges that it stands on Aboriginal land. We acknowledge the traditional custodians of the land and we show our respect for elders past, present and emerging through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing commitment to providing places in which Aboriginal people are included socially, culturally and economically.

11. ANNEXURE C – Email from NSW Environment Protection Authority

RE: 55 Martin Rd Badgerys Creek DA-263/2018

DP Deanne Pitts <Deanne.Pitts@epa.nsw.gov.au>
To Brent Winning
Cc 'Louise Popowitz'; Celeste Forestal

Reply | Reply All | Forward | ...
Wed 11/09/2019 10:27 AM

Hi Brent,

I can confirm that the EPA was consulted on the proposed amendments on 19 August 2019 and generally see no issues with the proposed amendments, subject to reviewing the relevant assessments and supporting information.

Kind regards,
Deanne

Deanne Pitts
Senior Operations Officer, Waste Compliance
Waste & Resource Recovery, NSW Environment Protection Authority
+61 2 9995 5752
Please send all official electronic correspondence to waste.operations@epa.nsw.gov.au
deanne.pitts@epa.nsw.gov.au www.epa.nsw.gov.au @NSW_EPA EPA YouTube
Report pollution and environmental incidents 131 555 (NSW only) or +61 2 9995 5555

I acknowledge and respect the Traditional Custodians of the land on which I work and live.

12. ANNEXURE D – Architectural Plans and Visual Impact Assessment

55 MARTIN RD BADGERY'S CREEK
WASTE RESOURCE RECOVERY FACILITY

55 MARTIN ROAD
BADGERY'S CREEK

PREPARED FOR

AMJ DEMOLITION & EXCAVATION

DRAWING LIST

1 LOCATION PLAN

ARCHITECTURE
Tourism + Residential

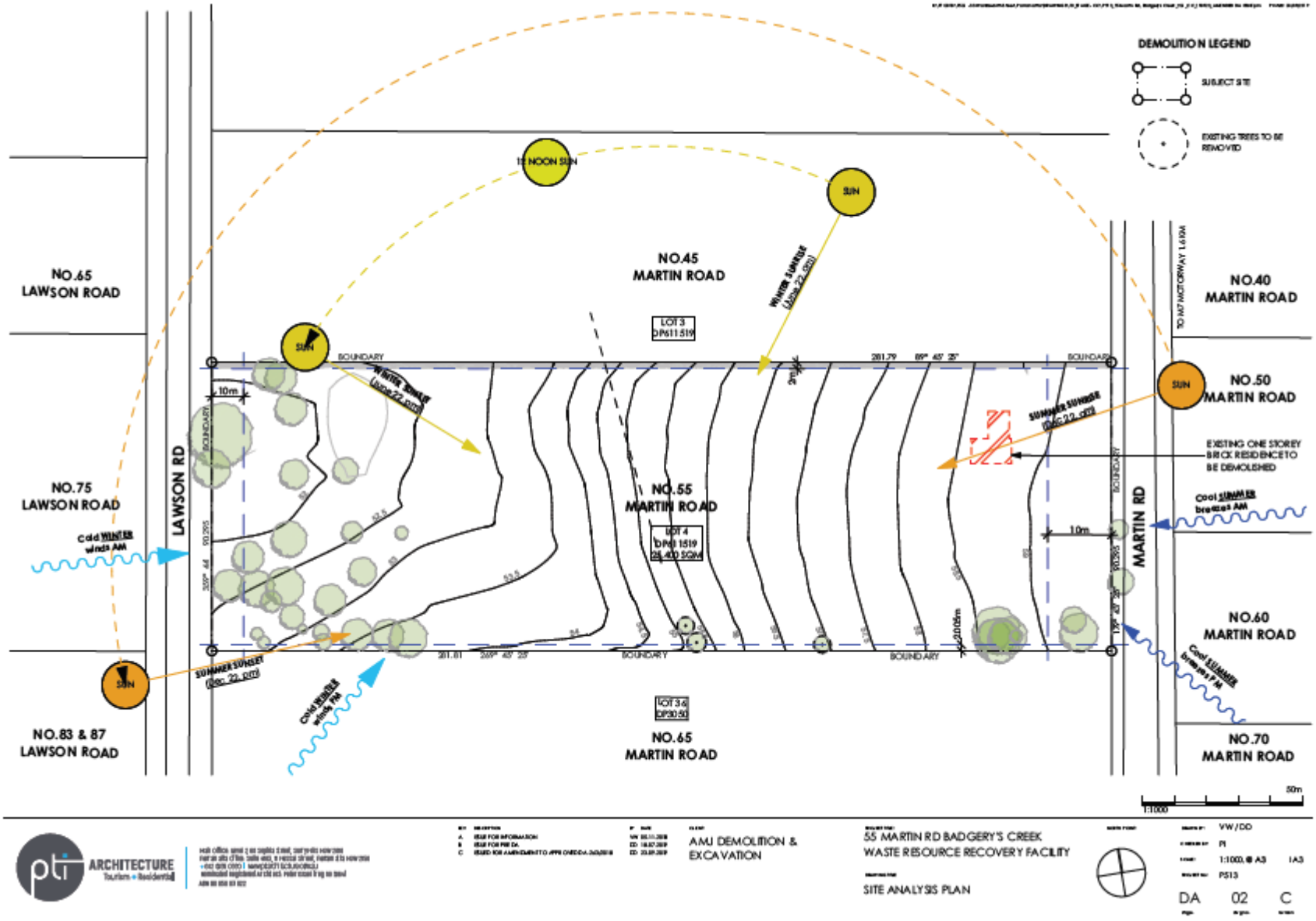
AMJ DEMOLITION & EXCAVATION

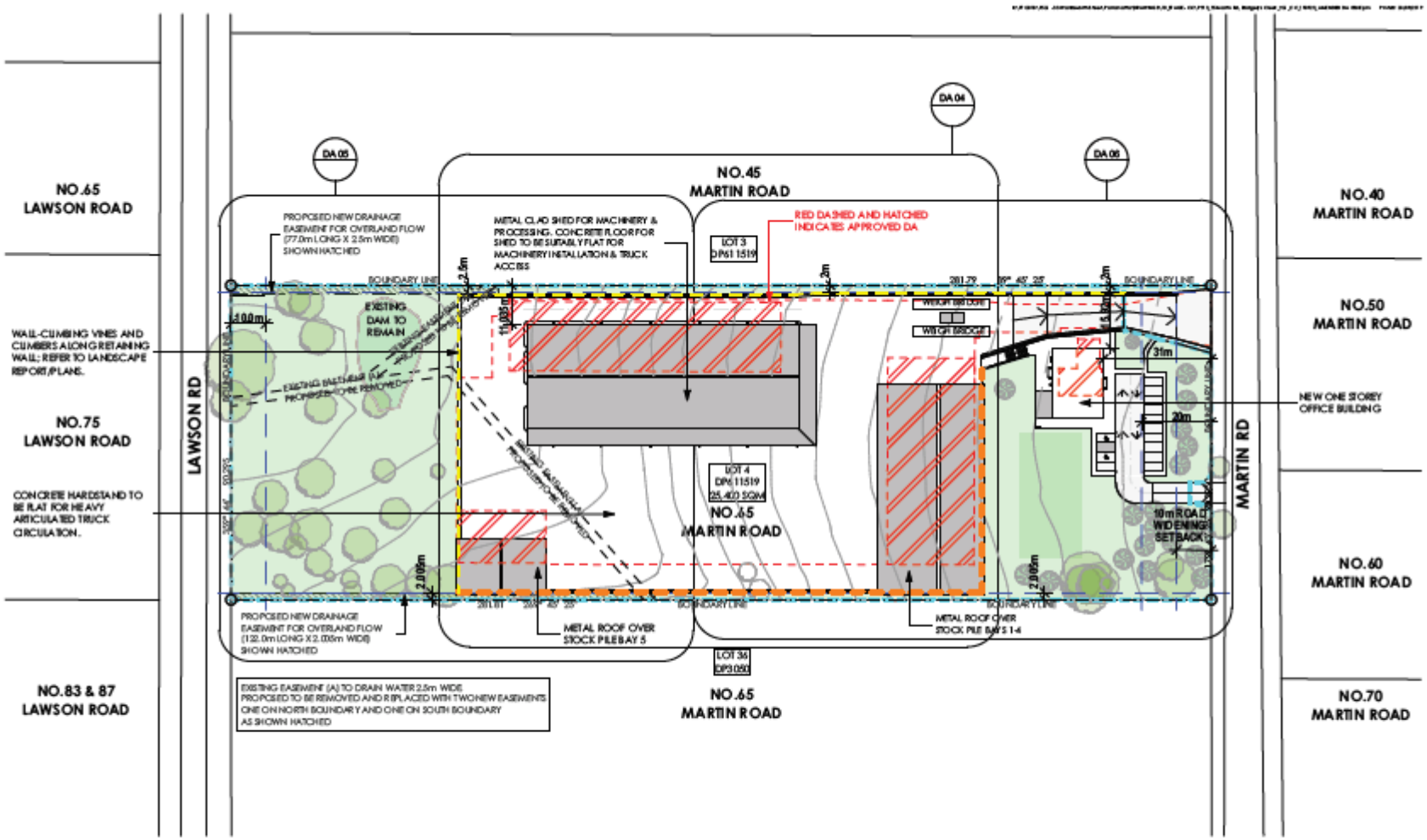
55 MARTIN RD BADGERY'S CREEK
WASTE RESOURCE RECOVERY FACILITY

LOCATION PLAN

VW/DD
PI
N.T.S. @ A3
PS13

DA 01 D


DEMOLITION LEGEND
SUBJECT SITE
EXISTING TREES TO BE REMOVED
12 NOON SUN
SUN
WINTER SUNRISE (June 22, 07:11)
WINTER SUNSET (June 22, 17:01)
SUMMER SUNRISE (Dec 22, 05:51)
SUMMER SUNSET (Dec 22, 20:11)
NO.65 LAWSON ROAD
NO.75 LAWSON ROAD
NO.83 & 87 LAWSON ROAD
LAWSON RD
NO.45 MARTIN ROAD
LOT 3 DP611519
NO.55 MARTIN ROAD
LOT 4 DP611519 26,400 SQM
NO.65 MARTIN ROAD
LOT 36 DP30150
BOUNDARY
281.79
281.81
10m
NO.40 MARTIN ROAD
TO M7 MOTORWAY 1.6 KM
NO.50 MARTIN ROAD
EXISTING ONE STOREY BRICK RESIDENCE TO BE DEMOLISHED
Cool SUMMER breezes AM
MARTIN RD
NO.60 MARTIN ROAD
Cool SUMMER breezes PM
NO.70 MARTIN ROAD
Cold WINTER winds AM
Cold WINTER winds PM
50m
1:1000
ARCHITECTURE
Tourisms + Residential
A ISSUE FOR INFORMATION
B ISSUE FOR PRE DA
C ISSUED FOR AMENDMENTS TO APPR DA
AMJ DEMOLITION & EXCAVATION
55 MARTIN RD BADGERY'S CREEK
WASTE RESOURCE RECOVERY FACILITY
SITE ANALYSIS PLAN
VW/DD
PI
1:1000, @ A3
1A3
PS13
DA 02 C



ARCHITECTURE
Tourisms + Residential

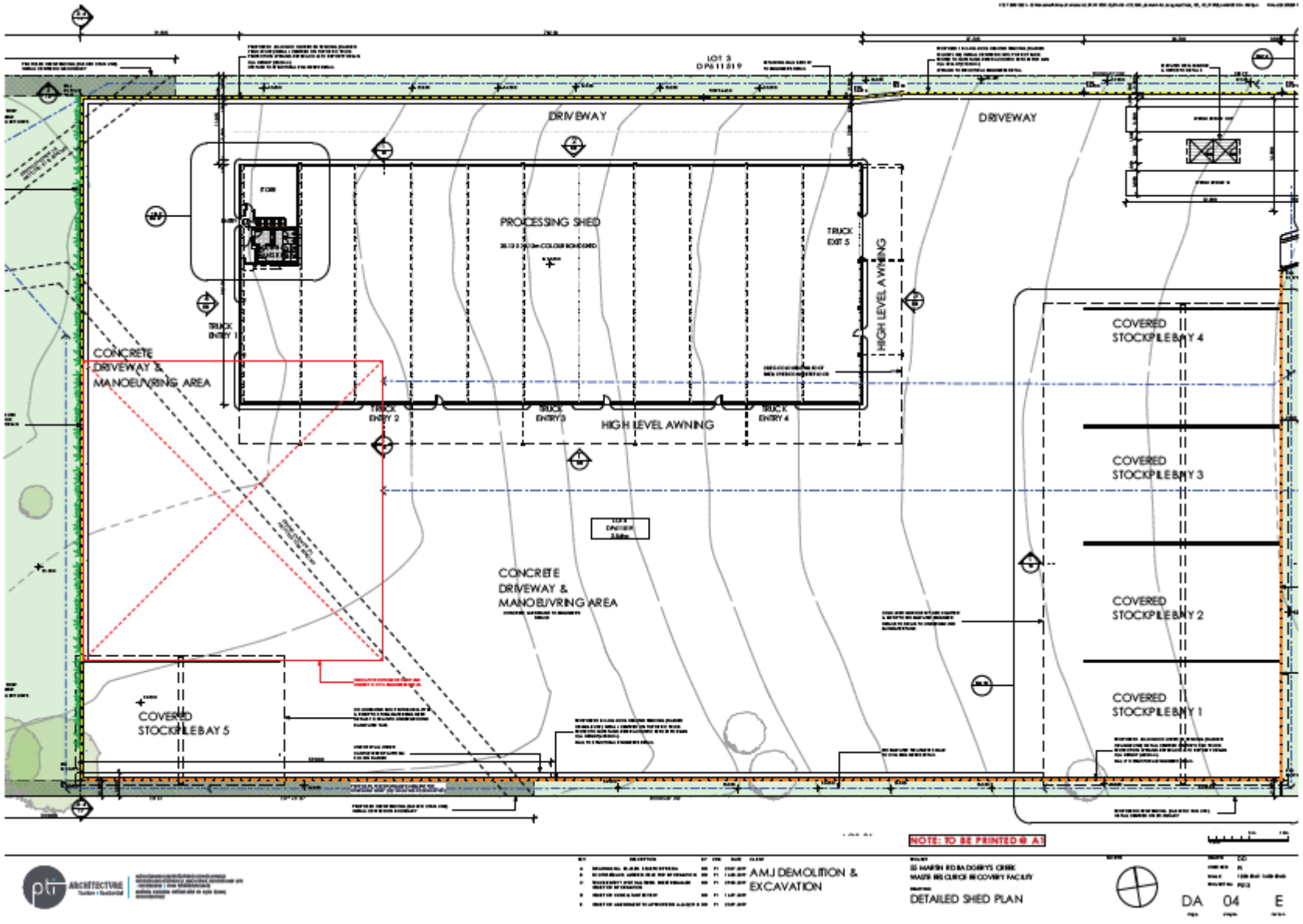
AMJ DEMOLITION & EXCAVATION

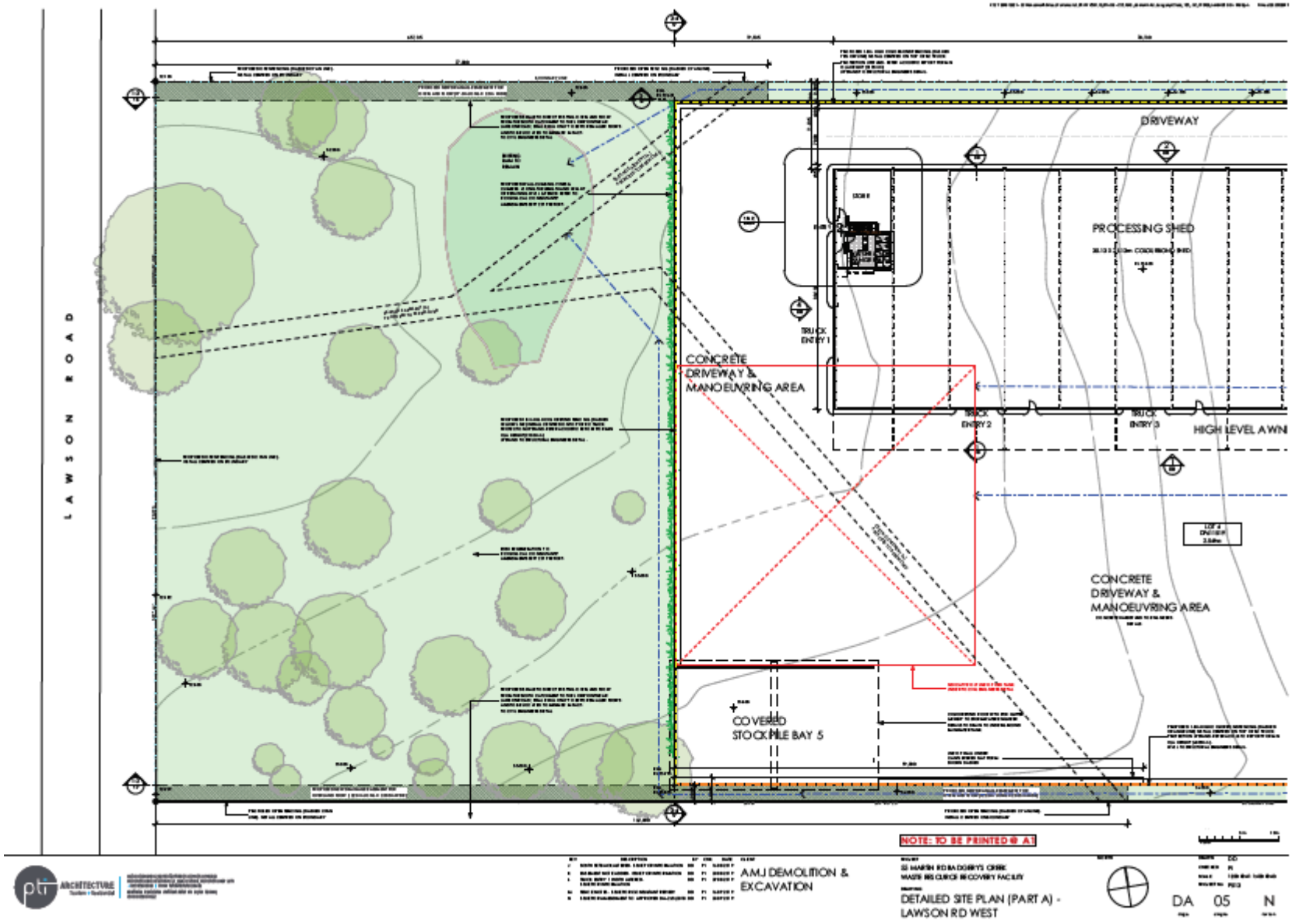
55 MARTIN RD BADGERY'S CREEK
WASTE RESOURCE RECOVERY FACILITY

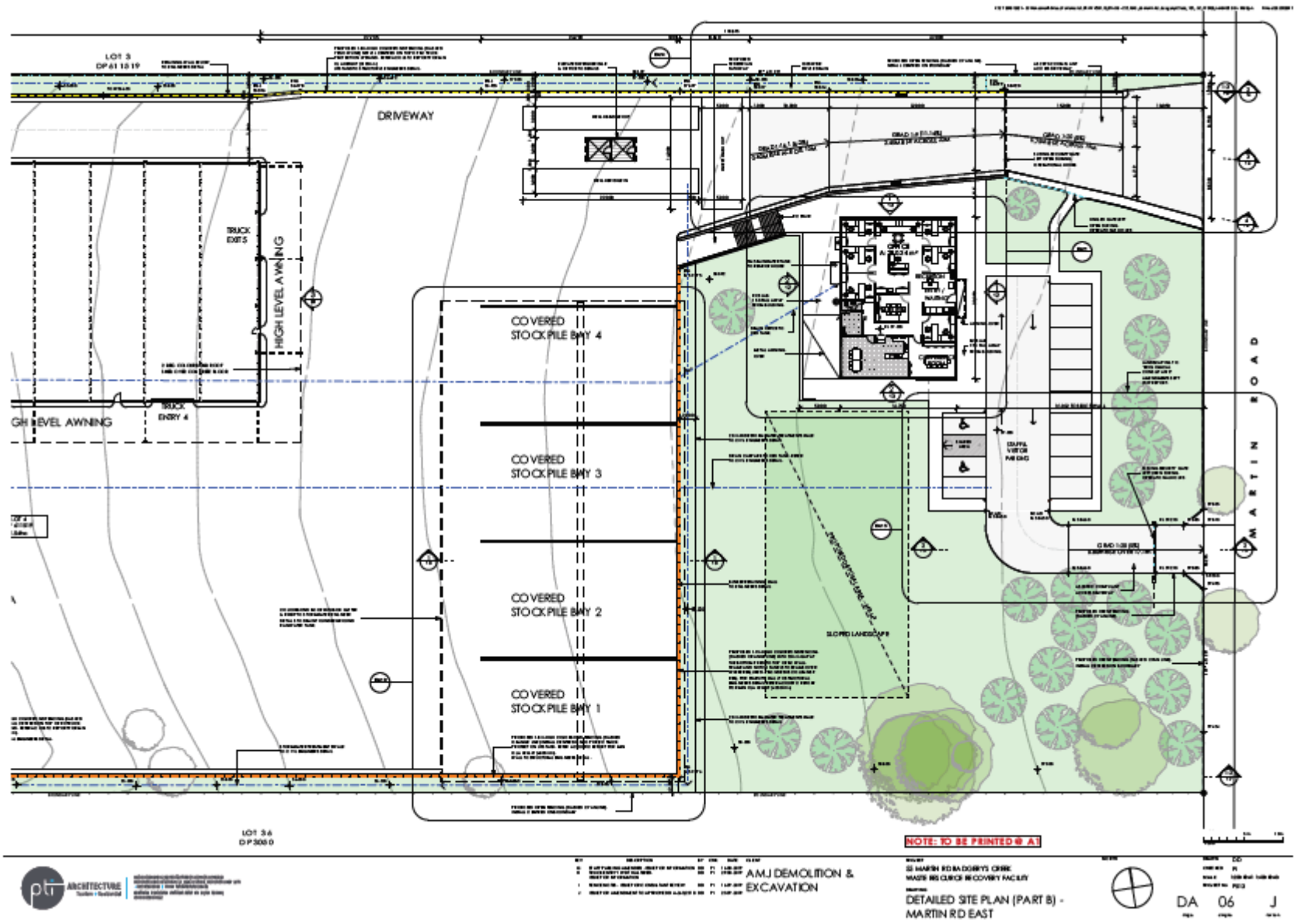
SITE PLAN WITH APPROVED DA FOOTPRINT OVERLAYED

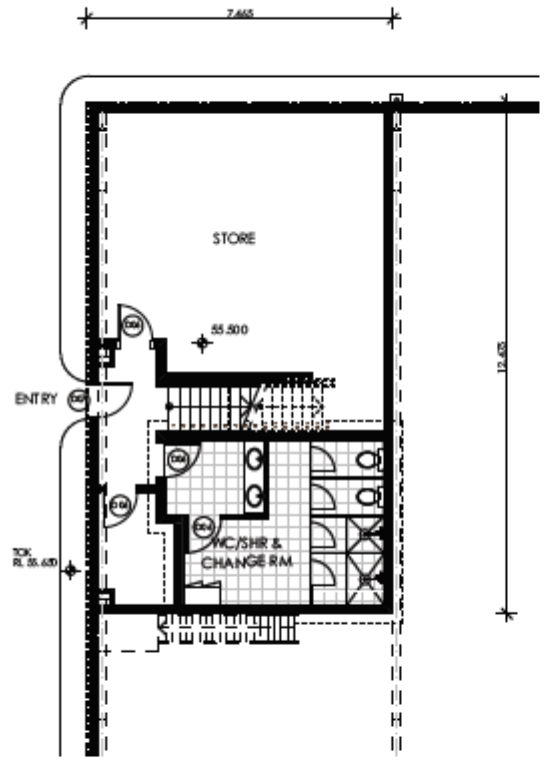
VW/DD
PI
1:1000, 1:1 @ A3
PS13

DA 03 J

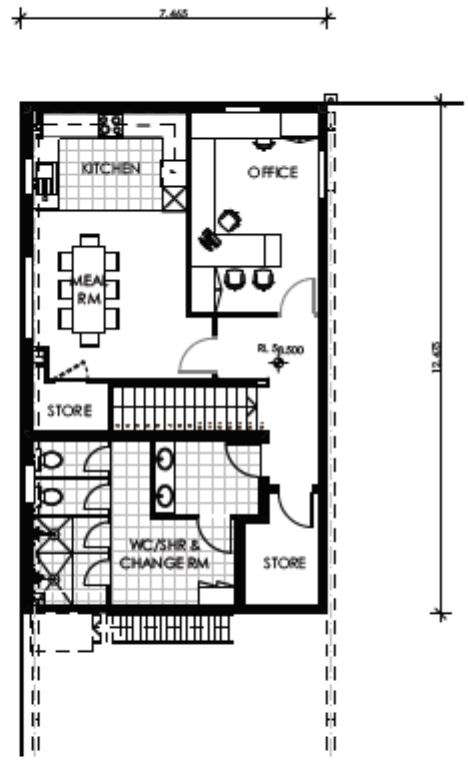

DRIVEWAY
DRIVEWAY
PROCESSING SHED
TRUCK EXIT 5
HIGH LEVEL AWNING
TRUCK ENTRY 1
CONCRETE DRIVEWAY & MANOEUVRING AREA
TRUCK ENTRY 2
TRUCK ENTRY 3
HIGH LEVEL AWNING
TRUCK ENTRY 4
COVERED STOCKPILE BAY 4
COVERED STOCKPILE BAY 3
COVERED STOCKPILE BAY 2
COVERED STOCKPILE BAY 1
CONCRETE DRIVEWAY & MANOEUVRING AREA
COVERED STOCKPILE BAY 5
NOTE: TO BE PRINTED @ A1
A.M.J DEMOLITION & EXCAVATION
55 MARTIN ROAD BADGERYS CREEK
WASTE RESOURCE RECOVERY FACILITY
DETAILED SHED PLAN
DA 04 E


