

Stormwater Management Report

Proposed Industrial Development

PLANS AND DOCUMENTS
referred to in the PDA
DEVELOPMENT APPROVAL

Approval no: DEV2024/1583

Date: 6 August 2025



916-944 Greenbank Road, North Maclean
Lot 2 on SP267252

For: NUCRUSH GROUP

14 May 2025

Ref: G24-062 SWMR REV 3



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This report has been prepared for NUCRUSH GROUP for the purpose of accompanying a Priority Development Area (PDA) Development Application for the above address. This report must only be used by NUCRUSH GROUP for this purpose and must not be used or relied upon by any other person for any other purpose.

The assessment, conclusions or recommendations in this report are based on conditions encountered and information received at the time of preparing the report and may not be relied upon as site conditions or operations vary over time.

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1 INTRODUCTION

This Stormwater Management Report has been prepared by Westera Partners Pty Ltd for Nucrush Pty Ltd ('the Applicant') in support of a Priority Development Area (PDA) Development Application for a Material Change of Use to establish a concrete batching plant and other industrial uses on the subject site at 916-944 Greenbank Road, North Maclean.

The application is submitted to Economic Development Queensland (EDQ) as the delegate for the Minister for Economic Development Queensland (MEDQ) for PDA Development Applications in the Greater Flagstone Priority Development Area (GFPDA).

The Development Application is comprised of the following components:

- **PDA Development Permit for Material Change of Use** for Medium impact industry (Concrete batching plant); and
- **PDA Development Permit for Material Change of Use** for a Plan of Development for Low impact industry, Service industry and Warehouse land uses.

This report will focus on the eastern portion of the site comprising the concrete batching plant. Burchills Engineering Solutions has prepared a separate Conceptual Stormwater Management Plan for the western portion (the 'balance') of the site (refer to separate report).

The proposed medium impact industry development occupies approximately 1.30 ha of the total site area (total area 2.531 ha). A stormwater quality and quantity treatment train will be proposed to meet the pollutant reduction targets required by Logan City Council (LCC) and the State Planning Policy (SPP). Refer to Figure 1 and Appendix D for the proposed development layout.



Figure 1 – Proposed Development Layout

2 SITE DESCRIPTION

2.1 Location and Land Use

The site of the proposed development is located at 916-944 Greenbank Road, North Maclean, with a real property description of Lot 2 on SP267252. The total subject site area is 2.53 ha. The total footprint area of the proposed development is 1.30 ha. The balance of the site is subject to a separate SWMR by Burchills Engineering Solutions. The zoning of the lot is Priority Development Area (PDA).

The existing site falls from south to north. The average slope of the developable area is 0.35%.

The subject site is bound by Greenbank Road to the south and southwest, an existing commercial development to the south, Mt Lindesay Highway to the east and unformed road Scott Lane to the north.