LAWSON ROAD
DRIVEWAY
PROCESSING SHED
TRUCK ENTRY 1
TRUCK ENTRY 2
TRUCK ENTRY 3
CONCRETE DRIVEWAY & MANOEUVRING AREA
HIGH LEVEL AWN
CONCRETE DRIVEWAY & MANOEUVRING AREA
COVERED STOCKPILE BAY 5
NOTE: TO BE PRINTED @ A1
AMJ DEMOLITION & EXCAVATION
DETAILED SITE PLAN (PART A) - LAWSON RD WEST
DA 05 N


LOT 3
DP 61 1819
DRIVEWAY
TRUCK EXITS
HIGH LEVEL AWNING
TRUCK ENTRY 4
COVERED STOCKPILE BAY 4
COVERED STOCKPILE BAY 3
COVERED STOCKPILE BAY 2
COVERED STOCKPILE BAY 1
MARTIN ROAD
LOT 3 &
DP 3080
NOTE: TO BE PRINTED @ A1
A.M.J DEMOLITION & EXCAVATION
DETAILED SITE PLAN (PART B) - MARTIN RD EAST
DA 06 J



1 SHED AMENITIES GROUND FLOOR PLAN
1:100



2 SHED AMENITIES 1ST FLOOR PLAN
1:100

5m
1:100

ARCHITECTURE
Tourism • Residential

A	DRAWING NUMBER REVISED ISSUED FOR PRICING	23.07.2019
B	ISSUED FOR AMENDMENT TO APPROVED DA 24/2018	23.09.2019

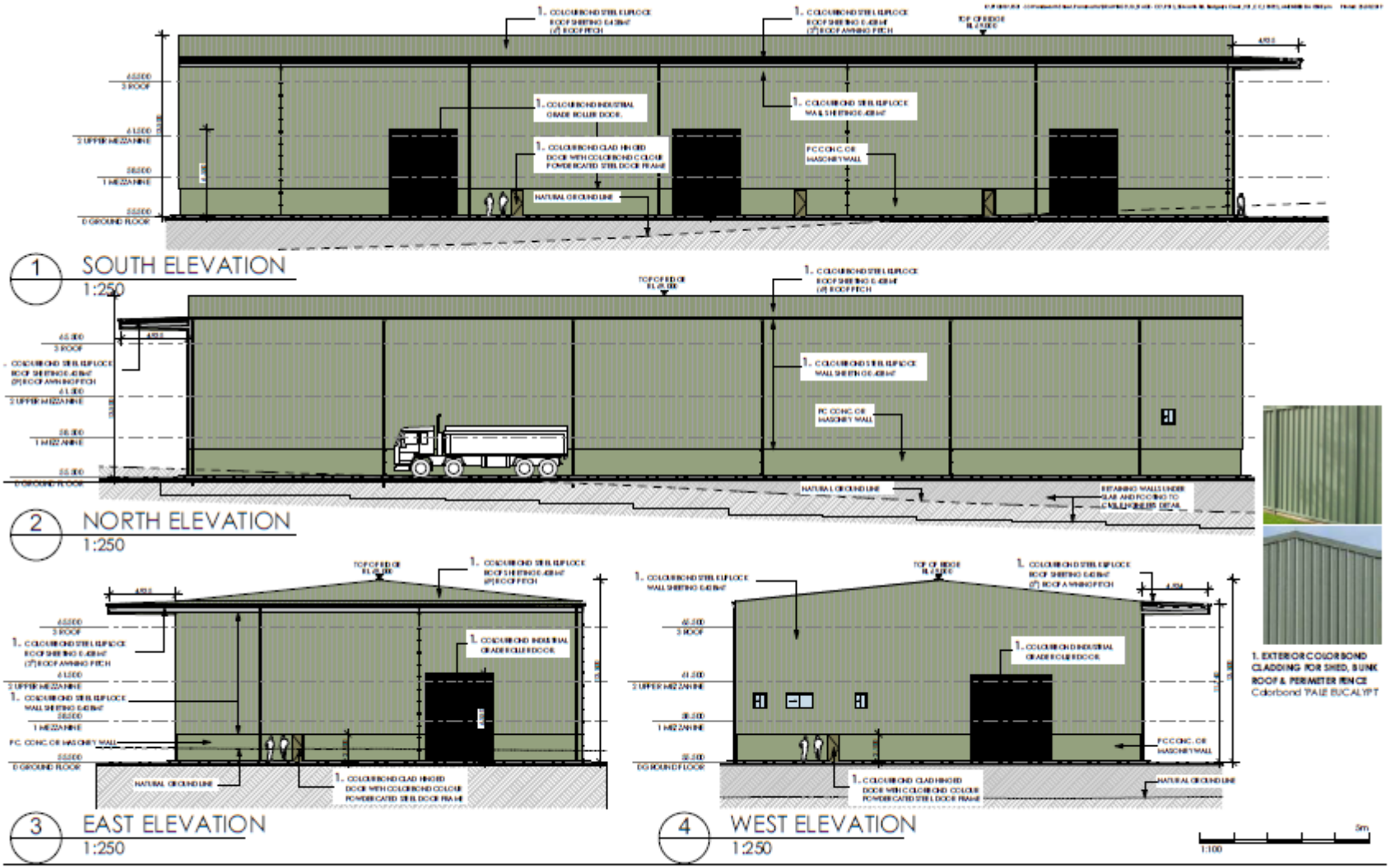
AMJ DEMOLITION & EXCAVATION

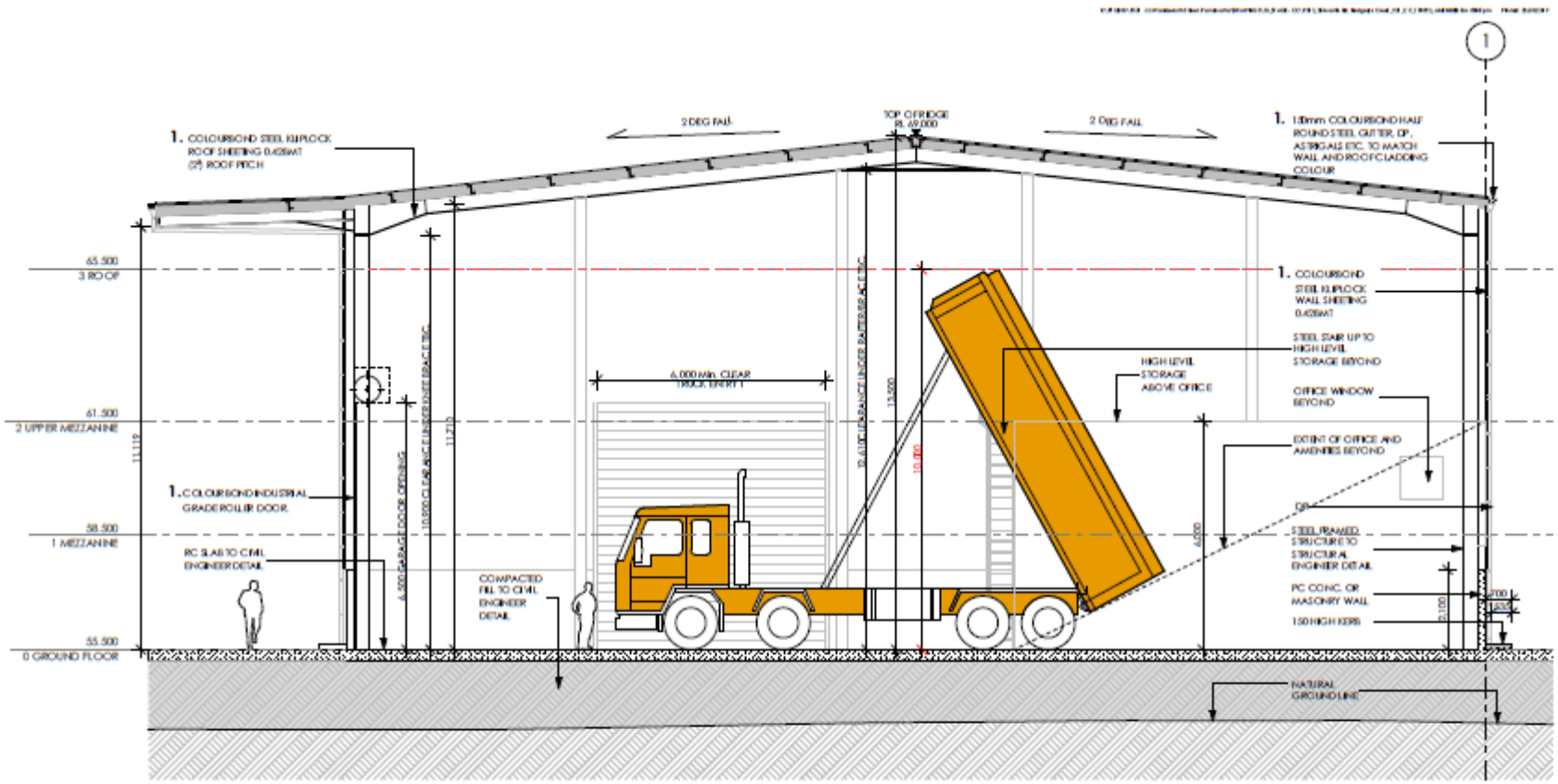
55 MARTIN RD BADGERY'S CREEK
WASTE RESOURCE RECOVERY FACILITY

SHED AMENITIES FLOOR PLANS

VW/DD
PI
1:100 1:1 @A3
PS13

DA 07 B


1. COLORBOND STEEL ELEVATION
1. COLORBOND INDUSTRIAL GRADE ROLLER DOOR.
1. COLORBOND CLAD HINGED DOOR WITH COLORBOND COLOUR POWDERCOATED STEEL DOOR FRAME
1. COLORBOND STEEL ELEVATION WALL SHEETING 0.42MM
PC CONC OR MASONRY WALL
NATURAL GROUND LINE
1 SOUTH ELEVATION 1:250
2 NORTH ELEVATION 1:250
3 EAST ELEVATION 1:250
4 WEST ELEVATION 1:250
1. EXTERIOR COLORBOND CLADDING FOR SHED, SUNK ROOF & PERIMETER FENCE
Colorbond TAILE EUCALYPT
AAU DEMOLITION & EXCAVATION
55 MARTIN RD BADGERY'S CREEK
WASTE RESOURCE RECOVERY FACILITY
PROCESSING SHED ELEVATIONS
DA 08 E



1 SECTION THRU PROCESSING SHED
1:100

1. EXTERIOR COLORBOND CLADDING FOR SHED, BUNK ROOF & PERIMETER FENCE
Colorbond 'PALE EUCALYPT'

1:100 5m

ARCHITECTURE
Tourism + Residential

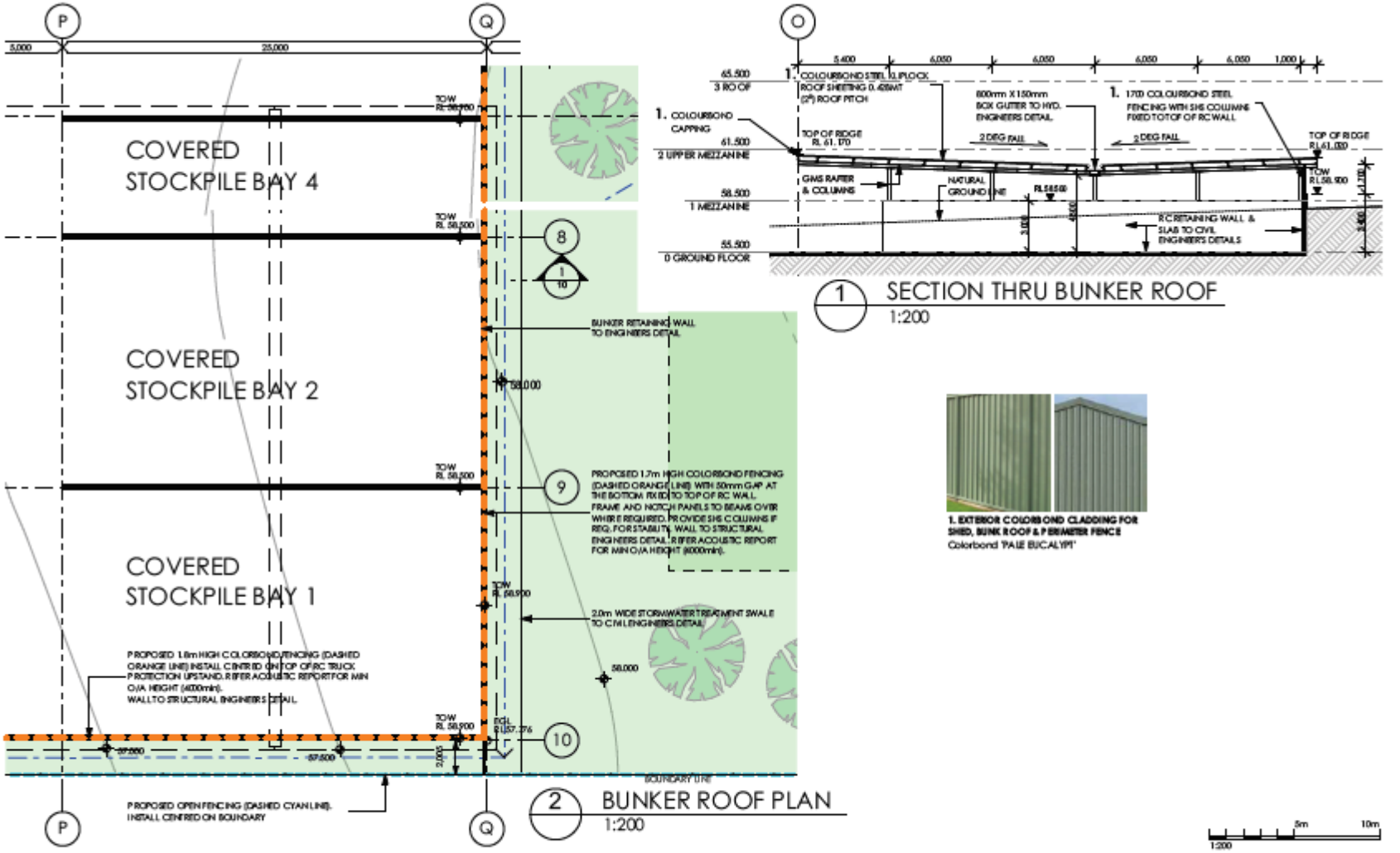
AAU DEMOLITION & EXCAVATION

55 MARTIN RD BADGERY'S CREEK
WASTE RESOURCE RECOVERY FACILITY

SECTION THRU PROCESSING SHED

VW/DD
PI
1:100, 1:1 @A3
PS13

DA 09 C



ARCHITECTURE Tourism + Residential

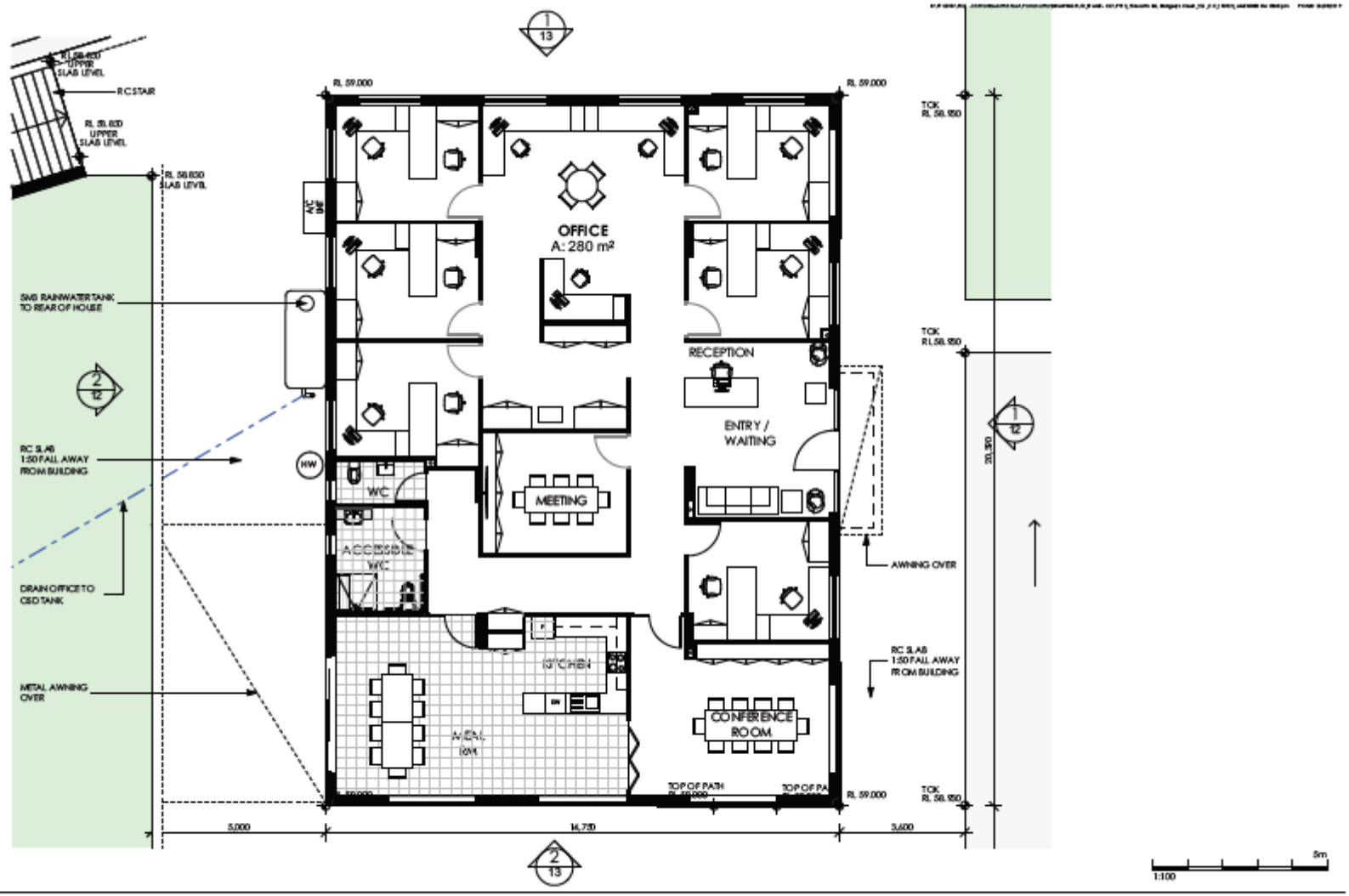
AMJ DEMOLITION & EXCAVATION

55 MARTIN RD BADGERY'S CREEK
WASTE RESOURCE RECOVERY FACILITY

SECTION THRU STOCKPILE BUNKER

VW/DD
PI
1:200 1:1 @ A3
PS13

DA 10 G



ARCHITECTURE Tourism + Residential

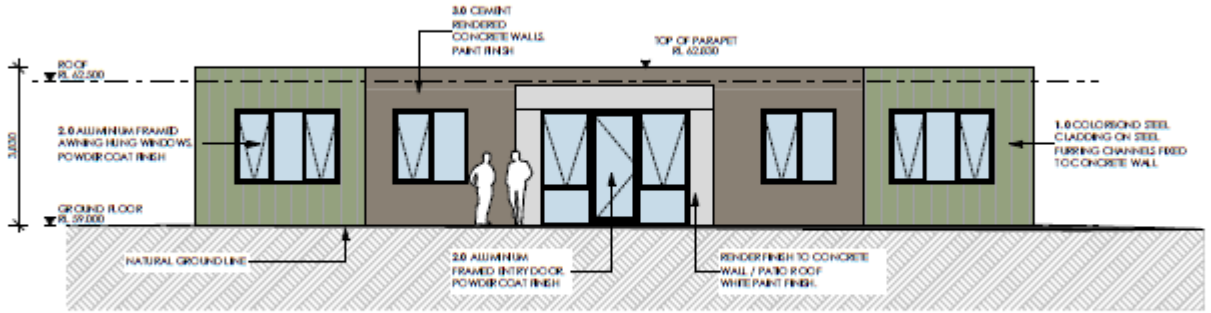
AMJ DEMOLITION & EXCAVATION

55 MARTIN RD BADGERY'S CREEK
WASTE RESOURCE RECOVERY FACILITY

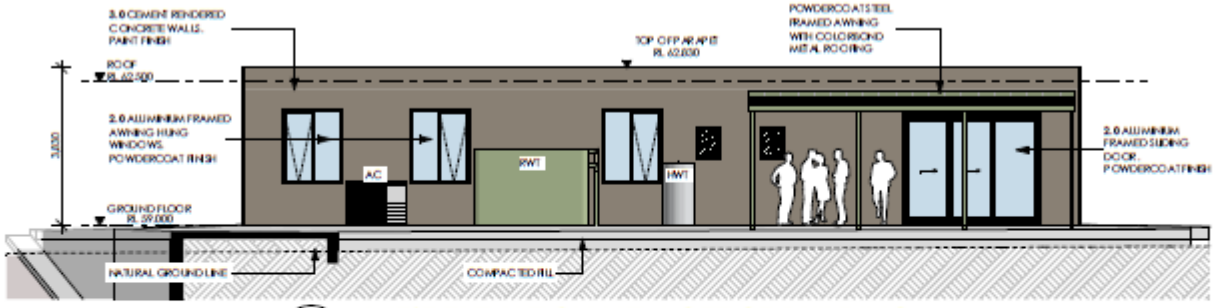
NEW OFFICE BUILDING GROUND FLOOR PLAN

VW / DD
PI
1:100 1:1 @A3
PS13

DA 11 C



1 EAST ELEVATION NEW OFFICE BUILDING
1:100



2 WEST ELEVATION NEW OFFICE BUILDING
1:100

1. EXTERIOR COLORBOND CUSTOM-ORB CLADDING
Colorband 'PALE EUCALYPT'

2. ALUMINIUM WINDOW & DOOR FRAMES
Colorband 'Monument'

3. RENDERED WALL PAINT FINISH
Colorband 'Jasper'

1:100 3m

ARCHITECTURE
Tourism + Residential

A	ISSUE FOR PRICING	23.07.2019
B	REVISED PLAN NOTES + STAFF OFFICE BUILDING	27.08.2019
C	ISSUED FOR AMENDMENTS TO APPROVED DA	23.09.2019

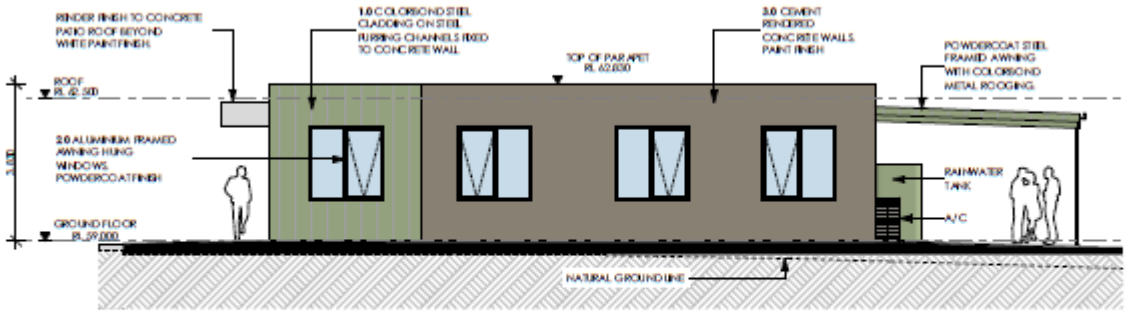
CLIENT
AMJ DEMOLITION & EXCAVATION

55 MARTIN RD BADGERY'S CREEK
WASTE RESOURCE RECOVERY FACILITY

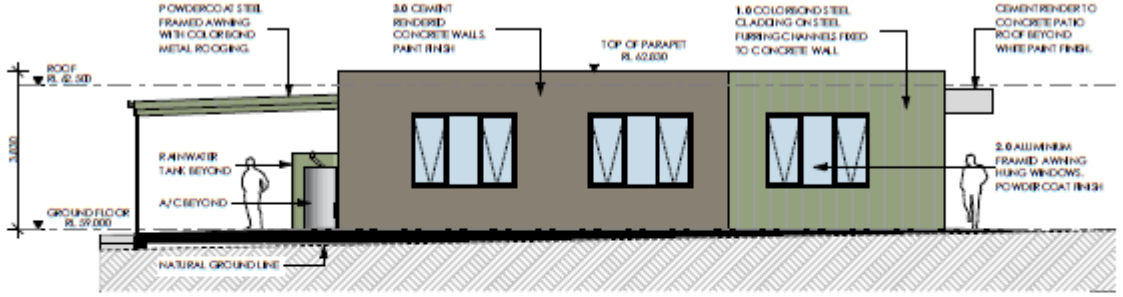
NEW OFFICE BUILDING ELEVATIONS
EAST & WEST

DRAWN	VW/DD
CHECKED	PI
SCALE	1:100, 1:1 @ A3
PROJECT No.	PS13

DA 12 C



1 NORTH ELEVATION NEW OFFICE BUILDING
1:100



2 SOUTH ELEVATION NEW OFFICE BUILDING
1:100

1. EXTERIOR COLORBOND CUSTOM-ORB CLADDING
Colorband 'PALE EUCALYPT'

2. ALUMINIUM WINDOW & DOOR FRAMES
Colorband 'Monument'

3. RENDERED WALL PAINT FINISH
Colorband 'Jasper'

5m
1:100

ARCHITECTURE
Tourism + Residential

A	ISSUE FOR PRICING	23.07.2019
B	REVISED FLOOR PLAN - LUXURY OFFICE BUILDING	27.08.2019
C	ISSUED FOR AMENDMENTS TO APPLICATION	23.09.2019

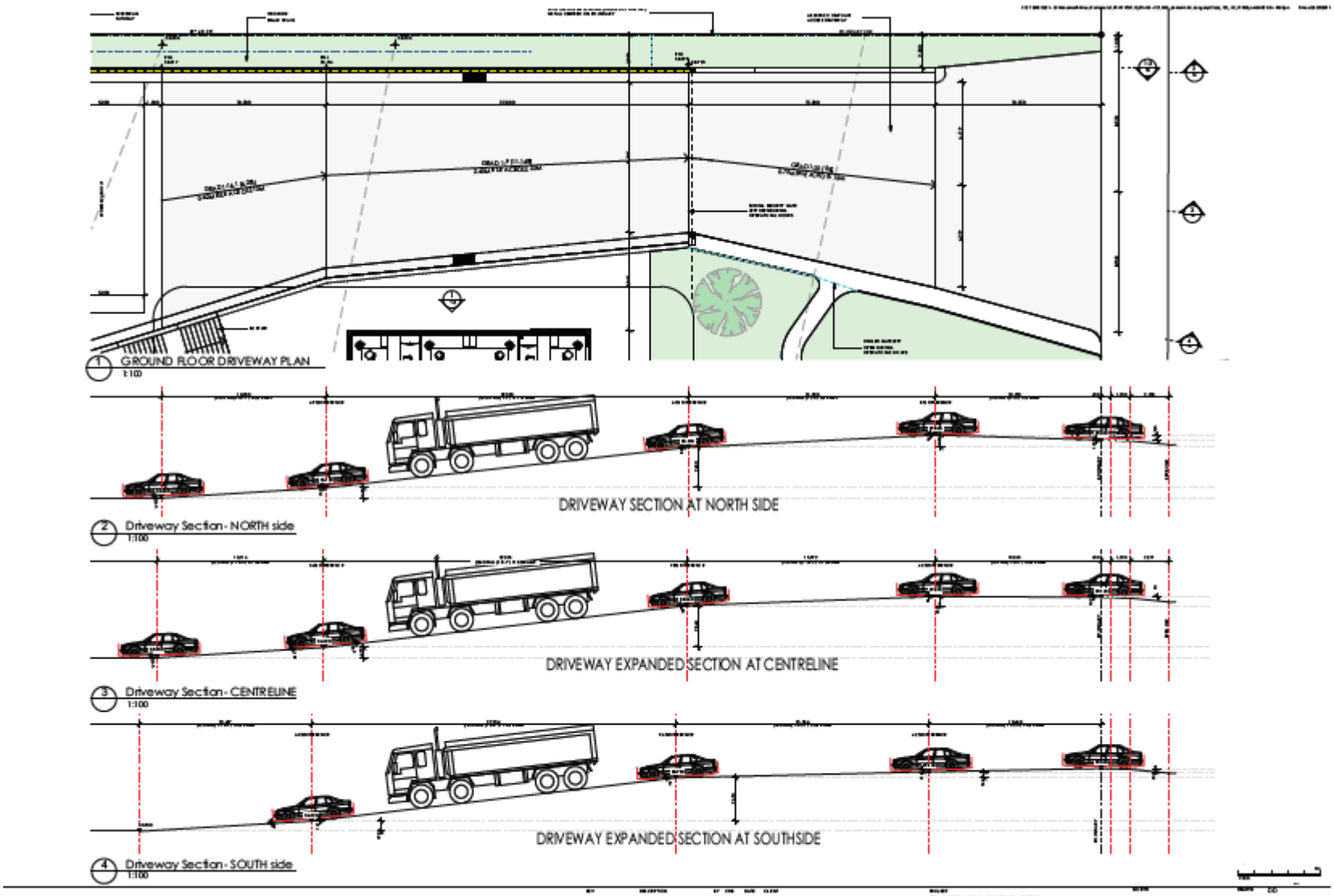
CLIENT: AMJ DEMOLITION & EXCAVATION

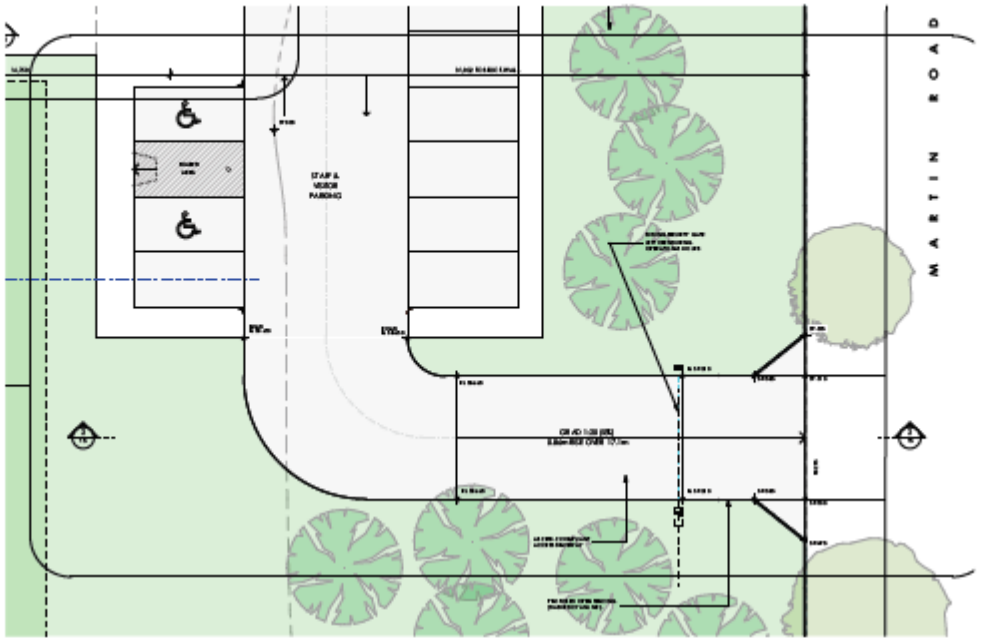
PROJECT: 55 MARTIN RD BADGERY'S CREEK WASTE RESOURCE RECOVERY FACILITY

DRAWING TITLE: NEW OFFICE BUILDING ELEVATIONS NORTH & SOUTH

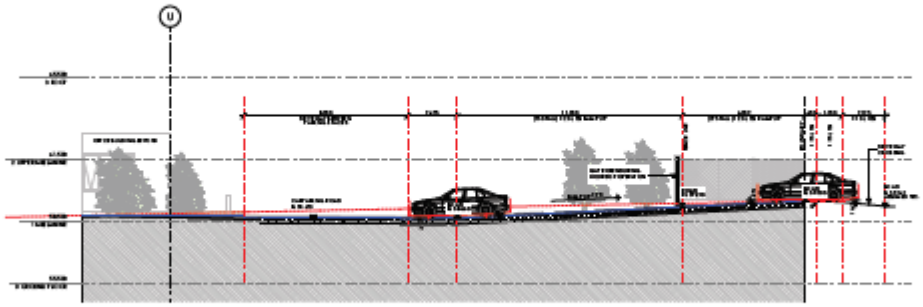
DRAWN: VW/DD
CHECKED: PI
SCALE: 1:100 1:1 @A3
PROJECT No: PS13

DA 13 C


GROUND FLOOR DRIVEWAY PLAN
1:100
DRIVEWAY SECTION AT NORTH SIDE
2 Driveway Section - NORTH side
1:100
DRIVEWAY EXPANDED SECTION AT CENTRELINE
3 Driveway Section - CENTRELINE
1:100
DRIVEWAY EXPANDED SECTION AT SOUTHSIDE
4 Driveway Section - SOUTH side
1:100
ARCHITECTURE
A.M.J DEMOLITION & EXCAVATION
TRUCK ENTRY DRIVEWAY RAMP SECTIONS
DA 14 B



1 GROUND FLOOR DRIVEWAY PLAN
1:100



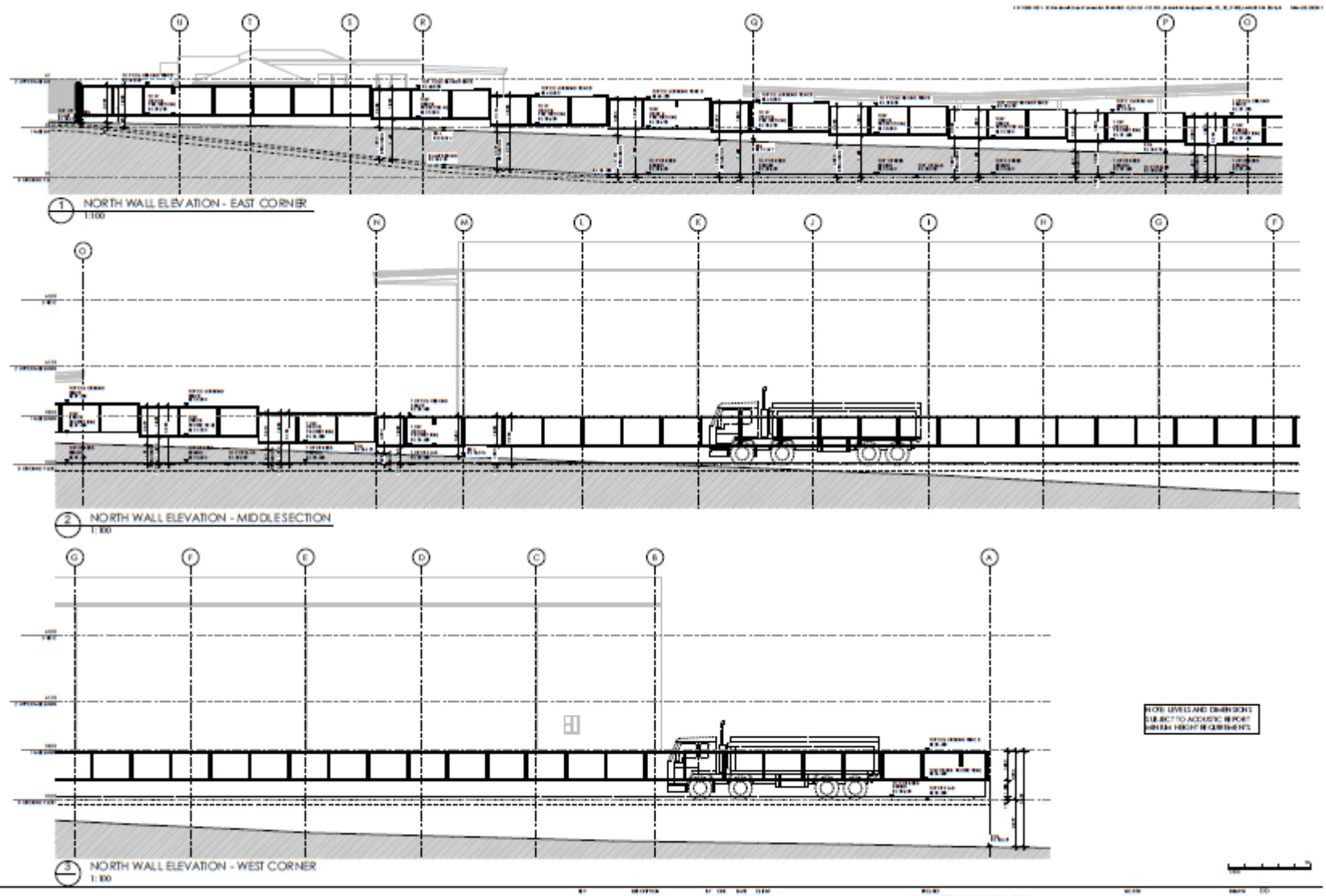
2 Driveway Section- CENTRELINE
1:100

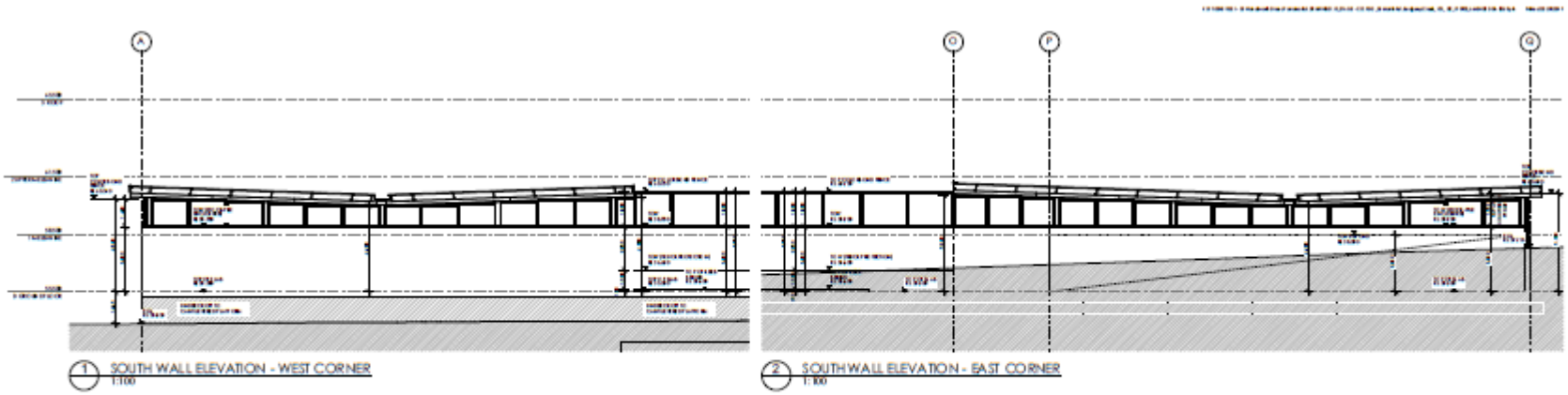
ARCHITECTURE

A.M.J DEMOLITION & EXCAVATION

STAFF CARPARK DRIVEWAY RAMP SECTIONS

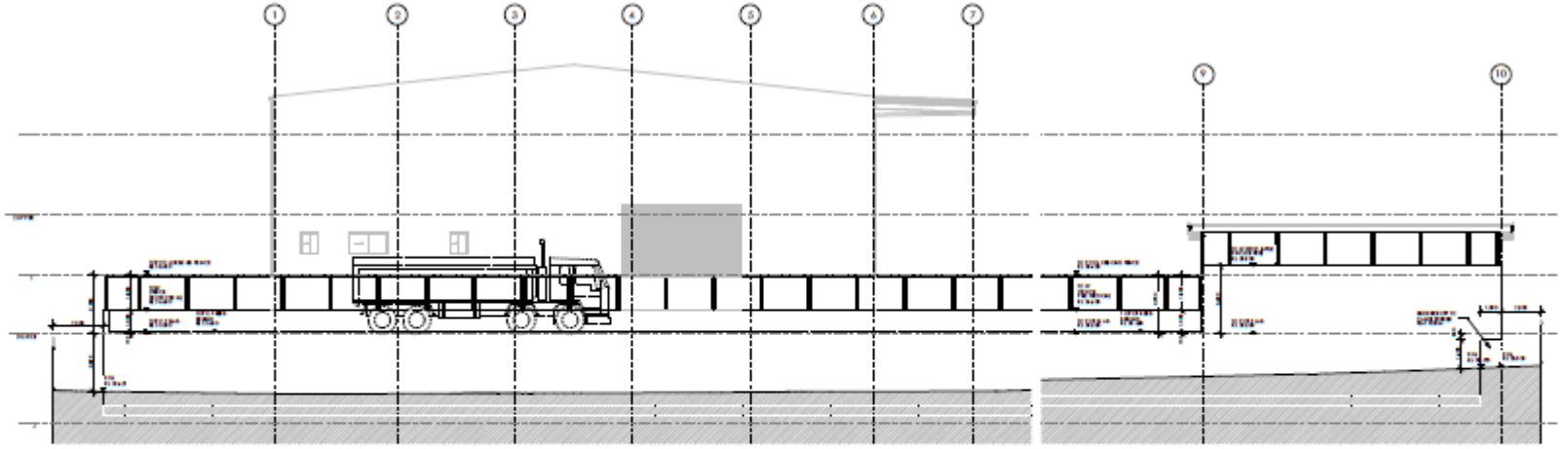
DA 15 B


NORTH WALL ELEVATION - EAST CORNER
1:100
NORTH WALL ELEVATION - MIDDLE SECTION
1:100
NORTH WALL ELEVATION - WEST CORNER
1:100
NOTE: LEVELS AND DIMENSIONS SUBJECT TO ACOUSTIC REPORT MINIMUM HEIGHT REQUIREMENTS
ARCHITECTURE
A.M.J DEMOLITION & EXCAVATION
FENCE ELEVATIONS FOR ACOUSTIC
DA 16 B



1 SOUTH WALL ELEVATION - WEST CORNER
1:100

2 SOUTH WALL ELEVATION - EAST CORNER
1:100



3 WEST WALL ELEVATION - NORTH CORNER
1:100

4 WEST WALL ELEVATION - SOUTH CORNER
1:100

NOTE LEVELS AND DIMENSIONS SUBJECT TO ACOUSTICIAN OF MINIMUM HEIGHT REQUIREMENTS

pti ARCHITECTURE

A.M.J DEMOLITION & EXCAVATION

55 MARTIN RD BADGERYS CREEK
WASTE RESOURCE RECOVERY FACILITY

FENCE ELEVATIONS FOR ACOUSTIC

DA 17 B

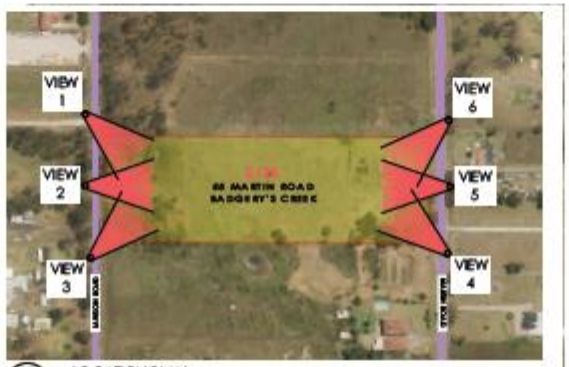
1 VIEW 1

1 VIEW 2

1 VIEW 3

METHODOLOGY FOR POTENTIAL VISUAL IMPACT ASSESSMENT

The location and orientation of the proponent is noted via GPS using navigation google app - this secures the first reference point of the subject image taken from the camera. 2 more reference points (such as a tree indicated on the survey, or the fencing post at the corner of the site as per survey) are noted. The distances and elevational differences between those reference points allows the render to digitally and accurately superimpose a computer-aided design 3D model upon the digital file to produce the individual view analysis.



4 LOCATION PLAN

1 VIEW 6

1 VIEW 5

1 VIEW 4

ARCHITECTURE
Tourism + Residential

A ISSUE FOR INFORMATION
B ISSUE FOR INFORMATION
C

AMJ DEMOLITION & EXCAVATION

55 MARTIN RD BADGERY'S CREEK
WASTE RESOURCE RECOVERY FACILITY

VISUAL IMPACT ASSESSMENT-
LOCATION PLAN

VW/DD
PI
N.T.S. @ A3
PS13

DA 18 C

VIEW 1

A&U DEMOLITION &
EXCAVATION

55 MARTIN RD BADGERY'S CREEK
WASTE RESOURCE RECOVERY FACILITY

VISUAL IMPACT ASSESSMENT-VIEW 1

DA 19 C

ARCHITECTURE

0 mm

1 VIEW 2

ARCHITECTURE
Tourism + Residential

AMJ DEMOLITION & EXCAVATION

55 MARTIN RD BADGERY'S CREEK
WASTE RESOURCE RECOVERY FACILITY

VISUAL IMPACT ASSESSMENT-VIEW 2

VW/DD
PI
N.T.S. @ A3
PS13

DA 20 C

VIEW 3

ARCHITECTURE
Tourism + Residential

AMJ DEMOLITION & EXCAVATION

55 MARTIN RD BADGERY'S CREEK
WASTE RESOURCE RECOVERY FACILITY

VISUAL IMPACT ASSESSMENT-VIEW 3

VW/DD
PI
N.T.S. @ A3
PS13

DA 21 C

VIEW 4

ARCHITECTURE
Tourism + Residential

AMJ DEMOLITION & EXCAVATION

55 MARTIN RD BADGERY'S CREEK
WASTE RESOURCE RECOVERY FACILITY

VISUAL IMPACT ASSESSMENT-VIEW 4

VW/DD
PI
N.T.S. @ A3
PS13

DA 22 C

1 VIEW 5

ARCHITECTURE
Tourism + Residential

AMJ DEMOLITION & EXCAVATION

55 MARTIN RD BADGERY'S CREEK
WASTE RESOURCE RECOVERY FACILITY

VISUAL IMPACT ASSESSMENT-VIEW 5

VW/DD
PI
N.T.S. @ A3
PS13

DA 23 C

1 VIEW 6

ARCHITECTURE
Tourism + Residential

AMJ DEMOLITION & EXCAVATION

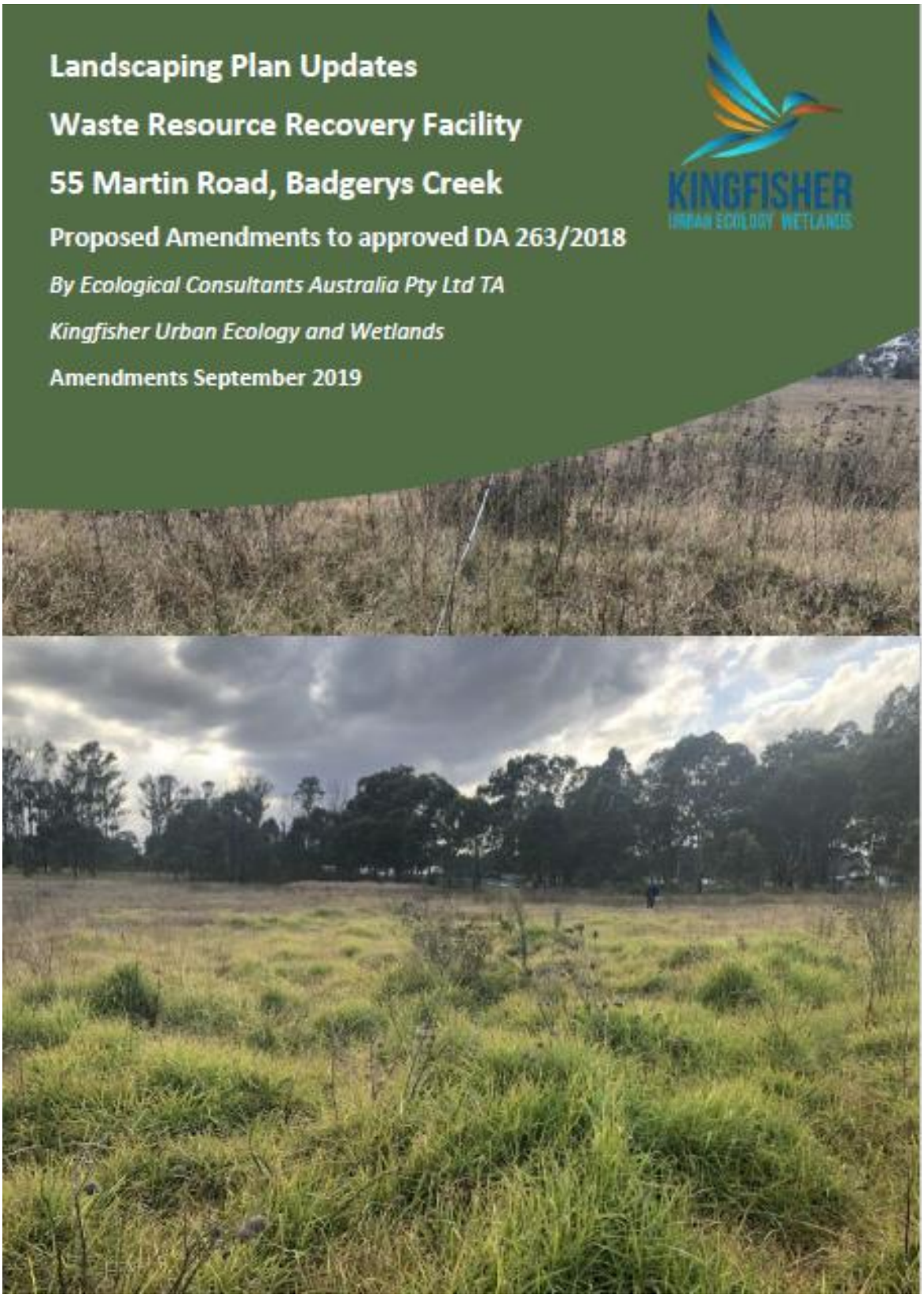
55 MARTIN RD BADGERY'S CREEK
WASTE RESOURCE RECOVERY FACILITY

VISUAL IMPACT ASSESSMENT-VIEW 6

VW/DD
PI
N.TS. @ A3
PS13

DA 24 C

13. ANNEXURE E – Landscape Plan Updates



Landscape Report

The western end will be managed for weed management and bush regeneration in accordance with the Flora and Fauna Report Recommendations (see Figure 2 below), and the remaining of the lot towards the east for landscaping and native planting. Selected flora will depend on local nursery availability. Plants will be in the form of tube stock for native planting rather than larger pot sizes, grasses may be supplied as native grass mix for revegetation grass areas.