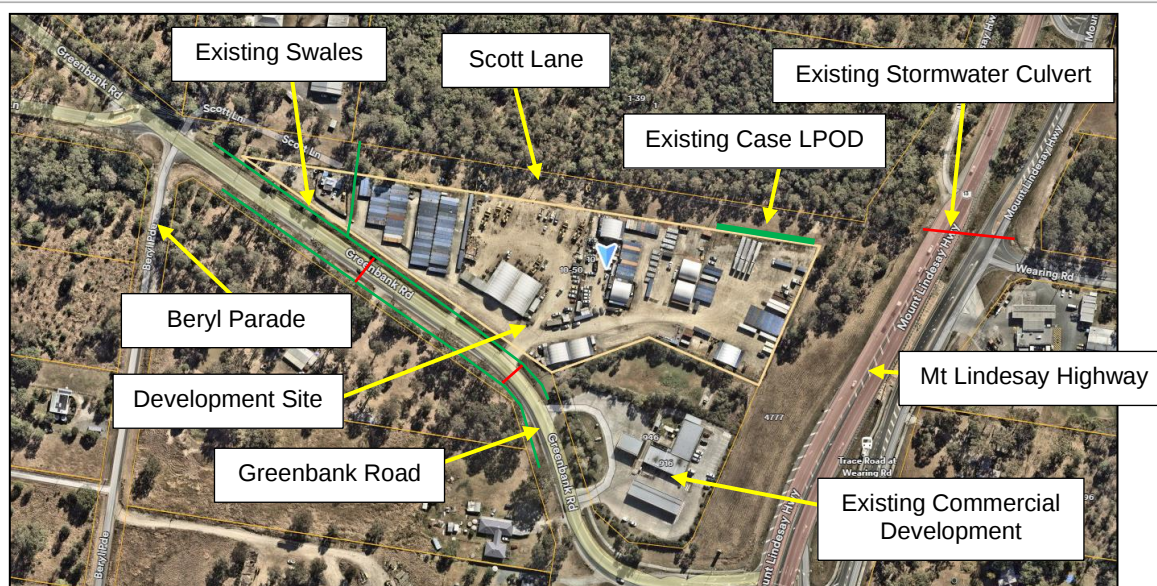


Figure 2 – Site location (Nearmap 2024)

2.2 Lawful Point of Discharge

The development site is considered to have two Lawful Points of Discharge (LPOD). LPOD (1) is considered to be the existing swale located within the Greenbank Road verge. The swale is part of a linked network of table drains. The swale is very flat and the swale drains in multiple locations. LIDAR information indicates that the swale ultimately discharges either southwest to Beryl Parade or north into the existing vegetated area beyond Scott Lane. LPOD (2) is the existing stormwater culvert located under the Mt Lindesay highway.

For the purposes of this report the LPODs for the development site are considered to be the southern side of the site (existing swale drain) near the proposed access and the north/east side of the development (draining north and east to the existing culverts under the Mt Lindesay Highway).

In the existing case the approved SWMR by Burchills (dated May 2017) the LPOD was considered to be the northeast boundary to Scott Lane.

2.3 External Catchments

The site is not considered to be effected by any external catchments. The development has swale drains located on each side of the development. The swales act as the only drainage path for the surrounding area. The swales are not proposed to be altered.

2.4 Flooding

The proposed site is mapped as flood affected according to LCC's current flood mapping (version 9.1 with TLPI 1/2023). The existing site levels indicate that the majority of the site is located above the Designated Flood Level (DFL). The current site levels vary from 27.0 to 27.7m AHD with the majority of the site at or greater than the DFL (27.6m AHD). Given the existing approvals which have been approved to fill the site above the DFL the current proposal is only considered to be required to achieve the minimum floor levels in accordance with the flood hazard overlay. Flood compensation due to filling is not deemed to be required.

The minimum floor level for the site is considered to be the DFL + 0.5m in accordance with the LCC planning scheme. It is noted that the level for storage of hazardous or noxious materials must be at or above the 0.2% AEP. Council's 0.2% AEP flood level for the site is 28.7m AHD. Reference has been made to table 8.2.5.3.3 from LCC's planning scheme (version 9.1) for minimum flood planning levels.

3 STORMWATER QUANTITY MANAGEMENT

The proposed development is required to ensure that there is no increase of peak flow at the lawful point of discharge. The following sections of this report will detail how the proposed development will match (or reduce) the existing site peak flow to ensure the downstream environment and neighbouring properties will not experience any increased nuisance from increased peak stormwater flows as a result of the proposed development.

The stormwater quantity analysis of the existing and developed site conditions has been undertaken with reference to the requirements and procedure outlined by:

- Queensland Urban Drainage Manual (QUDM - 2017)
- Australian Rainfall and Runoff 2019 (AR&R 2019)
- Logan City Council Planning Scheme (2015 – Version 9.1)

The XPStorm modelling program, utilising the “Laurenson” runoff routing method, has been used to model the catchment characteristics to determine the stormwater flow discharge from the site for various storm durations (5 minutes up to 3 hours) and Annual Exceedance Probabilities (AEPs) from 1% to 63.2%.

3.1 Existing Catchment and Site Drainage

The existing development area is zoned by LCC as “Priority Development Area”. It is noted that the application is for Medium Impact Industry (Concrete batching plant). The existing catchment area has been determined based on the survey before the approved filling was undertaken. The previous survey was undertaken by Focus on Surveying in February 2017 (refer Appendix D). The existing site falls from the south to the north. The longitudinal slope is 0.35%. The existing site catchment characteristics are detailed in Table 1. Refer Appendix C for extents of existing catchments.

The existing drainage easement on the eastern side of the proposed development footprint has not been included in the existing or developed catchment areas as this area is not considered to be part of the development.

Table 1 – Existing site catchment summary

Catchment	Existing Catchment
Area	11,270m ²
% Impervious	0%
Slope	0.35%
LPOD	1

3.1.1 Existing Hydrology

The XPStorm model has utilised “Laurenson’s” method to calculate the runoff hydrograph for each of the design events. Below is a brief summary of the parameters used in the model.

Manning's Roughness

The pervious areas vary from cleared grassland to areas overlaid with gravel. A conservative value of Manning's roughness has been adopted all pervious areas.

The majority of the impervious surfaces will be concrete and roof areas and therefore a single Manning's value for impervious surfaces has been applied. The values that have been adopted for pervious and impervious areas are as follows:

Pervious Area $n = 0.045$

Impervious Area $n = 0.014$

Preburst Depths

Prebursts have not been deemed appropriate (and have not been adopted) for urban and semi-urban situations as their use can produce anomalies in the results.

Initial and Continuing Losses

The initial loss (IL) and continuing loss (CL) for pervious/undeveloped areas at this location available from ARR Datahub are shown below.

ARRDataHub IL = 26mm

ARRDataHub CL = 1.9mm/hr

The above values were sourced from ARR Datahub (for coordinates -27.776, 153.011) on the 9 October 2024. These values are provided by ARRDataHub and are an average value for a large undeveloped area. Additionally, they are to be used in conjunction with the provided preburst depths. As prebursts are not being adopted the initial loss values were deemed to be too high for the development site. Therefore, lower values that have the average preburst depth subtracted from the IL have been adopted.

The adopted IL and CL that have been adopted for all modelling are listed below.

Adopted IL (Pervious) = 15mm

Adopted CL (Pervious) = 1.9mm/hr

Adopted IL (Impervious) = 1.0mm

Adopted CL (Impervious) = 0.0mm/hr

Rainfall Temporal Patterns

XPStorm has incorporated the temporal patterns from ARR DataHub for the given site location (for coordinates -27.776, 153.011) on the 9 October 2024.

These temporal patterns have been used to determine the critical storm duration for each of the design events 1% to 63% AEP.

3.2 Proposed Developed Site Drainage

The proposed development comprises a proposed Medium Impact Industry, Low Impact Industry, Service Industry and Warehouse. The developed case results in an increase in impervious area and decrease of pervious area.

The developed site is considered to have one contributing catchment (for modelling purposes), with three sub catchments. It is noted that the total peak flow of the three catchments has been combined for comparison against the existing case.

Table 2 below details the developed catchment characteristics. Refer appendix C for the extents of the developed catchments.

Table 2 – Developed site catchment summary

Catchment	Developed Catchment			
	DEV 1	DEV 2	DEV 3	DEV 4
Area	1,970m ²	8,550m ²	610m ²	130m ²
% Impervious	100%	95%	20%	0%
Slope	1.0%	1.0%	1.0%	1.0%
LPOD	1	2	2	2

3.3 Existing and developed site comparison

The XPStorm modelling program Version 2019.1 was used to compute the above information, the hydrological model adopted was the Laurenson's Method. Figure 3 below depicts the model layout used within XPStorm.