Figure 1. Site location. Source SixMaps 2019.

Figure 2a. Proposed weed management, bush regeneration and landscaping zones. Source base SixMaps 2018.

The bush regeneration and weed management/removal is to take place prior to commencement of Landscaping works and is to be conducted by experienced bush regenerators with a minimum of Certificate 3 in bush regeneration. It will consist of hand removal techniques, manual/mechanical

removal using bush regenerator and winter thermal (flame) weeding. This approach will reduce the amount of herbicide used and reduce the amount of off-target damage through spot on application.

Woody perennial weeds less than 2 metres in height will require cut and paint or scrape and paint bush regenerator techniques based on the germinating/epicormic behaviour of the plant (especially plants that tend to coppice or sucker).

It is recommended that seed heads are removed prior to commencement of primary works. This would be best performed carefully by hand with secateurs with the aim of avoiding the spread flowers or seeds into planting zones.

See 'Flora and Fauna Report' Appendix III for further details. For key weed photo guide see Appendix VIII.

An effluent disposal zone is proposed covering 648m^2 – see SDS report (December 2018) for details. This has been located away from existing trees. Tree planting proposed close by (see Landscape layout below) will not be impacted by the disposal zone. Trees selected are species that are locally native and typical of floodplain environments and occasionally saturated soils. The key species to plant closest are: *Eucalyptus tereticornis* and *Melaleuca decora*. Tree planting is set back to retain solar access to the disposal area.

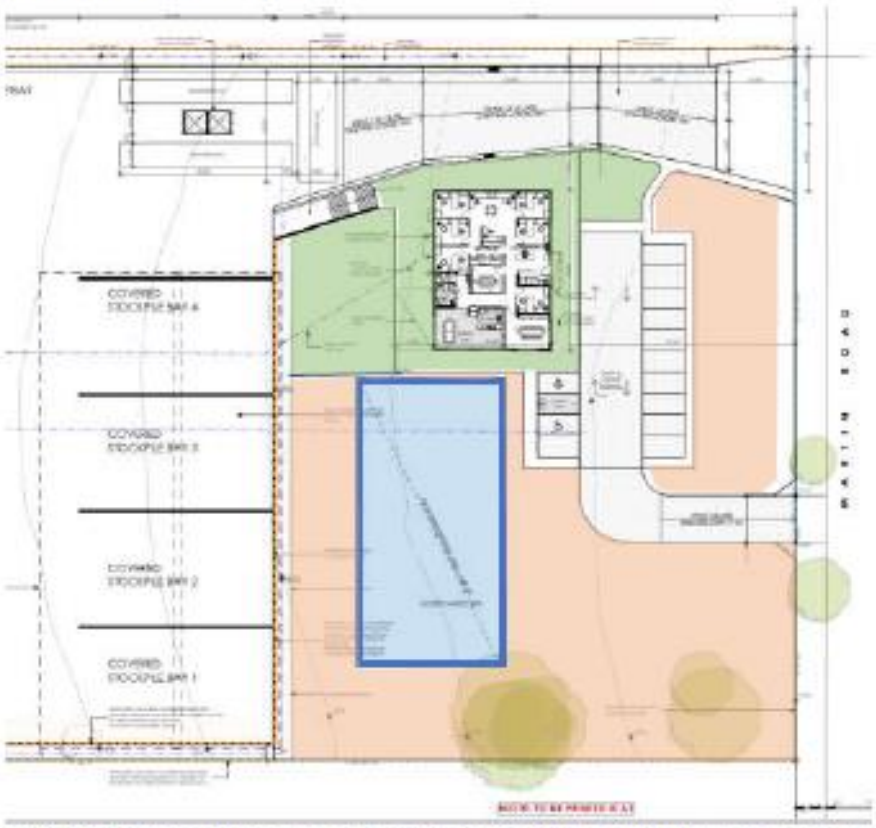
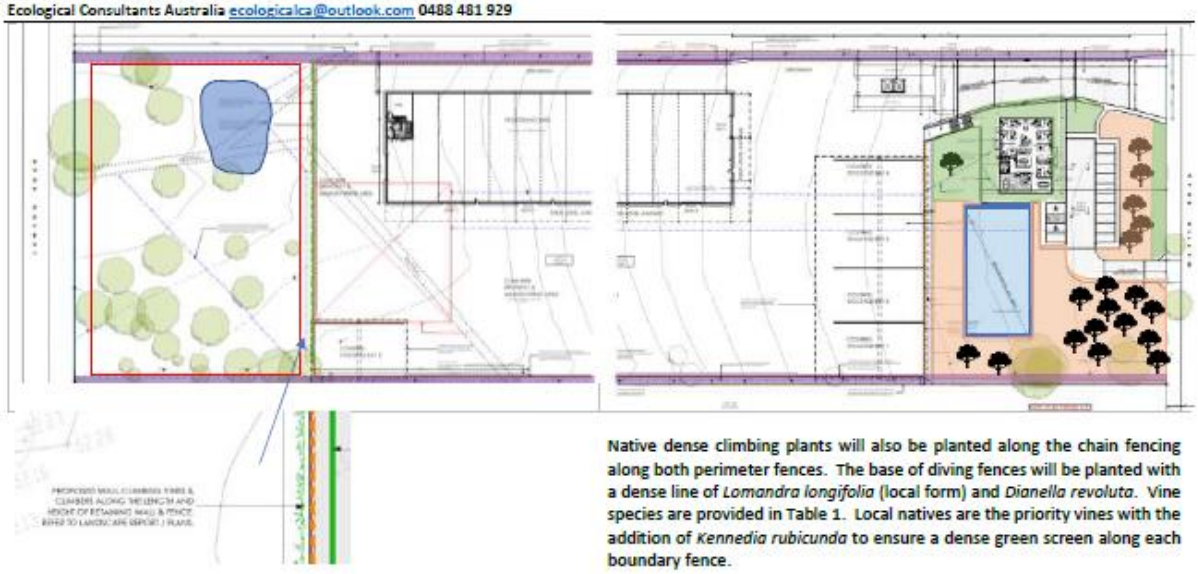


Figure 2b. Proposed disposal area. Source pti architecture and AMJ Demolition and Excavation 23rd July 2019



Native dense climbing plants will also be planted along the chain fencing along both perimeter fences. The base of diving fences will be planted with a dense line of *Lomandra longifolia* (local form) and *Dianella revoluta*. Vine species are provided in Table 1. Local natives are the priority vines with the addition of *Kennedia rubicunda* to ensure a dense green screen along each boundary fence.

Figure 2. Bush regeneration and landscape map. Source of base plan provided by the client Source: pti Architects 23rd July 2019.

Note: twenty (20) trees to be planted, at least fifteen (15) expected to reach maturity.

Table 2. Native planting zones and bush regeneration.

Zone	Zone Mix	Area m² (approx.)	Number of plants (based on ~4/m²)
Orange	Mixed shrubs	2,400	9,600
Light green	Ground covers	2,250	9,000*
Light blue	Damp vegetation	1,220	4,880
Red outline	Bush regeneration	5,500	Depends on results post bush regeneration
Green line	Retaining wall and boundary fences	(228 front 220 per fence) = 668 linear m²	Planting 1 vine every 25cm (4/ linear m) = 2,672 plants
	Trees to be planted NB: shrub planting at tree base to reduce maintenance and protect trees		20

*Native grass seed mix may be used instead of tube stock.

The twenty trees that will be planted are to be tube stock size with the aim to reach maturity. These will be distributed with a 5-metre centre, this meaning at least a five-metre radius between each planting spot. Five trees are to be planted on the western side of the lot near Lawson Road, and fifteen on the eastern side of the lot near Martin Road. Underneath the trees 2 to 2.5 metres of shrubs are to be planted.

In the dam/stormwater area, there is to be a 20x20 metre planting of sedges and rushes. It is to be located depending on the direction of the water and the final direction of water soak. Wet-tolerant vegetation will be planted in drainage swale areas (see Stormwater plans for details) *Juncus* sp. and *Carex appressa* are recommended for this area.

Along both boundary fences and on the Lawson Rd side of the retaining wall, vines will be planted to cover fence and screen. Native species selected are robust and fast growing. The Lawson Rd wall will also be screened by the shrubs and trees on the western side of the lot. The area to be bush regenerated is 6000 m². After the bush regeneration has occurred, a minimum of 4 native plants per square meter should be present and if not then planted. Boundary fences will have *Lomandra* and *Dianella* base and vines to cover vertical surfaces.

All ground surfaces are to be vegetated, if there is a discrepancy between landscaping plan and final on-ground location, for example of wetland or swale, planting to be modified complying with the actual site conditions. Table 1 summarises the plants proposed. No bare areas greater than 4x4m, should be present. All areas have been estimated by using the scale provided on the site plan of the development application.

Table 1. Plants proposed for planting.

Note: species in red are highly recommended and are to be prioritized for ordering. Source of images: Wikipedia.

Scientific Name	Common Name	Type	Purpose	Image
TREES				
Angophora costata For planting in higher drier parts of the site. Some present on-site already.	Smooth-bark Apple	Tree	Habitat and canopy renewal	
Eucalyptus moluccana	Grey Box	Tree	Habitat and canopy renewal	
Melaleuca decora Plant closest to effluent disposal area	Paperbark	Tree	Habitat and canopy renewal Plant closest to effluent disposal area	
Corymbia gummifera	Red Bloodwood	Tree	Canopy renewal	
Acacia decurrens	Green Wattle	Tree	Canopy renewal	

Scientific Name	Common Name	Type	Purpose	Image
Exocarpos cupressiformis	Cherry Ballart	Small Tree	Screening	
Eucalyptus crebra	Narrow-leaved Ironbark	Tree	Habitat and canopy renewal	
Allocasuarina littoralis	Black She-oak	Small Tree	Canopy renewal	
Eucalyptus tereticornis Plant closest to effluent disposal area	Forest Red Gum	Tree	Habitat and canopy renewal Plant closest to effluent disposal area	

Scientific Name	Common Name	Type	Purpose	Image
Brachychiton populneus	Kurrajong	Tree	Habitat and canopy renewal	
Pittosporum undulatum	Sweet Pittosporum	Small Tree	Canopy renewal	
Acacia implexa	Hickory Wattle	Small Tree	Canopy and mid-story renewal	
DAMP VEGETATION				
Carex appressa	Tall Sedge	Sedge	Water plant	
Juncus pallidus	Great-soft Rush	Rush	Water plant	

Scientific Name	Common Name	Type	Purpose	Image
Juncus usitatus	Common Rush/Mat Rush	Rush	Water plant	
Gahnia sieberiania	Red-fruit Saw-sedge	Sedge	Water plant	
SHRUBS				
Bursaria spinosa	Native Blackthorn		Mid-story planting	
Jacksonia scoparia	Dogwood		Mid-story planting	

Scientific Name	Common Name	Type	Purpose	Image
Indigofera australis	Native Indigo		Mid-story planting and native butterfly habitat	
Acacia pubescens	Downy Wattle		Mid-story planting	
Polyscias sambuciflora	Elderberry Panax		Mid-story planting	
Olearia viscidula	Wallaby Bush		Mid-story planting and butterfly habitat	
Acacia falcata	Sickle Wattle		Mid-story planting	

Scientific Name	Common Name	Type	Purpose	Image
Eremophilia debilis	Winter Apple		Mid-story planting and butterfly habitat	
Pomaderris prunifolia	Plum-leaf Pomaderris		Mid-story planting	
Plectranthus parviflorus	Cockspur Flower		Mid-story and habitat	
Astroloma humifusum	Native Cranberry		Mid-story planting	
Cryptandra spinescens	Spiny Cryptandra		Mid-story planting and habitat	
Hibbertia diffusa	Spreading Guinea Flower		Ground to mid-story planting	

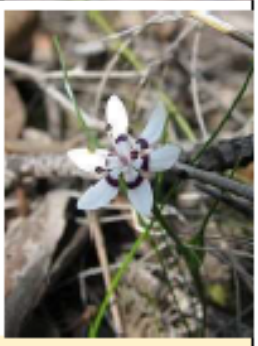
Scientific Name	Common Name	Type	Purpose	Image
Grevillea juniperina	Prickly-leaved Spider-flower		Mid-story planting and habitat	
Hakea sericea	Silky Hakea		Mid-story planting and habitat	
Daviesia ulicifolia	Spiky Daviesia		Mid-story planting and habitat	
Dodonaea viscosa	Wedge-leaf Hop Bush		Mid-story planting	
Lissanthe strigosa	Peach Heart		Mid-story planting and habitat	
Melaleuca nodosa			Mid-story planting and habitat	

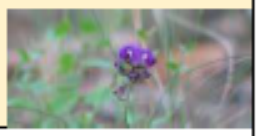
Scientific Name	Common Name	Type	Purpose	Image
Dillwynia tenuifolia		Small Shrub	Mid-story planting and habitat	
Chorizema parviflorum		Small Shrub	Mid-story planting and habitat	
Einadia nutans	Climbing Saltbush		Mid-story planting and habitat	
Hovea linearis	Narrow-leaved Hovea		Herbaceous	
Kunzea ambigua	Tick Bush		Small Shrub	

Scientific Name	Common Name	Type	Purpose	Image
Ozothamnus diosmifolius	White Dogwood		Weak Shrub	
Pimelea spicata	Spiked Rice-flower		Small Shrub	
Pultenea penduculata	Matted Pea-bush		Small Shrub	
Pultenea parviflora			Small Shrub	
GROUND COVER				
Microlaena stipoides	Weeping Grass	Grass	Ground Surfaces	

Scientific Name	Common Name	Type	Purpose	Image
Dichondra repens	Kidney Weed	Creeper	Ground Surfaces	
Dianella longifolia	Blue Flax-lily	Perennial Herb	Ground Surfaces	
Dianella revoluta	Blue Flax Lily	Perennial Herb	Ground Surfaces	
Entolasia marginata	Bordered Panic	Grass	Ground Surfaces	
Eragrostis brownii	Brown's Love-grass	Grass	Ground Surfaces	
Lomandra longifolia	Spiny Mat Rush	Grass	Ground Surfaces	

Scientific Name	Common Name	Type	Purpose	Image
Centella asiatica	Asiatic Pennywort	Creeper	Ground Surfaces	
Panicum effusum	Hairy Panic	Grass	Ground Surfaces	
Scleria mackaviensis		Perennial herb	Ground Surfaces	
Bulbine bulbosa	Native Leek	Perennial herb	Ground Surfaces	
Commelina cyanea	Trad	Ascending Herb	Ground Surfaces	

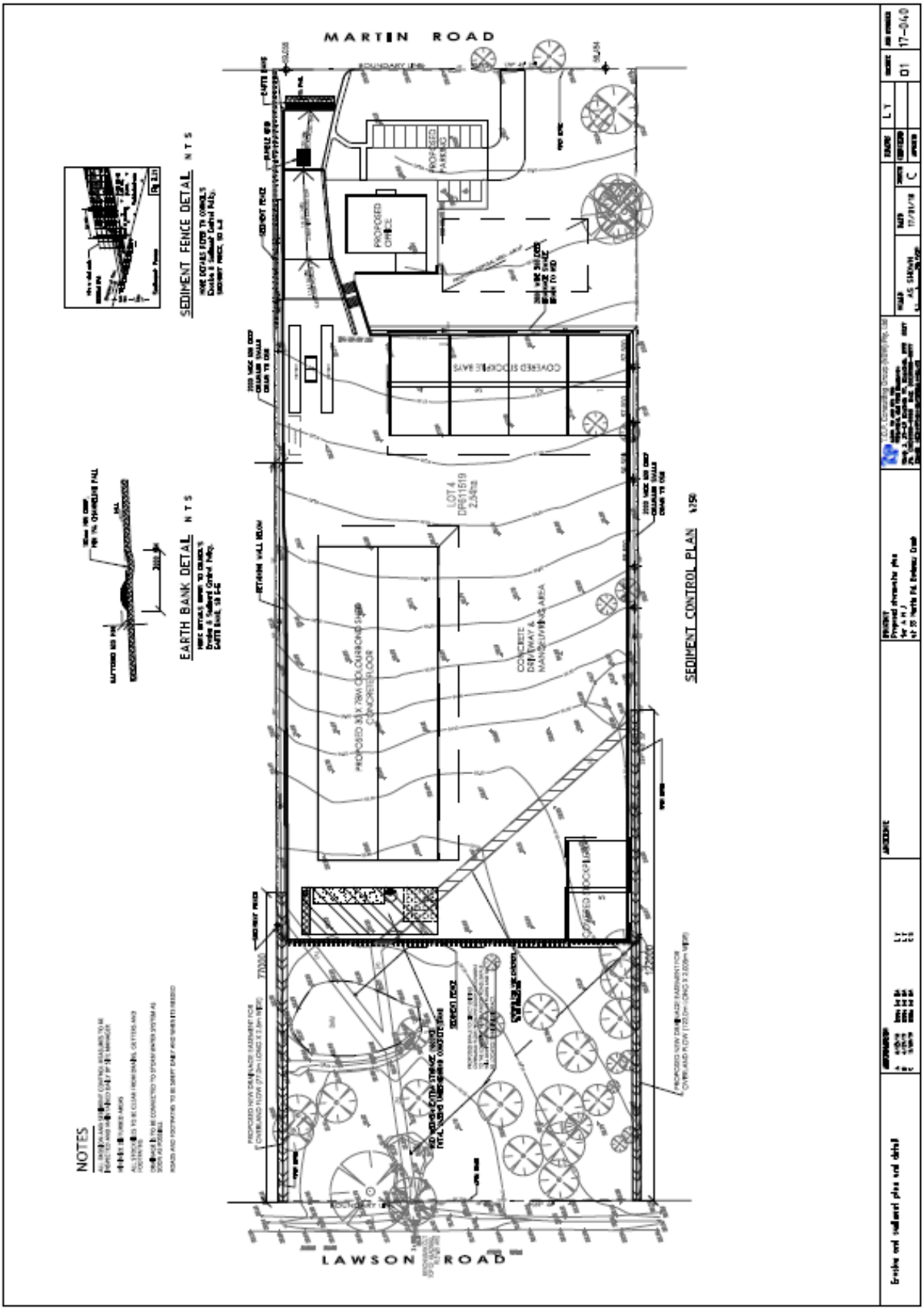
Scientific Name	Common Name	Type	Purpose	Image
Caesia parviflora	Pale Grass-lily	Perennial Herb	Ground Surfaces	
Wurmbea dioica	Early Nancy		Ground Surfaces	
Themeda triandra	Kangaroo Grass	Grass	Ground Surfaces	
Bossiaea prostrata			Ground Surfaces	
VINES and CLIMBERS				
Cayratia clematidea	Slender Grape	Climber	Retaining Wall	
Clematis glycinoides	Headache Vine/Old Man's Beard	Woody Climber	Retaining Wall	

Scientific Name	Common Name	Type	Purpose	Image
Convolvulus erubescens	Pink Bindweed	Twiner	Retaining Wall	
Cynanchum elegans	White-flowered Wax Plant	Woody Climber	Retaining Wall	
Glycine clandestina		Scrambler	Retaining Wall	
Glycine microphylla		Scrambler	Retaining Wall	
Glycine tabacina		Scrambler	Retaining Wall	
Hardenbergia violacea	False Sarsaparilla	Twiner	Retaining Wall	
Kennedia rubicunda	Red Kennedy Pea	Twining Herb	Retaining Wall	

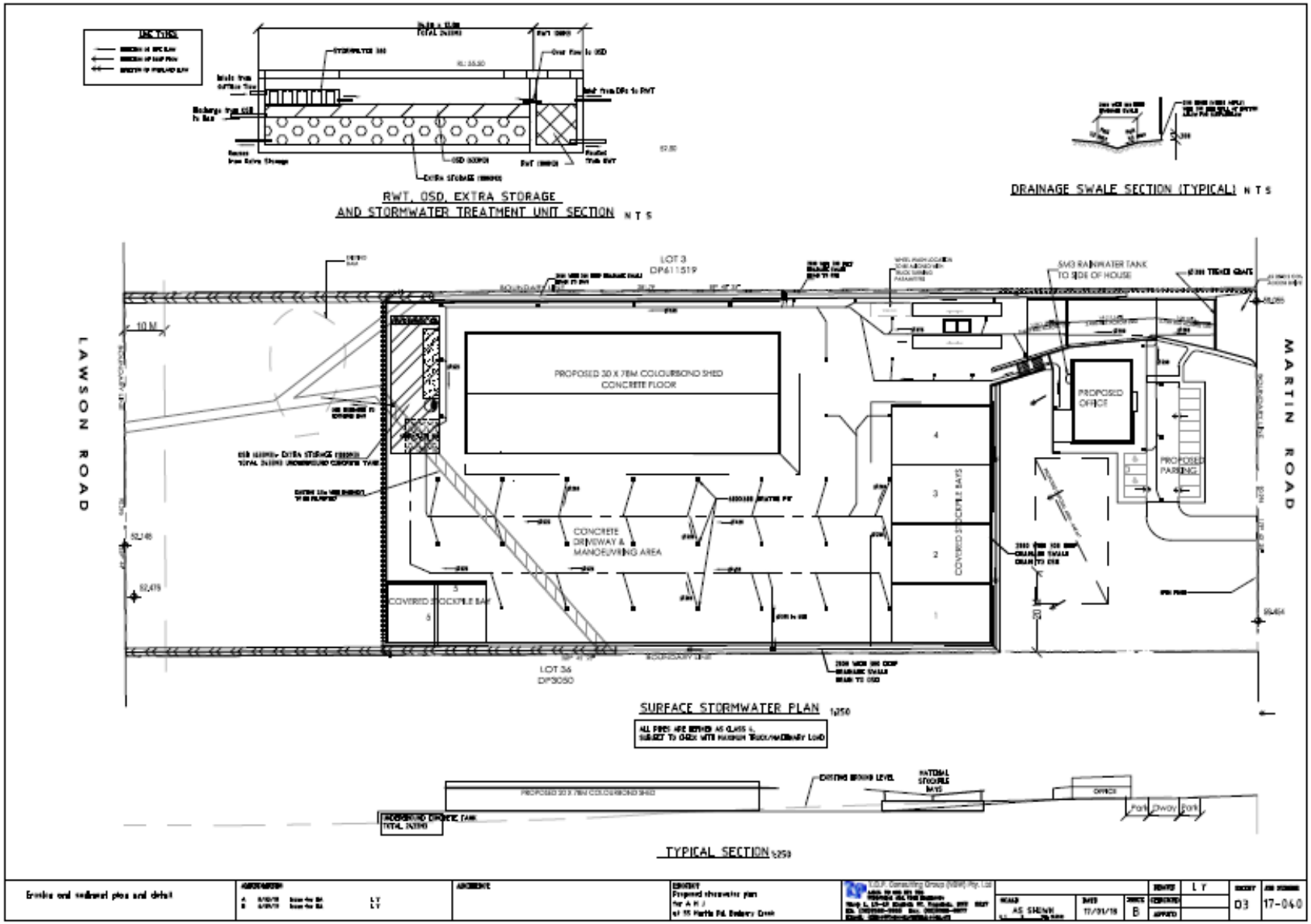
Scientific Name	Common Name	Type	Purpose	Image
Marsdenia viridiflora	Native Pear	Woody Twining Shrub	Retaining Wall	
Pandorea pandorana	Wonga Wonga Vine	Woody Climber	Retaining Wall	
Parsonsia straminea	Common Silkpod	Woody Vine	Retaining Wall	
Rubus parvifolius	Native Raspberry	Scrambling Shrub	Retaining Wall	

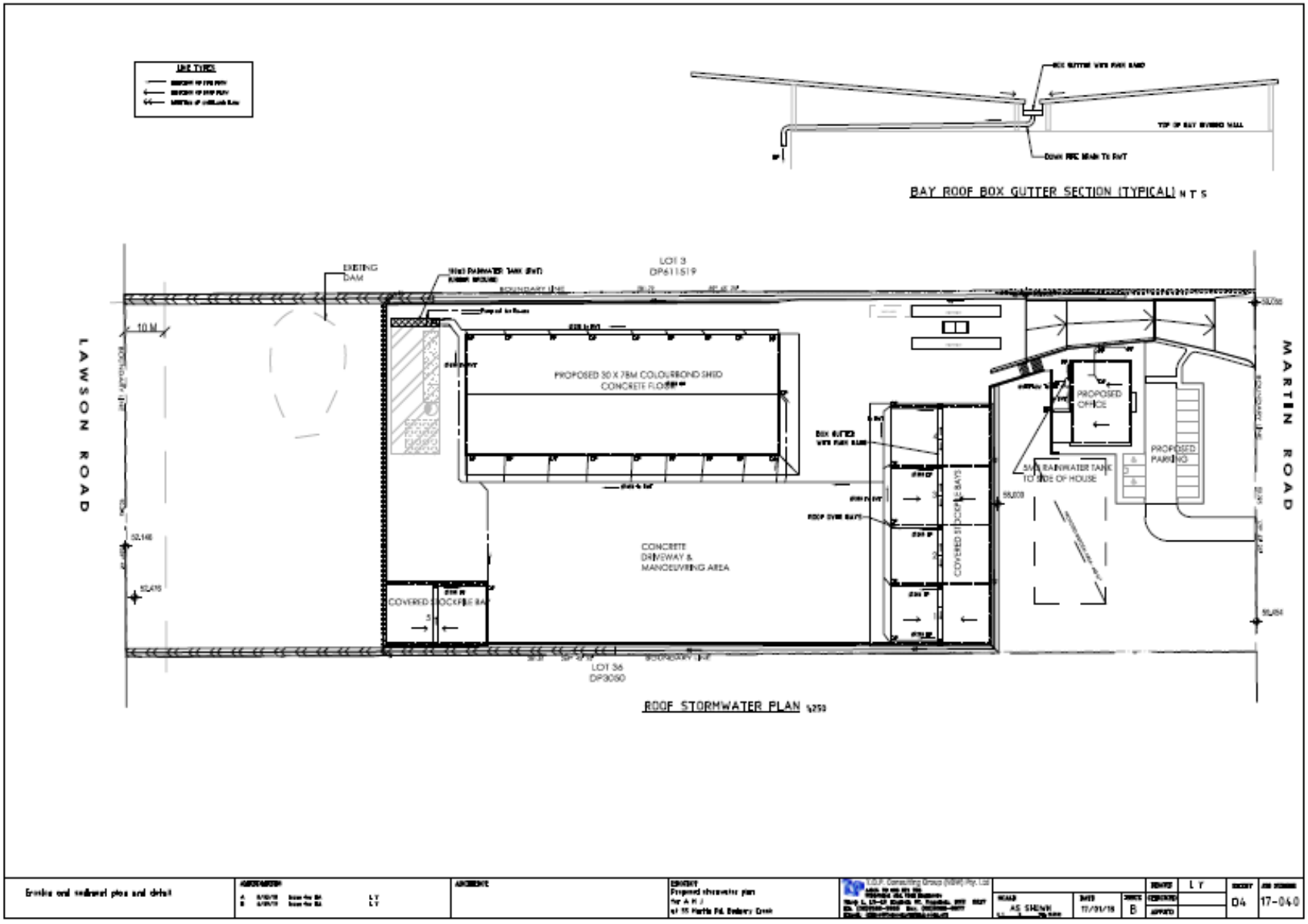
Note: species in red are highly recommended. **Source of images: Wikipedia.**

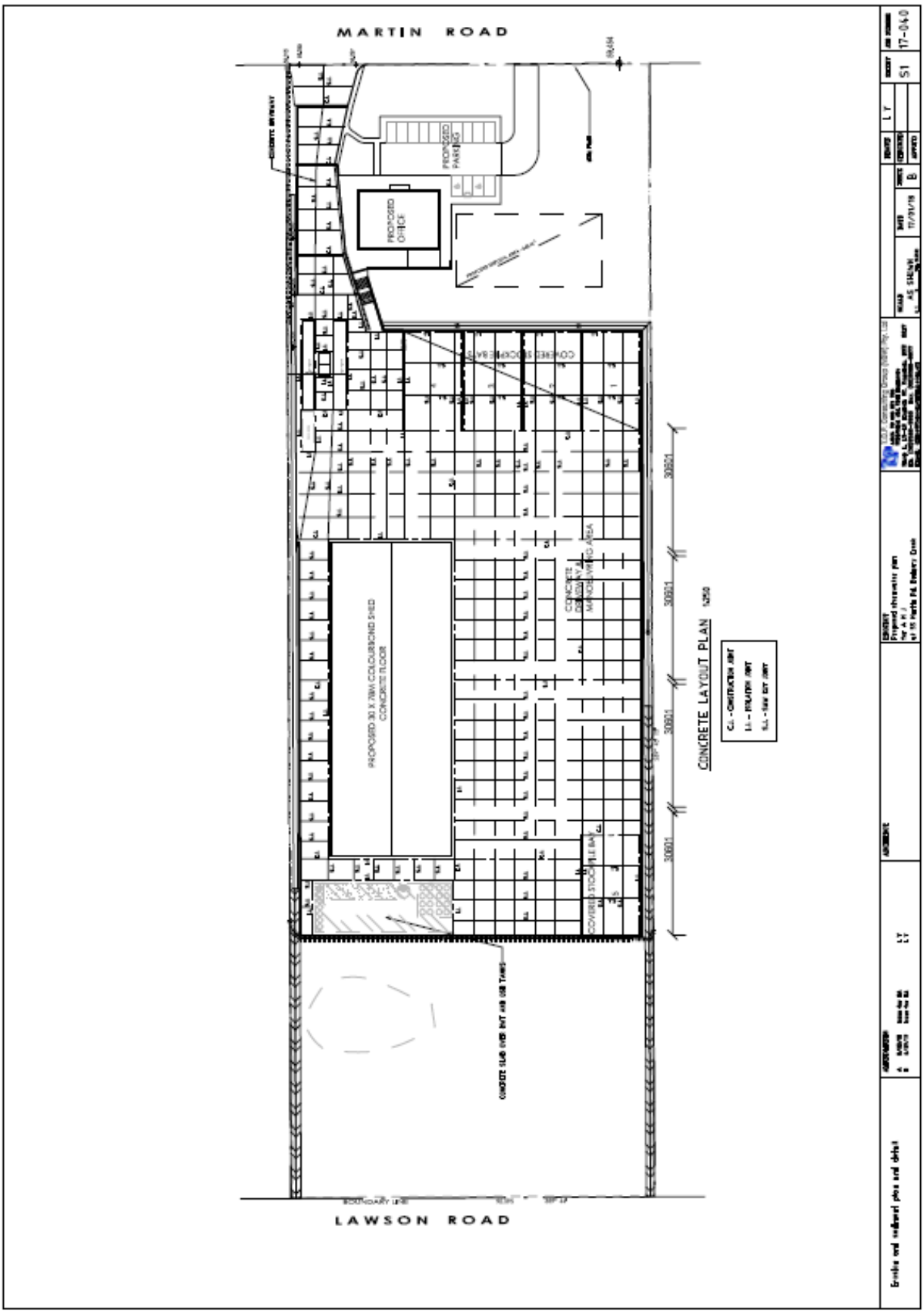
14. ANNEXURE F – Civil and Stormwater Plans



MARTIN ROAD
LAWSON ROAD
PROPOSED OFFICE
PROPOSED PARKING
COVERED STOCKPILE BAYS
PROPOSED 30 X 78M COLOURBOND SHED
CONCRETE FLOOR
CONCRETE SLAB TO BAYS
STORMWATER PIT COLLECTION PLAN


RWT, OSD, EXTRA STORAGE
AND STORMWATER TREATMENT UNIT SECTION N T S
DRAINAGE SWALE SECTION (TYPICAL) N T S
LOT 3
DP611519
LAWSON ROAD
MARTIN ROAD
10 M
PROPOSED 30 X 78M COLOURBOND SHED
CONCRETE FLOOR
CONCRETE
DRIVEWAY &
MANOEUVRING AREA
COVERED STOCKPILE BAYS
PROPOSED
OFFICE
PROPOSED
PARKING
5000 RAINWATER TANK
TO SIDE OF HOUSE
LOT 36
DP3080
SURFACE STORMWATER PLAN 1:250
ALL PIPES ARE REPAIRED AS CLASS 4
SUBJECT TO CHECK WITH MAXIMUM TRUCK/MACHINERY LOAD
EXISTING GROUND LEVEL
NATURAL
STOCKPILE
BAYS
OFFICE
Park
Dway
Park
TYPICAL SECTION 1:250
Erosion and sediment plan and detail
Proposed stormwater plan
for A H J
at 55 Martin Rd, Badgerys Creek
AS SHOWN
11/01/19
B
L T
D3
17-040


LINE TYPES
TOP OF BAY ROOF BOX GUTTER WITH PVC BAND
TOP OF BAY RENDERED WALL
Down PVC Made To Suit
BAY ROOF BOX GUTTER SECTION (TYPICAL) N T S
EXISTING DAM
LOT 3 DP611519
10 M
PROPOSED 30 X 78M COLOURBOND SHED CONCRETE FLOOR
PROPOSED OFFICE
PROPOSED PARKING
5KL RAINWATER TANK TO SIDE OF HOUSE
CONCRETE DRIVEWAY & MANOEUVRING AREA
COVERED STOCKPILE BAYS
LAWSON ROAD
MARTIN ROAD
LOT 36 DP9060
ROOF STORMWATER PLAN 1:250
Erosion and sediment plan and detail
Proposed stormwater plan
for A H J
at 55 Martin Rd, Badgerys Creek
AS SHOWN
11/01/19
B
L T
D4
17-040


MARTIN ROAD
LAWSON ROAD
PROPOSED OFFICE
PROPOSED PARKING
PROPOSED 30 X 78M COLORBOND SHED
CONCRETE FLOOR
CONCRETE DRIVEWAY & MANOEUVRING AREA
COVERED STORAGE BAY
CONCRETE SLAB OVER BAT AND USE TANKS
CONCRETE LAYOUT PLAN
30931
30931
30931
30931

15. ANNEXURE G – Traffic Letter Report

TRANSPORT & URBAN PLANNING PTY LTD
TRAFFIC ENGINEERING - TRANSPORT PLANNING -
ROAD SAFETY & PROJECT MANAGEMENT CONSULTANTS
ABN 51 164 127 422
ACN 164 127 422
SYDNEY OFFICE:
5/90 TORONTO PDE
SUTHERLAND NSW
P.O. BOX 533
SUTHERLAND NSW 1499
PHONE: (02) 9545 1411
FAX: (02) 9545 1556
E-MAIL: admin@transurbanplan.com.au
www.transurbanplan.com.au

29 August, 2019

General Manager
Liverpool City Council
Locked Bag 7064
LIVERPOOL BC 1871

Re: Section 4.55 Modification to Development Approval DA-263/2018
Resource Recovery Facility. 55 Martin Road, Badgerys Creek

Dear Sir/Madam,

1. Introduction

This letter details the assessment of the traffic impacts of the proposed changes to approved development at 55 Martin Road, Badgerys Creek.

2. Proposed Changes

The proposed changes will achieve operational efficiencies as well as improved truck management on the site and include;

- The trucks operate along the northern boundary behind the shed creating a circular movement;
- The trucks can now fully enter the building to unload rather than tipping at the doors as per the approved development;
- A second weighbridge is added;
- The car entry/exit driveway is now separate to the truck entry/exit driveway.

3. Assessment of Impacts

The proposed changes do not affect the hours of operation, employee numbers, the amount of waste to be processed, the number and type of trucks generated by the facility, as compared to the approved development.

The only changes will be to the on site operation and the new separate driveway for vehicle access to the car park.

4. Car Park Driveway in Martin Road

The car park driveway is located approximately 30 metres south of truck driveway. Sight distance to and from the driveway is good and is a minimum 150 metres in both directions of Martin Road, which exceeds Austroads sight distance requirements for the posted speed limit in Martin Road.

5. Car Park

The car park design complies with the requirements of AS2890.1 with regard to driveway width, aisle width, car space size and grades.

The accessible car spaces are designed to comply to AS2890.6.

6. Truck Driveway

The truck driveway is retained at the northern end of the site as per the approved development. The truck driveway's width and grades comply with AS2890.2.

7. Internal Manoeuvring

There will be no change to the size of the trucks previously approved to use the facility. The trucks will include 12.5 metre long HRV's and 19.0 metre long articulated vehicles.

The truck manoeuvring within the site is shown on the swept path diagrams presented in **Figures 1-10**.

Reference to these figures shows that the manoeuvring is satisfactory and fully in accordance with AS2890.2.

8. Other

The proposed modification will not result in any change to the traffic generation of the facility and the traffic impacts on the external road network that were previously assessed for the approved development, for both the operational phase and during construction.

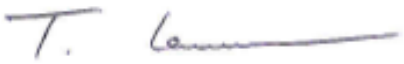
These impacts were assessed as satisfactory and will remain so with the proposed modification in place.

9. Conclusions

In concluding, the proposed internal changes to the approved development will result in more efficient operation on the site and improved truck circulation.

The proposed changes have been assessed and are considered to be fully compliant with AS2890.1 and AS2890.2 requirements.

Yours faithfully,



Terry Lawrence
Director
Transport and Urban Planning Pty Ltd

16. ANNEXURE H – Noise Impact Assessment

NOISE IMPACT ASSESSMENT
FOR AMJ DEMOLITION AND EXCAVATION
55 MARTIN ROAD, BADGERYS CREEK

Prepared for: AMJ Demolition and Excavation Pty Ltd
Claron Consulting

Prepared by: Emma Hansma, Senior Engineer
R T Benbow, Principal Consultant

Report No: 191238_NIA_Rev3
September 2019
(Released: 13 September 2019)

Benbow
ENVIRONMENTAL

Engineering a Sustainable Future for Our Environment

Head Office: 25-27 Sherwood Street, Northmead NSW 2152 AUSTRALIA
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Visit our website: www.benbowenviro.com.au

DOCUMENT CONTROL

Prepared by:	Position:	Signature:	Date:
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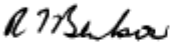
R T Benbow	Principal Consultant		13 September 2019

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EXECUTIVE SUMMARY

This document presents a noise impact assessment conducted by Benbow Environmental for the proposed resource recovery facility located at 55 Martin Road, Badgerys Creek. The amount of waste to be processed is estimated to be approximately 95,000 tonnes per year.

The nearest receivers and the noise generating activities have been identified. Noise criteria for the project have been formed, with assessment of the proposed site activities conducted against the NSW Noise Policy for Industry (EPA, 2017), NSW Interim Construction Noise Guideline (DECC, 2009) and the NSW Road Noise Policy (DECCW, 2011). Modelling of the activities was conducted using the noise modelling software SoundPlan 7.3.

This noise impact assessment finds that predicted noise levels will be below the criteria set out in accordance with the NSW Noise Policy for Industry, at all receivers and time periods. Recommendations for noise controls are given in section 7.3, including sound power levels for the front end loader, fencing, equipment and automated roller doors usage.

The generation of additional road traffic associated with the site's activities has been assessed and it was predicted to comply with the guidelines set out in the NSW Road Noise Policy.

Construction activities are recommended to be limited to standard hours in accordance with the Interim Construction Noise Guideline.

The site is located near the Western Sydney Airport in a zone where the ANEF is between 30 and 35. The proposed development is not a noise sensitive development and would be best classed as "other industrial" under AS2021; acceptable in all ANEF zones. Furthermore the proposed development meets the objectives of clause 7.18 of the Liverpool LEP.

This report concludes that following the carrying out of the recommendations in this report, the proposed site activities will have an acceptable noise impact on the surrounding receivers.

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1. INTRODUCTION

Benbow Environmental has been engaged to undertake a noise impact assessment for the proposed resource recovery facility at 55 Martin Road, Badgerys Creek.

The site is located within a RU1 Primary Production Zoning in Badgerys Creek, within Liverpool City Council. The nearest residential receptors are located approximately adjacent to the northern boundary of the site.

Operations at the site would consist of trucks unloading Construction and Demolition (C&D) waste, including soil (VENM/ENM) and green waste (only garden waste). The amount of waste to be processed is estimated to be approximately 95,000 tonnes per year.

Noise emissions from the site were predicted by using noise modelling software, SoundPlan (V7.3).

This noise impact assessment has been prepared in accordance with the following guidelines and documents:

- NSW Environment Protection Authority (EPA), Noise Policy for Industry 2017;
- Department of Environment, Climate Change and Water (DECCW) NSW, Road Noise Policy (RNP) 2011; and
- Department of Environment and Climate Change (DECC) NSW, Interim Construction Noise Guideline (ICNG) 2009.

1.1 Scope of Works

This noise impact assessment has been limited to the following scope of works:

- Site inspection and review of the proposed site operations;
- Long term unattended noise monitoring and short term attended noise monitoring in accordance with relevant guidelines;
- Establish project specific noise levels;
- Determine all potential noise sources associated with the existing and proposed development;
- Collect required noise sources data;
- Predict potential noise impacts at the nearest potentially affected receptors to the site;
- Assess potential noise impacts against relevant legislation and guidelines;
- Recommend general ameliorative measures/control solutions (where required); and
- Compile this report with concise statements of potential noise impact.

To aid in the review of this report, supporting documentation has been referenced within this report. A glossary of terminology is included in Attachment 1.

2. PROPOSED DEVELOPMENT

2.1 Overview of Operations

The proponent is seeking to establish a resource recovery facility at 55 Martin Road, Lot 4 DP 611519. The following is to be constructed on the site:

- Unloading and processing shed;
- Material storage bays;
- Weighbridge and wheel wash; and
- Car park and landscaped area.

Trucks will enter the site from Martin Road, and unload materials in the unloading and processing shed. Materials are handled and sorted, concrete will be crushed and green waste will be shredded inside the shed. Sorted concrete, bricks, untreated timber and shredded green garden waste are stockpiled on site.

Recovered materials would be stored in the external storage bays for re-selling, either directly from site to trade clients or to a landscape supply outlet offsite. Any processed waste that is not suitable for resource recovery will be collected by a licensed waste contractor for final disposal to landfill.

The majority of stationary noise sources, including the screen and crusher are located inside the building. Mobile equipment such as trucks, excavators and loaders may be located outside the building. Truck movements per day include 10 x 15 tonne truck trips and 6 x 32 tonne truck trips, or a maximum of 2 truck trips per hour.

2.2 Hours of Operations

The resource recovery facility is proposed to operate from Monday to Friday 7am to 6pm and Saturday from 7am to 5pm. The site is not proposed to operate on Sundays or Public Holidays.

2.3 Description of the Proposal

2.3.1 Site Description

The proposal site is located at 55 Martin Road, Badgerys Creek. The block is rectangular shaped and 25,400 m^2 in size. A brick building is located on the eastern end of the property. The land and surrounds is zoned RU1 Primary Production in the Liverpool Council Local Environment Plan 2008.

An unloading and processing shed is proposed to be located on the northern boundary of the property. Trucks are proposed to enter and exit the site from Martin Road. A weighbridge is to be located on the northern edge of the property off Martin Road, and a wheel wash is located further up the driveway, in alignment with truck turning parameters.

Cars are also proposed to enter and exit the site from Martin Road, driving into a new carpark between the existing brick building and Martin Road.

A site layout plan of the 55 Martin Road property is shown in Figure 2-1.

Figure 2-1: Site Layout

DRAWING SCHEDULE:

Drawing No.	Layout Name
00	COVER SHEET
01	LOCATION PLAN
02	SITE ANALYSIS PLAN (NOT ISSUED NOT CHANGED (FROM APPROVED DA)
03	SITE PLAN (WITH APPROVED DA FOOTPRINT OVERLAYED)
04	DETAILED SHED & TRUCK TURNING PLAN
05	DETAILED SITE PLAN (PART A) - LAWSON RD WEST
06	DETAILED SITE PLAN (PART B) - MARTIN RD EAST
07	SHED AMENITIES FLOOR PLANS
08	PROCESSING SHED ELEVATIONS
09	SECTION THRU PROCESSING SHED
10	SECTION THRU STOCKPILE BUNKER
11	NEW OFFICE BUILDING GROUND FLOOR PLAN
12	NEW OFFICE BUILDING ELEVATIONS EAST & WEST
13	NEW OFFICE BUILDING ELEVATIONS NORTH & SOUTH
14	VISUAL IMPACT ASSESSMENT
15	VISUAL IMPACT ASSESSMENT
16	VISUAL IMPACT ASSESSMENT
17	VISUAL IMPACT ASSESSMENT
18	VISUAL IMPACT ASSESSMENT
19	VISUAL IMPACT ASSESSMENT
20	VISUAL IMPACT ASSESSMENT
21	VISUAL IMPACT ASSESSMENT

ARCHITECTURE Town + Regional

AMJ DEMOLITION & EXCAVATION

PROPOSED AMENDMENTS TO APPROVED DA-263/2018
WASTE RESOURCE RECOVERY FACILITY
LOCATION PLAN

DA 01 C

2.3.2 Process Description

The processes involved in the sorting operations are as follows:

- Trucks drive to the site with waste materials from construction and demolition sites, entering the property from western access point off Martin Road.
- Trucks arrive on site at a rate of sixteen per day (sixteen truck movements entering the site and sixteen truck movements exiting the site).
- Trucks drive into the unloading and processing shed and unload materials in the holding area.
- Green waste, concrete and timber are separated from the waste stream.
- Concrete is crushed and screened.
- Sorted materials are loaded to the materials stockpile area by excavator. Materials are sorted into bricks, concrete, timber, glass, metal, as well as garden waste and soil (VENM/ENM).
- Products are either exported from site by truck or sold on location.

3. NEAREST SENSITIVE RECEPTORS

Table 3-1 identifies the nearest sensitive receptors that have the potential to be affected by the proposal. The aerial photographs of the sensitive residential and non-residential receivers are shown in Figure 3-1. These receptors were selected based on their proximity and directional bearing from the subject site.

Table 3-1: Residential and Non-Residential Receivers

Receptor ID	Address	Lot & DP	Approx. Distance from Proposed Development	Type of Receptor
R1	1990 Elizabeth Drive, Badgerys Creek	Lot 10 DP 860338	370 m N	Residential
R2	1970 Elizabeth Drive, Badgerys Creek	Lot 11 DP 860338	370 m N	Residential
R3	30 Martin Road, Badgerys Creek	Lot 8 DP 226448	150 m NE	Residential
R4	40 Martin Road, Badgerys Creek	Lot 7 DP 226448	110 m NE	Residential
R5	50 Martin Road, Badgerys Creek	Lot 6 DP 226448	50 m E	Residential
R6	60 Martin Road, Badgerys Creek	Lot 5 DP 226448	170 m E	Residential
R7	70 Martin Road, Badgerys Creek	Lot 4 DP 226448	130 m SE	Residential
R8	80 Martin Road, Badgerys Creek	Lot 2 DP 530595	220 m SE	Residential
R9	90 Martin Road, Badgerys Creek	Lot 2 DP 226448	210 m SE	Residential
R10	75 Martin Road, Badgerys Creek	Lot 34 DP 3050	290 m S	Residential
R11	65 Martin Road, Badgerys Creek	Lot 36 DP 3050	Adjacent S	Residential
R12	83-87 Lawson Road, Badgerys Creek	Lot 6 DP 3050	70 m SW	Residential
R13	75 Lawson Road, Badgerys Creek	Lot 5 DP 3050	70 m W	Residential
R14	65 Lawson Road, Badgerys Creek	Lot 1 DP 104049	200 m W	Residential
R15	55 Lawson Road, Badgerys Creek	Lot 1 DP 1084967	110 m NW	Residential
R16	45 Lawson Road, Badgerys Creek	Lot 14 DP 531743	170 m NW	Residential
R17	35 Lawson Road, Badgerys Creek	Lot 13 DP 531743	200 m NW	Residential
R18	25 Martin Road, Badgerys Creek	Lot 1 DP 611519	150 m N	Industrial
R19	10 Martin Road, Badgerys Creek	Lot 10 DP 226448	270 m NE	Industrial
R20	105 Lawson Road, Badgerys Creek	Lot 8 DP 3050	220 m SW	Industrial

Figure 3-1: Residential and Non-Residential Receptors

4. EXISTING ACOUSTIC ENVIRONMENT

The level of background and ambient noise is assessed separately for the daytime, evening and night time assessment periods. The NSW EPA Noise Policy for Industry defines these periods as follows:

- **Day** is defined as 7.00am to 6.00pm, Monday to Saturday and 8.00am to 6.00pm Sundays and Public Holidays;
- **Evening** is defined as 6.00pm to 10.00pm, Monday to Sunday and Public Holidays; and
- **Night** is defined as 10.00pm to 7.00am, Monday to Saturday and 10.00pm to 8.00am Sundays and Public Holidays.

Unattended long-term noise monitoring was undertaken from 29th September 2017 to 10th October 2017 at two (2) residential locations.

4.1 NOISE MONITORING EQUIPMENT AND METHODOLOGY

The background noise level measurements were carried out using a Svantek SVAN 957 Precision Sound Level Meter (attended noise monitoring) and two (2) Acoustic Research Laboratories statistical Environmental Noise Loggers, type EL-215 (unattended noise monitoring). The instrument sets complied with AS IEC 61672.1–2004 and were calibrated by a NATA accredited laboratory within two years of the measurement period. Calibration certificates have been included in Attachment 2.

Measurements of background and ambient noise levels were carried out in accordance with the Australian Standard AS 1055–1997 *Acoustics – Description and measurements of environmental noise* – Part 1 and Part 2 and the Noise Policy for Industry (EPA, 2017).

To ensure accuracy and reliability in the results, field reference checks were applied both before and after the measurement period with an acoustic calibrator. There were no excessive variances observed in the reference signal between the pre-measurement and post-measurement calibration. The instruments were set on A-weighted Fast response and noise levels were measured over 15-minute statistical intervals. QA/QC procedures applied for the measurement and analysis of noise levels have been presented in Attachment 3. The microphones were fitted with windsocks and were positioned between 1.2 and 1.5 metres above ground level.

In assessing the background noise levels, any data affected by adverse weather conditions has been discarded according to the requirements of the Noise Policy for Industry. The weather data was sourced from the Bureau of Meteorology Automatic Weather Station (AWS) located at Badgerys Creek (ID 067108).

Details of the instrumentation and setting utilised are provided in Table 4-1.

Table 4-1: Instrumentation and Setup Details

Type of Monitoring	Equipment	Serial Number	Setup Details
Long-term Unattended	ARL-215	194441	A-weighted Fast Response 15 minute integration period
Long-term Unattended	ARL-215	194552	A-weighted Fast Response 15 minute integration period
Short-term Attended	Svantek SVAN957 Type 1 Integrating Sound and Vibration analyser	15336	Three channels: A-weighted Fast Response C-weighted Fast Response A-weighted Impulse Response 15 minute integration period 1/3 octave band recorded every 100 ms Logger file Recorded at steps of 100 ms

4.2 Measurement Locations

The environmental noise loggers were utilised to measure the existing ambient and background noise levels. Unattended long-term noise monitoring was undertaken from 29th September 2017 to 10th October 2017 at two (2) residential locations. The monitoring locations were selected, to represent the closest receivers off Martin Road.

Attended noise monitoring was undertaken on 29th September 2017.

The noise logger locations are shown in Figure 4-1 and listed in Table 4-2. Noise logger charts are presented in Attachment 4.

Table 4-2: Noise Monitoring Locations

Monitoring Location	Methodology	Address
A	Attended monitoring and unattended monitoring	55 Martin Road, Badgerys Creek
B	Attended monitoring and unattended monitoring	83-87 Lawson Road, Badgerys Creek

Figure 4-1: Logger Locations

Table 4-3 identifies the receptor locations that have been associated with the two (2) noise logger locations and will therefore utilise the noise criteria derived from the measurement data obtained from the respective noise logger.

Table 4-3: Associated Residential Receptors

Logger	Associated Residential Receptor Locations
A	R1-R11
B	R12-R17

4.3 MEASURED NOISE LEVELS

4.3.1 Long-Term Unattended Noise Monitoring Results

The data was analysed to determine a single assessment background level (ABL) for each day, evening and night time period, in accordance with the Noise Policy for Industry. That is, the ABL is established by determining the lowest tenth-percentile level of the L_{A90} noise data over each period of interest. The background noise level or rating background level (RBL) representing the day, evening and night assessment periods is based on the median of individual ABL's determined over the entire monitoring period. The results of the long-term unattended noise monitoring are displayed in Table 4-4.

Existing road noise levels are presented in Table 4-5.

Table 4-4: Unattended Noise Monitoring Results, dB(A)

Monitoring Location and associated receptors	Assessment Background Level ABL (L_{90})			Equivalent Ambient Noise Level L_{eq}		
	Day	Evening	Night	Day	Evening	Night
Logger A	37	33	29	50	46	47
Logger B	37	35	30	51	49	48

Table 4-5: Road Traffic Noise Data at Locations A and B

Date	Existing Road Traffic Noise – dB(A)			
	Daytime (7am to 10pm)		Night-time (10pm to 7am)	
	$L_{eq\ (15\ hour)}$	$L_{eq\ (1\ hour)}$	$L_{eq\ (9\ hour)}$	$L_{eq\ (1\ hour)}$
Logger A	51	52	45	48
Logger B	51	52	45	49

4.3.2 Short Term Operator Attended Noise Monitoring Results

Given that the results of the unattended noise monitoring are affected by all ambient noise sources such as local fauna, road traffic and industrial sources, it is not possible to determine with precision the contribution of each component based on unattended monitoring alone. Therefore, the attended noise monitoring allows for a more detailed understanding of the existing ambient noise characteristics and a more meaningful final analysis to be undertaken. The results of the short-term attended noise monitoring are displayed in Table 4-6.

The attended measurements showed that the background noise levels consisted of traffic from Elizabeth Drive, birds and trees rustling in the wind. Ambient noise levels were dominated by vehicles on Martin Road and Lawson Road, aeroplanes and surrounding industrial noise.

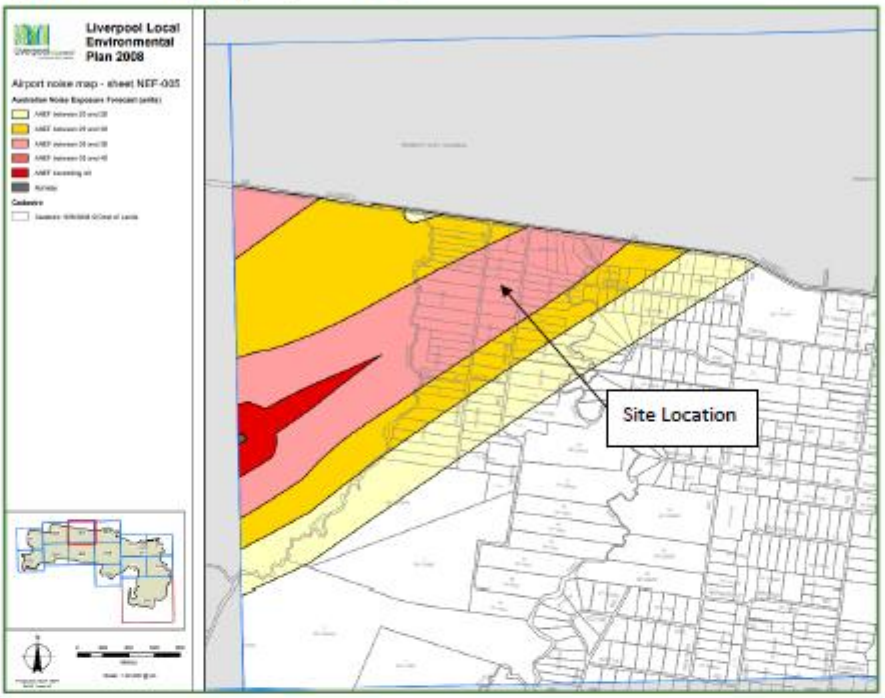
Table 4-6: Operator Attended Noise Measurements, dB(A)

Location & Date/Time	L_{Aeq}	L_{A90}	L_{A10}	L_{A1}	Comments
Location A Friday 29/09/2017 12:55 Daytime Period	61	38	59	81	Cars Martin Road < 74 dB(A) Trucks Martin Road < 83 dB(A) Background traffic Elizabeth Drive < 35 dB(A) **Distant fan < 30 dB(A)** Birds in trees < 45 dB(A) Wind in trees < 35 dB(A) Dog barking < 44 dB(A) Aeroplane < 58 dB(A) **Tractor < 40 dB(A), 90 seconds** **Distant excavator < 30 dB(A), 30 seconds** **Estimated L_{Aeq} noise level from industrial sources = 31 dB(A)**
Location B Friday 29/09/2017 12:28 Daytime Period	53	38	54	65	Cars Lawson Road < 68 dB(A) Trucks Lawson Road < 75 dB(A) Background traffic Elizabeth Drive < 32 dB(A) **Truck revving < 35 dB(A), 10 seconds** Birds < 55 dB(A) Light wind in trees < 40 dB(A) Aeroplane < 56 dB(A) **Industrial scraping/banging < 40 dB(A), 2 minutes** **Estimated L_{Aeq} noise level from industrial sources = 31 dB(A)**

4.4 Western Sydney Airport Noise

The subject site lies under the flight path for the proposed Western Sydney Airport. The site location is shown on the Australian Noise Exposure Forecast (ANEF) map below.

Figure 4-2: Western Sydney Airport ANEF Map



As can be seen in the image above the ANEF for the site is between 30 and 35.

5. METEOROLOGICAL CONDITIONS

Wind and temperature inversions may affect the noise impact at the receptors. Therefore noise enhancing weather conditions should be assessed when wind and temperature inversions are considered to be a feature of the area.

A site-representative meteorological data file was obtained from the Bureau of Meteorology (BOM) for the Badgerys Creek Automatic Weather Station (AWS ID 067108). At the time of preparing this report, the last full year of data available is 2016, and was therefore considered appropriate.

5.1 WIND EFFECTS

Wind is considered to be a feature where source-to-receiver wind speeds (at 10 m height) of 3 m/s or below occur for 30% or more of the time in any assessment period in any season.

5.1.1 Wind Rose Plots

Wind rose plots show the direction that the wind is coming from, with triangles known as "petals". The petals of the plots in the figures summarise wind direction data into 8 compass directions i.e. north, north-east, east, south-east, etc. The length of the triangles, or "petals", indicates the frequency that the wind blows from that direction. Longer petals for a given direction indicate a higher frequency of wind from that direction. Each petal is divided into segments, with each segment representing one of the six wind speed classes.

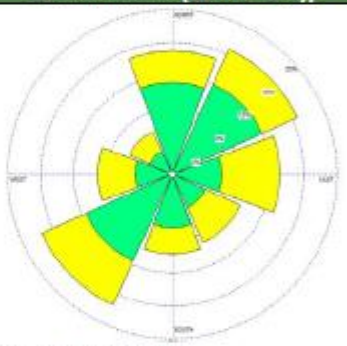
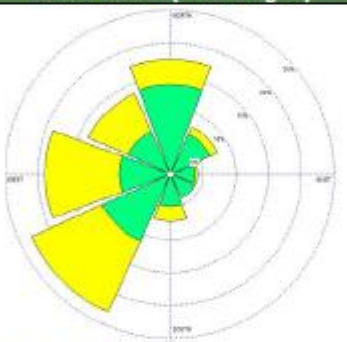
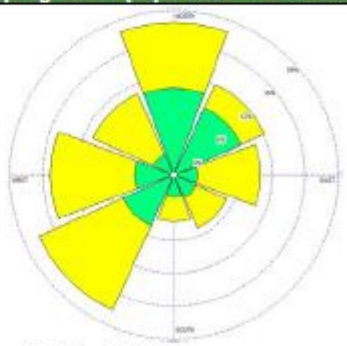
Thus, the segments of a petal show what proportion of wind for a given direction falls into each class. The proportion of time for which wind speed is less than 0.5 m/s, when speed is negligible, is referred to as calm hours or "calms". Calms are not shown on a wind rose as they have no direction, but the proportion of time consisting of the period under consideration is noted under each wind rose.

The concentric circles in each wind rose are the axis, which denote frequencies. In comparing the plots it should be noted that the axis varies between wind roses, although all wind roses are similar in size. The frequencies denoted on the axes are indicated beneath each wind rose.

5.1.2 Local Wind Trends

Seasonal wind rose plots for this site utilising Badgerys Creek AWS data have been included in Figure 5-1.

Figure 5-1: Wind Rose Plots – BOM Badgerys Creek AWS ID 067108 2016 – Day time

All Seasons	Summer Season (December – February)
	
Average Wind Speed: 3.01 m/s Axis Frequencies: 4%, 8%, 12%, 16%, 20%	Average Wind Speed: 3.00 m/s Axis Frequencies: 5%, 10%, 15%, 20%, 25%
Autumn Season (March – May)	**Winter Season (June – August)**
	
Average Wind Speed: 2.58 m/s Axis Frequencies: 4%, 8%, 12%, 16%, 20%	Average Wind Speed: 2.84 m/s Axis Frequencies: 5%, 10%, 15%, 20%, 25%
Spring Season (September – November)	**Legend**
	
Average Wind Speed: 3.62m/s Axis Frequencies: 4%, 8%, 12%, 16%, 20%	

Based on the information presented from the weather data, source-to receiver wind speeds of 3 m/s or below are present for less than 30% of the time therefore wind effects have not been included in the assessment.

5.2 TEMPERATURE INVERSIONS

Operations are to take place during the day period, Monday to Friday 7am to 6pm and Saturday from 7am to 5pm. As the night period is not being utilised, temperature inversions are therefore not considered any further.

5.2.1 Weather Conditions Considered in the Assessment

The following conditions will be considered in this noise impact assessment considered:

- Condition A: Neutral Weather Conditions.

Details of the considered meteorological conditions have been displayed in Table 5-1.

Table 5-1: Meteorological Conditions Assessed in Noise Propagation Modelling

Condition	Classification	Ambient Temp.	Ambient Humidity	Wind Speed	Wind Direction (blowing from)	Temperature Inversion	Affected Receiver	Applicability
A	Neutral	10 °C	70%	-	-	No	All	All periods

6. CURRENT LEGISLATION AND GUIDELINES

6.1 NSW EPA Noise Policy for Industry

The NSW Noise Policy for Industry was developed by the NSW EPA primarily for the assessment of noise emissions from industrial sites regulated by the NSW EPA.

The policy sets out two components that are used to assess potential site-related noise impacts. The intrusiveness noise level aims at controlling intrusive noise impacts in the short-term for residences. The amenity noise level aims at maintaining a suitable amenity for particular land uses including residences in the long-term. The more stringent of the intrusiveness or amenity level becomes the project noise trigger levels for the project.

6.1.1 Project Intrusiveness Noise Level

The project intrusiveness noise level is determined as follows:

$L_{Aeq,\ 15\ minute}$ = rating background noise level + 5 dB

Where the $L_{Aeq,(15minute)}$ is the predicted or measured L_{Aeq} from noise generated within the project site over a fifteen minute interval at the receptor.

This is to be assessed at the most affected point on or within the residential property boundary or if that is more than 30 m from the residence, at the most affected point within 30 m of the residential dwelling.

6.1.2 Amenity Noise Level

To limit continuing increases in noise levels, the maximum ambient noise level within an area from industrial noise sources should not normally exceed the acceptable noise levels specified in Table 2.2 of the NSW Noise Policy for Industry 2017. The relevant recommended noise levels applicable are reproduced in Table 6-1.

Table 6-1: Amenity noise levels.

Receiver	Noise Amenity Area	Time of Day	L_{Aeq} dB(A) Recommended amenity noise level
Residential	Rural	Day	50
		Evening	45
		Night	40
Industrial	All	When in use	70

Source: Table 2.2 NSW Noise Policy for Industry

The project amenity noise level for industrial developments = recommended amenity noise level minus 5 dB(A)

The following exceptions to the above method to derive the project amenity noise levels apply:

1. *In areas with high traffic noise levels*
2. *In proposed developments in major industrial clusters*
3. *Where the resultant project amenity noise level is 10 dB or more lower than the existing industrial noise level. In this case the project amenity noise levels can be set at 10 dB below existing industrial noise levels if it can be demonstrated that existing industrial noise levels are unlikely to reduce over time.*
4. *Where cumulative industrial noise is not a necessary consideration because no other industries are present in the area, or likely to be introduced into the area in the future. In such cases the relevant amenity noise level is assigned as the project amenity noise level for development.*

This development is not considered to be captured by the above exceptions.

6.1.3 Sleep Disturbance Criteria

In accordance with the NSW EPA Noise Policy for Industry, the potential for sleep disturbance from maximum noise level events from premises during the night-time period needs to be considered. Sleep disturbance is considered to be both awakenings and disturbance to sleep stages.

Where the subject development/premises night-time noise levels at a residential location exceed:

- **$L_{Aeq,\ 15\ minute}$ 40 dB(A) or the prevailing RBL plus 5 dB, whichever is the greater, and/or**
- **L_{AFmax} 52 dB(A) or the prevailing RBL plus 15 dB, whichever is the greater,**

A detailed maximum noise level assessment should be undertaken.

The development is not proposed to operate during the night period, and therefore a sleep disturbance assessment is not considered warranted.

6.1.4 Project Noise Trigger Levels

The project noise trigger levels for the site have been established in accordance with the principles and methodologies of the NSW Noise Policy for Industry (EPA, 2017).

Table 6-2 below presents the rating background level, project intrusive noise level, recommended amenity noise level, and project amenity noise level. The project noise trigger level is the lowest value of intrusiveness or project amenity noise level after conversion to $L_{Aeq\ 15\ minute}$, dB(A) equivalent level.

Different time periods apply for the noise criteria as the intrusive criterion considers a 15 minute assessment period while the amenity criterion requires assessment over the total length of time that a site is operational within each day, evening or night period. In order to ensure compliance under all circumstances, a 15 minute period assessment has been considered for all receptors.

Table 6-2: Project Noise Trigger Levels (PNTL) for Operational Activities, dB(A)

Receiver	Type of Receptor	Time of day	Rating background noise level	Project intrusiveness noise level ($L_{eq(15\ minute)}$)	Recommended amenity noise level $L_{Aeq\ period}$	Project amenity noise level $L_{Aeq\ 15\ minute}$ [2]	PNTL $L_{Aeq\ 15\ minute}$
R1-R11	Residential - Rural	Day	37	**42**	50	48	**42**
		Evening	33	**38**	45	43	**38**
		Night	30	**35**[1]	40	38	**35**
R12-R17	Residential - Rural	Day	37	**42**	50	48	**42**
		Evening	35	**40**	45	43	**40**
		Night	30	**35**	40	38	**35**
R18-R20	Industrial	When in use	-	-	70	68	**68**

Notes:
1) This value is based on the minimum assumed rating background level of 30 dB(A) for night time.
2) These levels have been converted to $L_{Aeq\ 15\ minute}$ using the following: $L_{Aeq\ 15\ minute} = L_{Aeq\ period} + 3$ dB (NSW Noise Policy for Industry Section 2.2).

6.2 NSW EPA Road Noise Policy

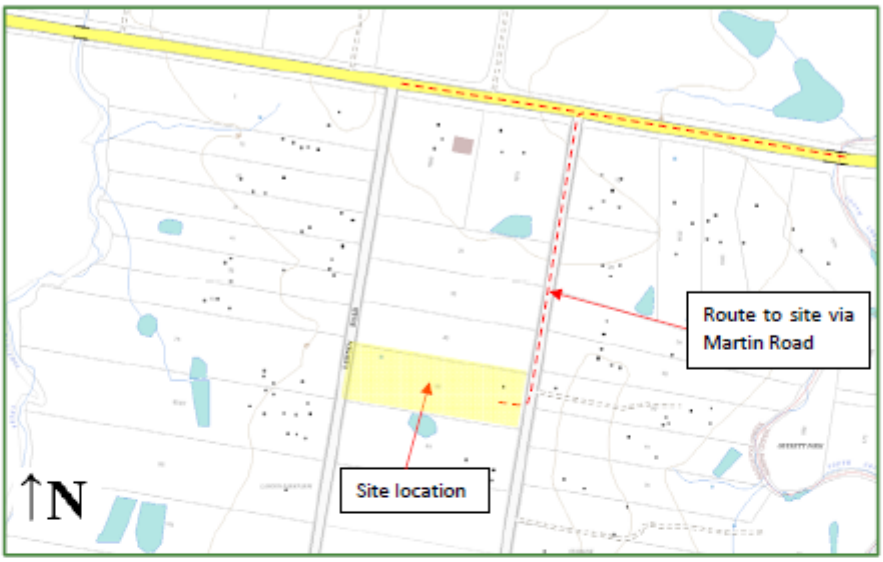
The NSW Road Noise Policy (RNP) has been adopted to establish the noise criteria for the potential noise impact associated with additional traffic generated by the proposal. The RNP was developed by the NSW EPA primarily to identify the strategies that address the issue of road traffic noise from:

- Existing roads;
- New road projects;
- Road redevelopment projects; and
- New traffic-generating developments.

6.2.1 Vehicle Route

Trucks and light vehicles are proposed to access the site from Martin Road. Martin Road is accessed from the sub-arterial road, Elizabeth Drive. The proposed transport routes are shown in Figure 6-1. The potentially most impacted residents to the proposed route are located along Martin Road, between Elizabeth Drive and the subject site.

Figure 6-1: Proposed Transport Route



6.2.2 Road Category

Based on the RNP road classification description, Martin Road would be classified as a 'local road'.

6.2.3 Noise Assessment Criteria

Section 2.3 of the RNP outlines the criteria for assessing road traffic noise. The relevant section of Table 3 of the RNP is shown in Table 6-3.

Table 6-3: Road Traffic Noise Assessment Criteria for Residential Land Uses, dB(A)

Road Category	Type of Project/Land Use	Assessment Criteria, dB(A)	
		Day (7am-10pm)	Night (10pm-7am)
Local roads	6. Existing residences affected by additional traffic on existing local roads generated by land use developments	$L_{Aeq\ (1\ hour)}$ 55 dB (external)	$L_{Aeq\ (1\ hour)}$ 50 dB (external)

* measured at 1 m from a building façade.

6.2.4 Relative Increase Criteria

In addition to the assessment criteria outlined above, any increase in the total traffic noise level at a location due to a proposed project or traffic-generating development must be considered. Residences experiencing increases in total traffic noise levels above the relative criteria should also be considered for mitigation as described in Section 3.4 of the RNP. For road projects where the main subject road is a local road, the relative increase criterion does not apply.

As Martin Road is a local road, the relative increase criterion will not be further considered.

6.2.5 Assessment Locations for Existing Land Uses

Table 6-4: Assessment Locations for Existing Land Uses

Assessment Type	Assessment Location
External noise levels at residences	The noise level should be assessed at 1 metre from the façade and at a height of 1.5 metres from the floor. Separate noise criteria should be set and assessment carried out for each façade of a residence, except in straightforward situations where the residential façade most affected by road traffic noise can be readily identified. The residential noise level criterion includes an allowance for noise reflected from the façade ('façade correction'). Therefore, when taking a measurement in the free field where reflection during measurement is unlikely (as, for instance, when measuring open land before a residence is built), an appropriate correction – generally 2.5 dB – should be added to the measured value. The 'façade correction' should not be added to measurements taken 1 metre from the façade of an existing building. Free measurements should be taken at least 15 metres from any wall, building or other reflecting pavement surface on the opposite side of the roadway, and at least 3.5 metres from any wall, building or other pavement surface, behind or at the sides of the measurement point which would reflect the sound.
Noise levels at multi-level residential buildings	The external points of reference for measurement are the two floors of the building that are most exposed to traffic noise. On other floors, the internal noise level should be at least 10 dB less than the relevant external noise level on the basis of openable windows being opened sufficiently to provide adequate ventilation. (Refer to the Building Code of Australia (Australian Building Codes Board 2010) for additional information.)
Internal noise levels	Internal noise levels refer to the noise level at the centre of the habitable room that is most exposed to the traffic noise with openable windows being opened sufficiently to provide adequate ventilation. (Refer to the Building Code of Australia (Australian Building Codes Board 2010) for additional information.)

Table 6-4: Assessment Locations for Existing Land Uses

Assessment Type	Assessment Location
Open space – passive or active use	The noise level is to be assessed at the time(s) and location(s) regularly attended by people using the space. In this regard, 'regular' attendance at a location means at least once a week.

6.2.6 Road Traffic Project Specific Noise Levels

Based on the traffic noise data obtained though the long term road traffic noise measurement, the current existing road traffic noise levels exceed the assessment criteria.

The selected project specific noise levels associated with road traffic noise are presented in Table 6-5.

Where existing traffic noise levels are above the noise assessment criteria, any increase in the total traffic noise level should be limited to 2 dB above that of the corresponding 'no build option'.

Table 6-5: Project Specific Noise Levels Associated with Road Traffic, dB(A)

Receptor along	Period	Existing Road Traffic Noise L_{eq}	Assessment Criteria L_{eq}	PSNL Cumulative Road Traffic Noise Level L_{eq}
R4, Martin Road (Local Road)	Day	48	55	**55**
	Night	44	50	**50**

6.3 Construction Noise and Vibration Criteria

Criteria for construction and demolition noise has been obtained from the NSW Interim Construction Noise Guideline (DECC, 2009). Guidance for construction vibration has been taken from British Standard BS7385-Part 2: 1993 *'Evaluation and measurement for vibration in buildings'* and other standards.

6.3.1 NSW Interim Construction Noise Guideline

Residential Criteria

Table 2 of the Interim Construction Noise Guideline (DECC, 2009), sets out construction noise management levels for noise at residences and how they are to be applied. The management noise levels are reproduced in Table 6-6 below. Restrictions to the hours of construction may apply to activities that generate noise at residences above the 'highly noise affected' noise management level.

Table 6-6: Management Levels at Residences Using Quantitative Assessment

Time of Day	Management Level $L_{Aeq(15\ minute)}$	How to Apply
Recommended standard hours: Monday to Friday 7am – 6pm Saturday 8am – 1pm No work on Sundays or Public Holidays	Noise Affected RBL + 10 dB	The noise affected level represents the point above which there may be some community reaction to noise. • Where the predicted or measured $L_{Aeq(15\ minute)}$ is greater than the noise affected level, the proponent should apply all feasible and reasonable work practises to meet the noise affected level. • The proponent should also inform all potentially affected residents of the nature of works to be carried out, the expected noise levels and duration, as well as contact details.
	Highly Noise Affected 75 dB(A)	The highly noise affected level represents the point above which there may be strong community reaction to noise. • Where noise is above this level, the relevant authority (consent, determining or regulatory) may require respite periods by restricting the hours that the very noisy activities can occur, taking into account: 1. times identified by the community when they are less sensitive to noise (such as before and after school, or mid-morning or mid-afternoon for works near residents. 2. if the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.
Outside recommended standard hours	Noise Affected RBL + 5 dB	• A strong justification would typically be required for works outside the recommended standard hours. • The proponent should apply all feasible and reasonable work practices to meet the noise affected level. • Where all feasible and reasonable practices have been applied and noise is more than 5 dB(A) above the noise affected level, the proponent should negotiate with the community. • For guidance on negotiating agreements see section 7.2.2 (RNP)

Noise levels apply at the property boundary that is most exposed to construction noise, and at a height of 1.5 m above ground level. If the property boundary is more than 30 m from the residence, the location for measuring or predicting noise levels is at the most noise-affected point within 30 m from the residence.

Other Land Uses

Table 6-7 sets out management levels for construction noise at other land uses applicable to the surrounding area.

Table 6-7: Management Levels at Other Land Uses

Land use	Management Level $L_{Aeq(15\ minute)}$ (applies when properties are being used)
Industrial Premises	External Noise Level 75 dB(A)

There are no other sensitive land uses in the area surrounding the proposed resource recovery facility.

The noise criterion for construction noise is presented in Table 6-8.

Table 6-8: Construction Noise Criterion dB(A)

Receiver	Land Use	Period	RBL L_{A90}	Management Level $L_{Aeq(15\ minute)}$
R1-R11	Residential	Standard Hours	37	47
R12-R17	Residential	Standard Hours	37	47
R18-R20	Industrial	Standard Hours	-	75

6.3.2 Vibration Criteria

A proposed list of operational equipment listed in Table 7-1 and construction equipment listed in Table 9-2 does not include significant sources of vibration, and is not expected to cause cosmetic damage to surrounding structures or cause human response to nearby receivers. Vibration impacts during the construction and operational activities have therefore not been further considered.

6.4 Western Sydney Airport Legislation

The Australian Noise Exposure Forecast (ANEF) describes the cumulative aircraft noise for an 'average annual day'. Below shows the acceptability for different uses in relation to the ANEF zone in accordance with AS2021.

Table 6-9: AS2021 – Building Site Acceptability base on ANEF zone

Building Type	ANEF zone of site		
	Acceptable	Conditionally Acceptable	Unacceptable
House, home unit, flat caravan park	Less than 20 ANEF	20 to 25 ANEF	Greater than 25 ANEF
Hotel, motel, hostel	Less than 25 ANEF	25 to 30 ANEF	Greater than 30 ANEF
School, university	Less than 20 ANEF	20 to 25 ANEF	Greater than 25 ANEF
Hospital, nursing home	Less than 20 ANEF	20 to 25 ANEF	Greater than 25 ANEF
Public building	Less than 20 ANEF	20 to 30 ANEF	Greater than 30 ANEF
Commercial building	Less than 25 ANEF	25 to 35 ANEF	Greater than 35 ANEF
Light industrial	Less than 30 ANEF	30 to 40 ANEF	Greater than 40 ANEF
Other industrial	Acceptable in all ANEF zones		

The proposed development would be best classed as "other industrial" Acceptable in all ANEF zones. The site is located in a zone where the ANEF is between 30 and 35.

6.4.1 LEP Clause 7.18

The Liverpool Local Environment Plan 2008 clause 7.18 states:

7.18 Development in areas subject to potential airport noise
(1) The objectives of this clause are to ensure that development in the vicinity of Bankstown Airport and the proposed Badgery's Creek airport site—
(a) has regard to the use or potential future use of each site as an airport, and
(b) does not hinder or have any other adverse impact on the development or operation of the airports on those sites.
(2) Development consent is required for the erection of a building on land where the ANEF exceeds 20 if it is erected for residential purposes or for any other purpose involving regular human occupation.
(3) The following development is prohibited unless it meets the requirements of AS 2021–2000, Acoustics—Aircraft noise intrusion—Building siting and construction with respect to interior noise levels—
(a) residential accommodation on land where the ANEF exceeds 20,
(b) business premises, entertainment facilities, office premises, public administration buildings, retail premises and tourist and visitor accommodation on land where the ANEF exceeds 25.
(4) The following development is prohibited—
(a) educational establishments, hospitals and places of public worship on land where the ANEF exceeds 20,
(b) dwellings on land where the ANEF exceeds 25 (other than development consisting of the alteration, extension or replacement of an existing dwelling house where the development is consistent with the objectives of this clause),
(c) business premises, entertainment facilities, office premises, public administration buildings, retail premises and tourist and visitor accommodation on land where the ANEF exceeds 30.

(5) In this clause—
ANEF means Australian Noise Exposure Forecast as shown on the Airport Noise Map.

The proposed development is considered to meet the objectives of the above clause. The development is a waste resource recovery facility and is not considered captured by the uses stated in the clauses above.

7. OPERATIONAL NOISE IMPACT ASSESSMENT

7.1 Modelling Methodology

7.1.1 Noise Model

Noise propagation modelling was carried out using the ISO9613 algorithm within SoundPLAN v7.3. This model has been extensively utilised by Benbow Environmental for assessing noise emissions for existing and proposed developments, and is recognised by regulatory authorities throughout Australia. The model allows for the prediction of noise from a site at the specified receptor, by calculating the contribution of each noise source. Other model inputs included the noise sources, topographical features of the subject area and receiver locations.

The modelling scenarios have been carried out using the $L_{Aeq,\ 15\ minutes}$ descriptor. Using the descriptor, noise emission levels were predicted at the nearest potentially affected sensitive receptors to determine the noise impact against the relevant noise criteria in accordance with the NSW EPA Noise Policy for Industry.

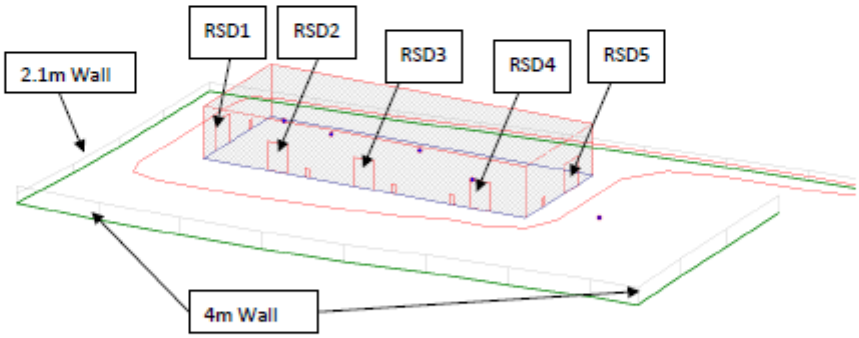
7.1.2 Assumptions Made for Noise Modelling

It should be noted that the relevant assessment period for operational noise emissions has been considered to be 15 minutes. Therefore noise source durations detailed in the following assumptions should be considered per 15 minute period in view of potential noise impacts under worst-case scenarios. Each assessment-specific assumption has been detailed below:

- Off-site topographical information was obtained from Google Earth.
- On-site topography has been obtained from the site survey plans provided by the client.
- The unloading and processing shed has been modelled as an industrial building with internal point sources. The building dimensions are as shown on the survey plans. The majority of the industrial building walls and roof have been considered to be constructed of 1 mm colorbond sheet steel (R_w = 25 dB). The floor has been modelled as concrete.
- For scenario 1, the roller shutter doors have been modelled in the closed position for the entire 15 minute scenario. Pedestrian doors have been modelled open for 30 seconds per 15 minute scenario.
- For scenario 2, all roller shutter doors have been modelled in the closed position for the entire 15 minute scenario, except for door number 3 (the middle roller door). Roller door 3 has been modelled in the open position for 3 minutes, and closed for 12 minutes, simulating a truck or front end loader entering or exiting the shed. Pedestrian doors have been modelled open for 30 seconds per 15 minute scenario.
- For scenario 3, the roller shutter doors have been modelled in the open position for the entire 15 minute scenario. Pedestrian doors have been modelled open for 30 seconds per 15 minute scenario.

- A 2.1 m colorbond fence is modelled surrounding the hardstand area of the site. A 4m colorbond wall along the southern and eastern border of the hardstand area is modelled.
- All receptors were modelled at 1.5 m above ground level.
- All ground areas have been modelled considering different ground factors ranging from 0 to 1 (hard to soft ground). The subject site and immediate surrounding industrial area have been modelled with a ground absorption factor of 1.0 (soft).
- One (1) truck has been modelled entering the site as a worst case scenario over a 15 minute period. An on-site speed of 20 km/hr has been considered.
- Internal noise sources associated with the site activities (i.e. generator, excavator, triple deck screen, concrete crusher) have been modelled as point sources and will be operational for 100% of the operational hours of the site, when utilised in a scenario.
- Outdoor noise sources not associated with trucks (i.e. the truck manoeuvring and front end loader) has been modelled as point or line sources and will be operational for 100% of the operational hours of the site.
- The Front End Loader has been modelled with a sound power level of 97 dB(A), which is a relatively low level compared to other loaders on the market. The client intends to use a small compact loader which will meet this assumption.

Figure 7-1: 3D Model Perspective



An outline of the noise sources and operational noise modelling scenarios has been provided below.

7.1.3 Noise Sources

A-weighted octave band centre frequency sound power levels are presented in in Table 7-1 below. The sound power levels for the relevant noise sources have been calculated from measurements of sound pressure levels undertaken by an acoustic engineer from Benbow Environmental at similar sites and sourced from Benbow Environmental's extensive noise source database.

Table 7-1: A-weighted Sound Power Levels Associated with Operational Activities, dB(A)

Noise Source	Overall	Octave Band Centre Frequency (Hz)							
		63	125	250	500	1k	2k	4k	8k
25T Excavator	**101**	80	83	89	95	94	93	90	83
Front End Loader	**97**	80	84	87	91	90	89	88	78
Triple Deck Screen	**100**	73	87	82	92	98	91	88	86
Concrete Crusher	**113**	80	90	97	103	106	107	107	105
Truck Maneuvering	**102**	73	81	86	101	92	90	85	85
Generator	**97**	64	74	81	87	90	91	91	89

7.1.4 Noise Modelling Scenarios

Three operational scenarios were considered in the noise model. The first noise generating scenario considered a situation where all noise sources on site were operating over the 15 minute assessment period, and the roller doors to the building were closed. The second scenario considered the roller doors to the building to be closed, except for the middle roller door which is open for 3 minutes of the 15 minute period. Scenario 2 enables a truck or front end loader to enter or exit the building. The third scenario considered the roller doors to the building to be open for transfer of materials to the stockpile area via front end loader, but with the crusher and excavator not running. It is understood from the client that the crusher and associated excavator will only operate for a little under half of the operational hours.

In all three scenarios, pedestrian doors are open for 30 seconds per 15 minute scenario, to allow occasional foot traffic in and out of the building. The equipment list is detailed in Table 7-2, with equipment location diagrams for scenarios 1-3 in Figure 7-2 to Figure 7-4.

Table 7-2: Modelled Noise Scenarios for Proposed Operations

Scenario	Time of the day	Noise Sources for Worst 15-minute Period
Scenario 1. All operations (all roller doors closed)	Monday – Friday 7am to 6pm Saturday 7am to 5pm	Indoor Noise Sources • Generator • Excavator • Triple decker screen • Concrete crusher Outdoor Noise sources • Truck manoeuvring • Front end loader
Scenario 2. Selected operations (all roller doors closed except for the middle roller door, open for 3 minutes out of a 15 minute period)	Monday – Friday 7am to 6pm Saturday 7am to 5pm	Indoor Noise Sources • Generator • Excavator • Triple decker screen • Concrete crusher Outdoor Noise sources • Truck manoeuvring • Front end loader
Scenario 3. Selected operations (all roller doors open)	Monday – Friday 7am to 6pm Saturday 7am to 5pm	Indoor Noise Sources • Generator • Triple decker screen Outdoor Noise sources • Truck manoeuvring • Front end loader

Figure 7-2: Scenario 1 – Roller Doors Closed – Operational noise sources

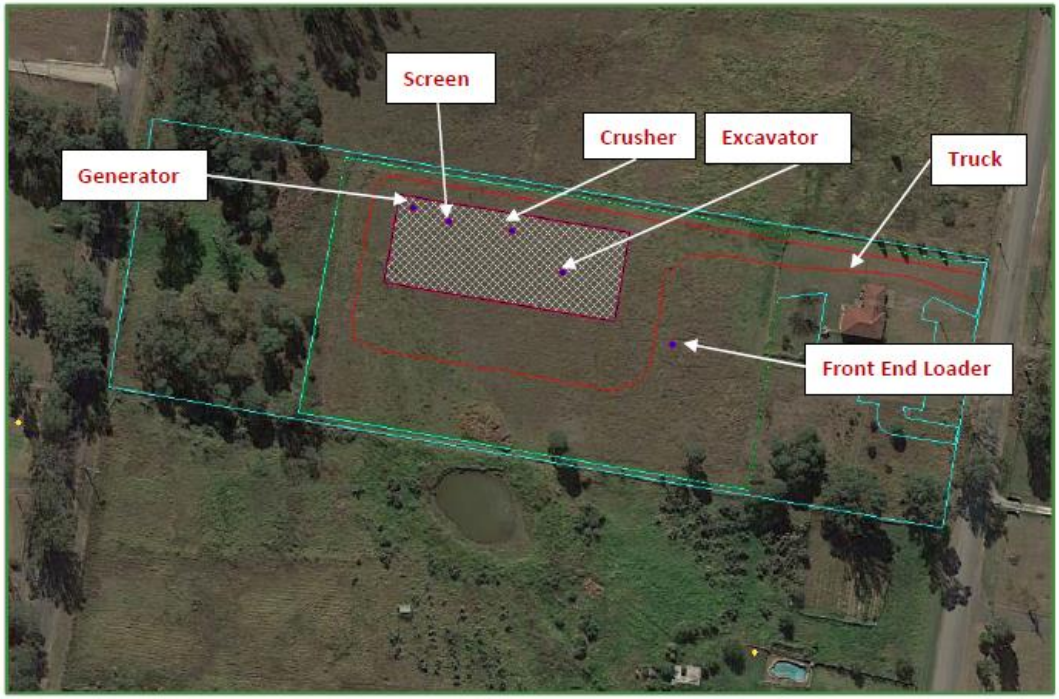


Figure 7-3: Scenario 2 – Roller Doors Mainly Closed – Operational noise sources

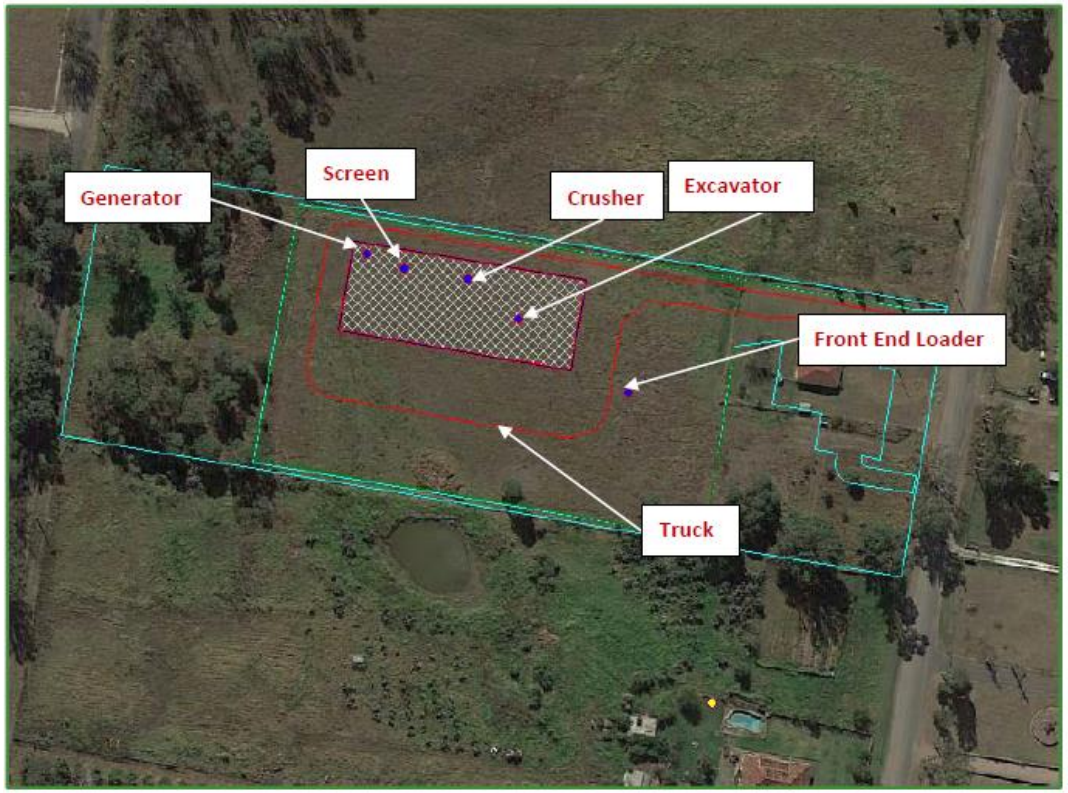
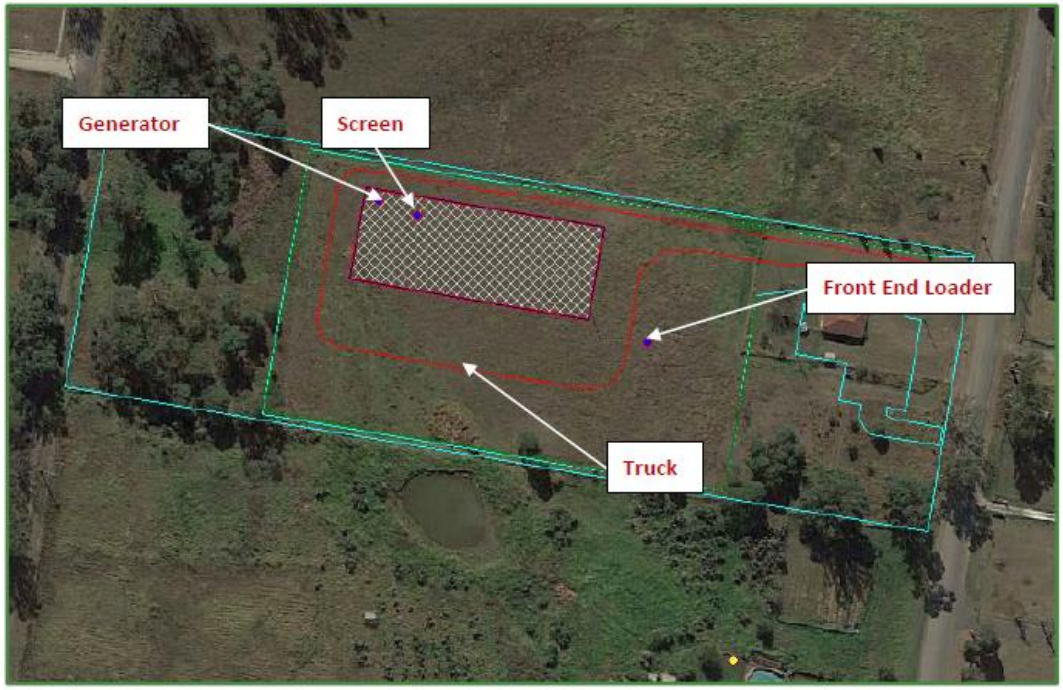


Figure 7-4: Scenario 3 – Roller Doors Open – Operational noise sources



7.2 Operational Predicted Noise Levels

Results of the predictive noise modelling of the operational activities are shown in Table 7-3.

During operations, noise levels are predicted to comply with the Noise Policy for Industry criteria at all receivers during all scenarios.

It is therefore concluded that the proposed site activities will not have a detrimental impact on the neighbouring receivers, if the noise control measures in section 7.3 are carried out.

Table 7-3: Noise Modelling Results Associated with Operational Activities, L_{eq}, dB(A)

Receiver	Criteria: PNTL ($L_{eq,15\ minute}$ dB(A)) – Day	Predicted: Scenario 1 (L_{eq} dB(A))	Predicted: Scenario 2 (L_{eq} dB(A))	Predicted: Scenario 3 (L_{eq} dB(A))
R1	42	32 ✓	32 ✓	29 ✓
R2	42	32 ✓	32 ✓	30 ✓
R3	42	39 ✓	39 ✓	37 ✓
R4	42	39 ✓	39 ✓	38 ✓
R5	42	31 ✓	31 ✓	31 ✓
R6	42	34 ✓	35 ✓	34 ✓
R7	42	37 ✓	38 ✓	37 ✓
R8	42	33 ✓	34 ✓	34 ✓
R9	42	35 ✓	36 ✓	35 ✓
R10	42	33 ✓	34 ✓	33 ✓
R11	42	41 ✓	42 ✓	41 ✓
R12	42	40 ✓	42 ✓	41 ✓
R13	42	40 ✓	41 ✓	42 ✓
R14	42	33 ✓	33 ✓	31 ✓
R15	42	39 ✓	39 ✓	37 ✓
R16	42	37 ✓	37 ✓	35 ✓
R17	42	35 ✓	35 ✓	33 ✓
R18	68	40 ✓	40 ✓	36 ✓
R19	68	34 ✓	34 ✓	32 ✓
R20	68	34 ✓	35 ✓	35 ✓

7.3 Noise Control Measures

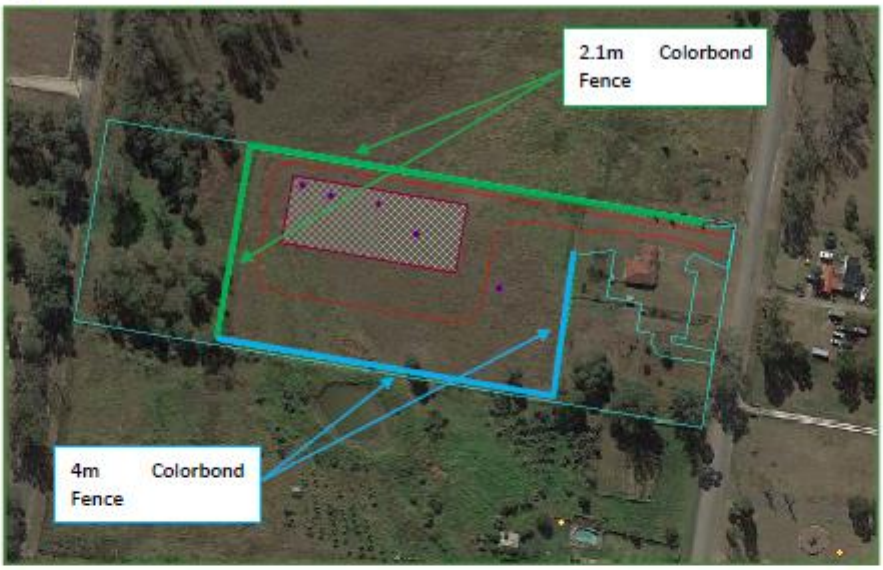
In order to achieve the predicted compliance levels at the nearest receptors, the following control measures are recommended to be implemented.

- A 2.1 m colorbond fence is recommended to be constructed surrounding the hardstand area of the site. A 4 m colorbond fence is recommended to be constructed on the southern and eastern sides of the hardstand area. (See Figure 7-5).
- As per the assumptions listed in section 7.1.2 , the front end loader is recommended to have a sound power level of 97 dB(A) or lower. This is a comparatively low level compared to other loaders on the market, so it will be a relatively small FEL.
- It is recommended that the client purchase a front end loader which has a guarantee that it is below a sound power level of 97 dB(A), or alternatively post commissioning testing of the equipment be carried out by an acoustic consultant to ascertain the sound power level of the equipment.
- Pedestrian doors are to self-closing, so the doors automatically close once a pedestrian is no longer using the door.
- The following equipment is restricted to indoors only:
  - Crusher;
  - Generator;
  - Screen; and
  - Excavator.
- When either the crusher or excavator is operating indoors, one roller shutter door is recommended to be open for only 3 minutes out of a 15 minute scenario (scenario 2). To enable this to practically occur, for example, for the arrival of a truck, it is recommended that automated roller shutter doors be installed to assist in the opening and closing of doors as fast as possible.
- The roller shutter doors should be selected based on their acoustic performance with regards to minimising breakout noise and minimising noise generated from opening and closing operations.
- Should the roller doors need to be opened for extended periods to enable the transfer of materials to the stockpile area (scenario 3), the crusher and excavator are to be stopped and only the front end loader is recommended to be used.
- It is recommended mobile equipment regularly used onsite such as the excavator and front end loader be fitted with reversing lights or a white noise reversing alarm.

It is also recommended the following additional management practices be implemented:

- Prohibition of extended periods of on-site revving/idling;
- Minimisation of the use of truck exhaust brakes on site;
- Enforcement of low on-site speed limits;
- On-site vehicles to be maintained in accordance with a preventative maintenance program to ensure optimum performance and early detection of wearing or noisy components;
- Ensure condition of roadway surface is maintained (by responsible party) to ensure deterioration of internal access road surface does not lead to increased noise sources; and
- Vehicles awaiting loading, unloading or servicing shall be parked on site with their engines turned off.

Figure 7-5: Colorbond Fence Locations



8. ROAD TRAFFIC NOISE IMPACT ASSESSMENT

A description of the calculation methodology and the noise predictions associated with road traffic has been provided below.

The proposed route for the heavy and light vehicles was presented in Figure 6-1. Trucks and light vehicles are proposed to access the site from Martin Road.

Calculation of road traffic noise contribution has been undertaken using the Calculation of Road Traffic Noise (CoRTN) algorithm within SoundPLAN v7.3. The CoRTN algorithm was utilised to predict the existing and proposed noise levels at the nearest residential receivers during the day and night time periods. The following correction factors have been used within the CoRTN algorithm:

- For Australian conditions (free field corrected), -0.7 dB;
- L_{10} to L_{eq}, -3.0 dB;
- For low traffic flow, -30 dB with the traffic volumes therefore multiplied by 1000;
- For Heavy Engines, -0.6 dB; and
- For Heavy Exhausts, -8.6 dB.

It is understood that a maximum of 16 truck movements are proposed per day between 7am and 5pm. 16 truck movements are assumed in each direction during the day period, with a maximum of three in any one hour period. A maximum of 10 light vehicle movements are expected in a one hour period. No truck movements are proposed during the night period. Vehicles are assumed to travel at the posted speed of 80 km/h.

The $L_{Aeq,\ 1\ hour}$ noise descriptor has been calculated at the most affected residential receptors located along Martin Road and Lawson Road. The predicted noise levels are displayed in Table 8-1. The highest noise levels would be predicted at these location, therefore they are the only results displayed.

Table 8-1: Predicted Levels for Road Traffic Noise

Receptor	Noise Criteria		Existing Traffic		Site Contribution		Cumulative Road Traffic Noise	
	Day $L_{Aeq,\ 1\ hour}$	Night $L_{Aeq,\ 1\ hour}$	Day $L_{Aeq,\ 1\ hour}$	Night $L_{Aeq,\ 1\ hour}$	Day $L_{Aeq,\ 1\ hour}$	Night $L_{Aeq,\ 1\ hour}$	Day $L_{Aeq,\ 1\ hour}$	Night $L_{Aeq,\ 1\ hour}$
R4, 40 Martin Road, Badgerys Creek	55	50	48	44	41 ✓	N/A ✓	50 ✓	44 ✓

For residential dwellings that front onto Martin Road, the predicted noise levels associated with the vehicle movements from the site would be below the daytime criteria of $L_{Aeq\ (1\ hour)}$ 55 dB for local roads. From Table 8-1, the predicted cumulative daytime $L_{Aeq,1\ hour}$ road traffic noise are below the noise criteria, as established from the NSW Road Noise Policy (RNP).

Step 3 of Section 3.4.1 of the RNP identifies possible reasonable and feasible control measures when exceedances of either the outlined criteria. As no exceedances are predicted, the proposed vehicle movements comply with the RNP, and no additional mitigation strategies are recommended.

9. CONSTRUCTION NOISE IMPACT ASSESSMENT

9.1 CONSTRUCTION ACTIVITIES

Construction activities are proposed to include the following:

- Site establishment;
- The building of the unloading and processing shed;
- The installation of a wheel wash and weighbridge;
- The setup of five storage bays; and
- Construction of the car park and landscaped area

The current residential dwelling is proposed to be kept, therefore no demolition works are proposed.

9.2 MODELLED NOISE GENERATING SCENARIOS

Considering the construction activities outlined in section 9.1, the three construction stages listed in Table 9-1 are modelled for civil works, concreting works and structure works. The noise generating stages consider a worst case scenario in which all equipment is running for 100% of the time over the 15 minute assessment period.

The equipment list for the stages is detailed in Table 9-1, with an equipment location diagrams in Figure 9-1 to Figure 9-3. Equipment is primarily located in the area of the proposed unloading and processing shed, as the majority of the construction works will take place at this location.

All works are proposed to be undertaken during standard construction hours, that is

- Monday to Friday, 7am to 6pm;
- Saturday 8am to 1pm ; and
- No work on Sundays or public holidays.

Table 9-1: Modelled Noise Stages for Proposed Construction Works

Scenario	Time of the day	Noise Sources for Worst 15-minute Period
Stage 1. Civil Works	Standard hours	• Dozer • Backhoe • Truck • Hand tools
Stage 2. Concreting construction works	Standard hours	• Concrete mixer truck • Concrete pump • Hand tools
Stage 3. Structure construction works	Standard hours	• Truck • Crane • Hand Tools

Figure 9-1: Construction Stage 1 – Civil Works

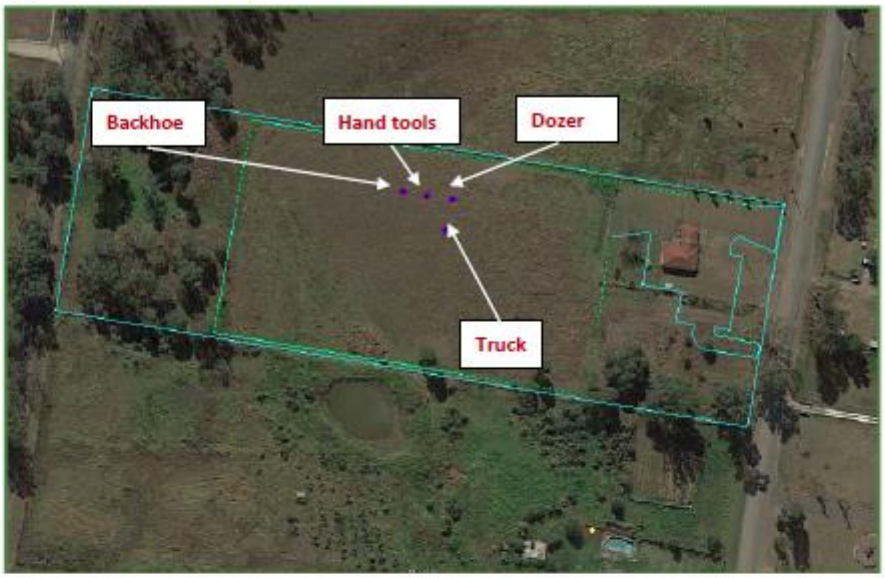


Figure 9-2: Construction Stage 2 – Concreting Construction Works

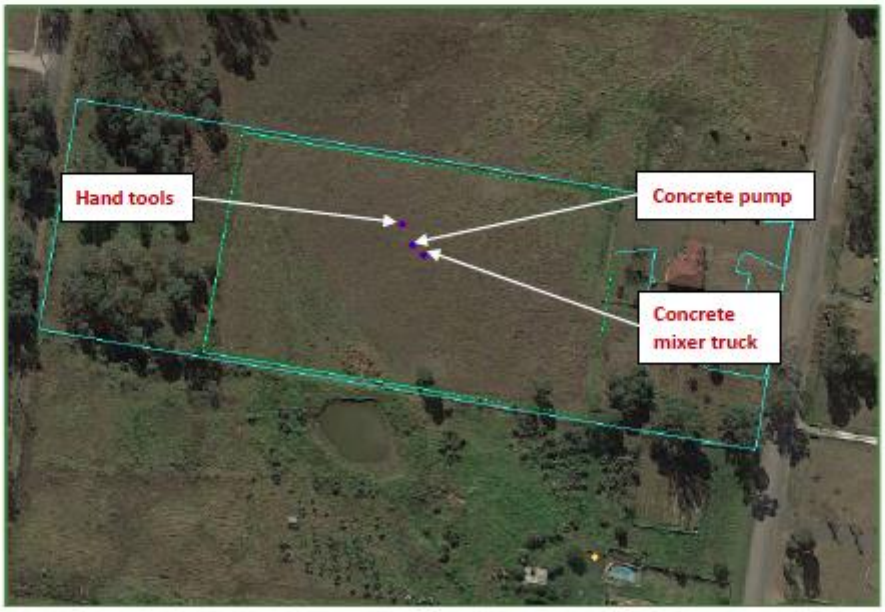


Figure 9-3: Construction Stage 3 – Structure Construction Works

9.3 Modelling Methodology

9.3.1 Noise Model

Noise propagation modelling for the construction activities was carried out using the ISO 9613 algorithm within SoundPLAN v7.3. The construction stages were modelled using the $L_{Aeq,\ 15\ minutes}$ descriptor.

Assumptions made in the noise modelling of the construction noise stages are as follows:

- The relevant assessment period for operational noise emissions has been considered to be 15 minutes. Construction stages assume all equipment is running 100% of the time during the 15 minute assessment period, to provide a worst case scenario;
- Topographical information for off-site areas was obtained from Google Earth;
- Topographical information for on-site areas was obtained from the site survey;
- The model included the 2.1 m colorbond fence surrounding the hardstand area of the site and the 4m colorbond fence constructed on the southern and eastern sides of the hardstand area.
- All receptors were modelled at 1.5 m above ground level;

- The surrounding ground areas have been modelled with a ground absorption coefficient of 1.0 (soft); and
- All noise sources associated with the construction works have been modelled as point sources.

9.3.2 Noise Sources

A-weighted octave band centre frequency sound power levels are presented shown in Table 9-2 below. The sound power levels for the relevant noise sources have been calculated from measurements of sound pressure levels undertaken by an acoustic engineer from Benbow Environmental at similar sites and sourced from Benbow Environmental's noise source database, as well as taken from AS 2436-2010 and the UK Department for Environmental Food and Rural Affairs (DEFRA) database, *Update of noise database for prediction of noise on construction and open sites*.

Table 9-2: A-weighted Sound Power Levels Associated with Construction Activities, dB(A)

Noise Source	Overall	Octave Band Centre Frequency (Hz)							
		63	125	250	500	1k	2k	4k	8k
Truck	**102**	73	81	86	101	92	90	85	85
Dozer	**110**	101	105	103	103	100	97	91	83
Backhoe	**104**	102	94	92	92	91	88	87	78
Hand tools	**100**	71	81	91	96	94	90	87	81
Concrete truck	**108**	85	86	85	94	98	107	89	82
Concrete pump truck	**105**	77	92	97	99	100	95	95	89
Crane	**110**	94	99	103	104	104	102	94	84

9.4 Construction Predicted Noise Levels

Results of the predictive noise modelling of the construction activities are shown in Table 9-3. For stage 1, compliance is predicted at all receivers except for a 1 dB exceedance predicted at R11. For stage 2, compliance is predicted to be achieved at all receivers except for R4, R11-R13 and R15. A maximum exceedance of a 3 dB is predicted at R12 and R13 in stage 2. For stage 3, compliance is predicted to be achieved at all receivers except R11-R13 and R15-R16. A maximum exceedance of 6 dB is predicted in stage 3.

Compliance with the construction noise criteria is therefore predicted to be achieved at the vast majority of receivers across the three stages during standard construction hours.

Construction activities are therefore proposed to take place during standard **construction** hours only as follows:

Monday to Friday:	7am to 5pm (with no hammering or saw-cutting to occur before 7.30am)
Saturday:	8am to 1pm (with no hammering or saw-cutting to occur before 8.30am)
Sunday and Public Holidays:	No works permitted

The predicted exceedances are minor in nature, and well below the 75 dB(A) "highly affected" noise criteria in the Interim Construction Noise Guideline. The following noise mitigation measures are therefore recommended:

- Construction works are recommended to take place during standard construction hours; and
- The colorbond fence is recommended to be installed on site prior to the remainder of the construction works taking place.

Table 9-3: Noise Modelling Results Associated with Construction Activities for L_{eq}, dB(A)

Receiver	Criteria: PSNL ($L_{eq,15\ minute}$ dB(A))	Predicted Levels: Stage (Standard Hours) (L_{eq}, dB(A))		
	Standard Hours	1	2	3
R1	47	39 ✓	43 ✓	43 ✓
R2	47	38 ✓	40 ✓	42 ✓
R3	47	44 ✓	46 ✓	47 ✓
R4	47	46 ✓	49 ×	47 ✓
R5	47	40 ✓	41 ✓	42 ✓
R6	47	42 ✓	43 ✓	45 ✓
R7	47	44 ✓	46 ✓	47 ✓
R8	47	41 ✓	43 ✓	43 ✓
R9	47	42 ✓	44 ✓	45 ✓
R10	47	40 ✓	42 ✓	44 ✓
R11	47	48 ×	49 ×	52 ×
R12	47	47 ✓	50 ×	52 ×
R13	47	47 ✓	50 ×	53 ×
R14	47	41 ✓	43 ✓	45 ✓
R15	47	46 ✓	49 ×	50 ×
R16	47	44 ✓	47 ✓	49 ×
R17	47	43 ✓	45 ✓	47 ✓
R18	75	47 ✓	50 ✓	52 ✓
R19	75	40 ✓	42 ✓	46 ✓
R20	75	41 ✓	43 ✓	45 ✓

✓Complies × Non-compliance

10. WESTERN SYDNEY AIRPORT ASSESSMENT

As shown in Figure 4-2, the site is located in a zone where the ANEF is between 30 and 35. The proposed development is not a noise sensitive development and would be best classed as "other industrial" under AS2021; acceptable in all ANEF zones. Furthermore the proposed development meets the objectives of clause 7.18 of the Liverpool LEP.

11. STATEMENT OF POTENTIAL NOISE IMPACT

A noise impact assessment was undertaken to assess the potential noise emissions from the proposed resource recovery facility at 55 Martin Road, Badgerys Creek. The site is proposed to process up to 95,000 tonnes per annum.

The noise impact assessment was undertaken in accordance with the following guidelines:

- NSW Environment Protection Authority Noise Policy for Industry 2017;
- Department of Environment, Climate Change and Water NSW Road Noise Policy 2011; and
- Department of Environment, Climate Change and Water NSW Interim Construction Noise Guideline 2009.

The nearest receivers and noise criteria were identified. The site operations were modelled using the predictive noise software, Sound Plan V7.3.

The activities proposed by the proponent were found to be within the framework of the NSW Noise Policy for Industry. The noise generating scenarios are predicted to comply with the project specific noise levels at all receivers. Recommendations for noise controls are given in section 7.3, including sound power levels for the front end loader, fencing, equipment and automated roller doors usage.

Compliance with the guidelines set out in the NSW Road Noise Policy was predicted at all considered receptors.

Construction activities are recommended to be limited to standard hours in accordance with the Interim Construction Noise Guideline.

The site is located near the Western Sydney Airport in a zone where the ANEF is between 30 and 35. The proposed development is not a noise sensitive development and would be best classed as "other industrial" under AS2021; acceptable in all ANEF zones. Furthermore the proposed development meets the objectives of clause 7.18 of the Liverpool LEP.
This concludes the report.

R T Benbow
Principal Consultant

Emma Hansma
Senior Engineer

12. LIMITATIONS

Our services for this project are carried out in accordance with our current professional standards for site assessment investigations. No guarantees are either expressed or implied.

This report has been prepared solely for the use of AMJ Demolition and Excavation, as per our agreement for providing environmental services. Only AMJ Demolition and Excavation is entitled to rely upon the findings in the report within the scope of work described in this report. Otherwise, no responsibility is accepted for the use of any part of the report by another in any other context or for any other purpose.

Although all due care has been taken in the preparation of this study, no warranty is given, nor liability accepted (except that otherwise required by law) in relation to any of the information contained within this document. We accept no responsibility for the accuracy of any data or information provided to us by AMJ Demolition and Excavation for the purposes of preparing this report.

Any opinions and judgements expressed herein, which are based on our understanding and interpretation of current regulatory standards, should not be construed as legal advice.

ATTACHMENTS

18. ANNEXURE I – Letter Report on Air Quality Impacts

Benbow
ENVIRONMENTAL
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admin@benbowenviro.com.au

EH/snb
Ref: 191238_AirLet_Rev1
13 September 2019

ATTN: Brent Winning
Claron Consulting
PO Box 542
LINDFIELD NSW 2070

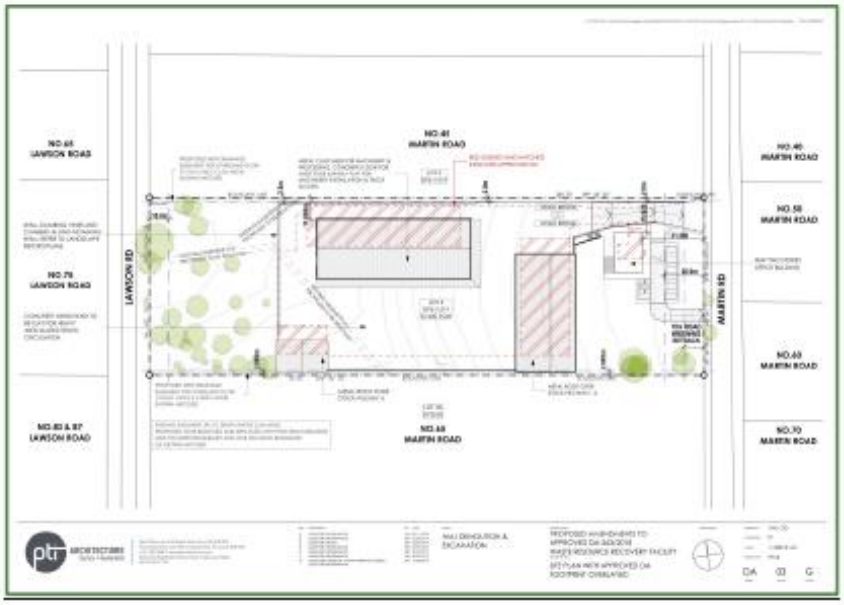
E: bmwinning@claron.com.au

Dear Brent,

Re: Air Quality Statement – 55 Martin Road. Badgerys Creek

This letter provides a review of the Air Quality Impact Statement (Report no. 171127_AQIA_Rev3) prepared by Benbow Environmental dated February 2018 in relation to a modification application to alter the layout of the site.

The figure below shows the original location of the building and stockpiles in red in contrast to the proposed modification.



Engineering a Sustainable Future for Our Environment

The sources considered in the assessment were:

- Building; and
- Stockpiles.

The locations of these sources are only slightly different and would not significantly alter the results.

The emission rates from the building were calculated based on quantity of material processed. This is not changing as part of the proposal, therefore the impacts from the building will not change.

The stockpile emission rates were based on the size of the stockpiles. The size of the material storage area is marginally larger, which would not significantly alter the results.

Therefore it is confirmed that the original Air Quality Impact Statement (Report no. 171127_AQIA_Rev3) is still applicable to the development. Remodelling and amending the original report is not considered warranted.

Yours faithfully,

Emma Hansma
Senior Engineer

R T Benbow
Principal Consultant

19. ANNEXURE J – Revised Stormwater Management Letter Report

Job No: 2017-01

24 September 2019

Claron Consulting Pty Ltd
PO Box 115 Castle Hill
SUBURB NSW 1765

Attention: Brent Winning

RE: 55 MARTIN ROAD BADGERYS CREEK – REVISED STORMWATER MANAGEMENT

I refer to the revised site layout for this property. The new site layout increases the size of the shed, bin and hardstand area from 1.116 Ha to 1.293 Ha, an increase in 0.177 Ha. We have investigated the impact of the increased impervious area has on the approved stormwater management design.

As part of the revised design the location of the underground stormwater management tank need to be moved clear of the proposed shed. The shape of the tank changed; however, the area and volume remained the same.

The *DRAINS* model was updated with the new catchment areas and all other information was left unchanged. And run for the range of storms. The table below summarises the peak flow from the developed site compared to the PSD:

ARI	Pre Development Q (m^3/s)	Post Development Approved Q (m^3/s)	Post Development Mod Q (m^3/s)
100	0.658	0.342	0.312
50	0.543	0.306	0.238
20	0.418	0.270	0.256
10	0.322	0.224	0.226
5	0.244	0.173	0.200
2	0.121	0.121	0.125

Generally, the flows from the site are reduced with the larger hardstand area, as there is less area of the site bypassing the OSD tank.

The other impact hat the increased hard stand has on the approved design is the reduction in width on the swale running along the eastern boundary of the site. The width available for the swale has been reduced to 2.5m. A swale 2.2m wide with vertical sides 600mm deep has enough capacity to safely convey upstream flow of $1.45m^3/s$. The swale is proposed to run to just past the end of the building and from there it will tailout to allow the runoff to find its own path across the bottom part of the site, as it does currently.

Ultramark Pty Ltd
Telephone 0408 682 338
24 Meckiff Avenue, North Rocks, NSW 2153
E-mail ultramark15@outlook.com

The information of the swale is listed below:

mannings n=	0.040	Top width (m)=	2.20
channel slope (%) =	1.10	Flow area (m^2) =	1.32
base width (m) =	2.20	Perimeter (m) =	3.40
depth (m)=	0.60	Hyd radius (m) =	0.39
side slope (1 in x) =	0.00	Velocity (m/s) =	1.40
Bed Shear Stress (N/m^2)	58.30	Capacity (m^3/s) =	1.843
Bank Shear Stress (N/m^2)	48.60	Froude No	0.58
Stream Power (W/m^2)	150.60	VxD ratio =	0.84

There are no changes required for the proposed stormwater quality treatment system, an Ocean Protect Stormfilter.

This report is submitted for Council's review and approval and should be read in conjunction with the engineering drawings submitted for the development application modification and the previous stormwater management report.

Based on the proposed stormwater drainage concept the key features are:

- Post development flows will be attenuated to at least predevelopment rates for the range of events up to the 100 Year ARI event.
- The amended swale design along the southern boundary can safely convey the 100 Year ARI flow.

It is therefore concluded that the drainage design for the site addresses Council's watercycle management requirements for the development.

Yours faithfully,

ULTRAMARK PTY LTD

ROBERT PETERSON
Director