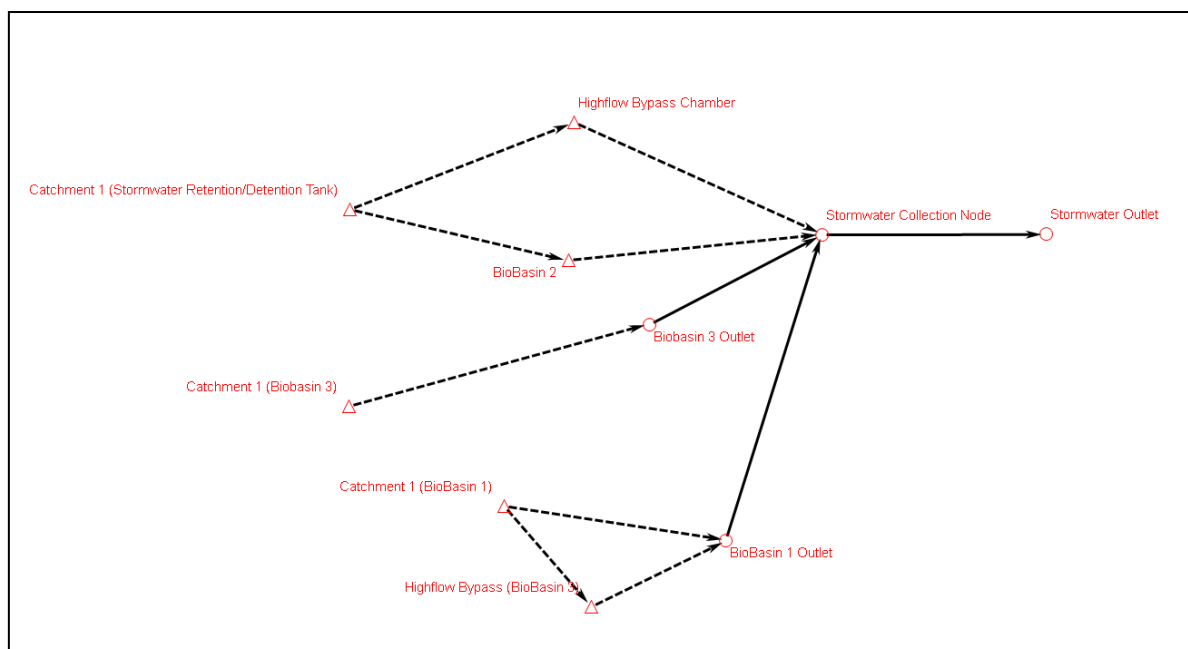


Figure 3 – Mitigated case XPStorm model layout

The XPStorm modelling program has utilised all the above data to give an estimate of peak flow rates for each AEP storm event for the existing site in Table 3.

Table 3 – Existing & Developed site peak flow rates.

ARI Storm Event	Peak Flow Rate (L/s)	
	Existing	Developed
63%	31	278
39%	52	355
18%	79	453
10%	103	545
5%	126	588
2%	159	699
1%	189	779

A comparison of the existing and developed peak flows as listed above indicates that there will be an increase in peak stormwater flows from the developed site. From these comparisons it can be seen that On Site Detention (OSD) is necessary to ensure that the peak stormwater flows exiting the developed site does not cause a detrimental effect to downstream properties or infrastructure.

3.4 On Site Detention (OSD)

Runoff from the site is proposed to be captured and directed to each respective catchments proposed OSD.

The OSD for Bioretention Basin 1 is the volume above the extended detention. Additionally, a high flow bypass is incorporated within the field inlet to allow for larger flows to discharge at a higher rate.

The proposed OSD for Catchment 2 is separated into three parts. The primary OSD will consist of the storage volume above the permanent water level in the proposed stormwater retention tank. A 300mm diameter overflow pipe is proposed from the retention tank to proposed Bioretention Basin 2. A 50mm diameter orifice is proposed at the outlet of the field inlet within the Bioretention Basin 2. The volume within Bioretention basin 2 above the extended detention shall be utilised as OSD. The proposed low level outlet from Bioretention Basin 2 will discharge to a proposed level spreader. The level spreader will discharge across the eastern boundary into the existing drainage easement. Once the level in the retention tank exceeds 200mm above the overflow level (to the Bioretention Basin) water spills out of the retention tank via a highflow weir to an adjacent overflow chamber. A 100mm diameter orifice located at the base of the overflow chamber will discharge flows to a proposed level spreader within the property boundary. The level spreader will discharge flows across the northern site boundary to Scott Lane.

OSD is proposed above the extended detention level in Bioretention Basin 3 in addition to the OSD provided within Bioretention Basin 2 and the stormwater retention tank. Bioretention Basin 3 captures and treats a small subcatchment of developed Catchment 2. The outlet of Bioretention Basin 3 is proposed to be a 50mm diameter outlet.

All proposed outlets have been sized to mitigate the developed catchment flows to match or reduce the existing catchment flows. Please refer the stormwater management drawings in Appendix C for details.

Table 4 details the proposed detention details (stage/area table).

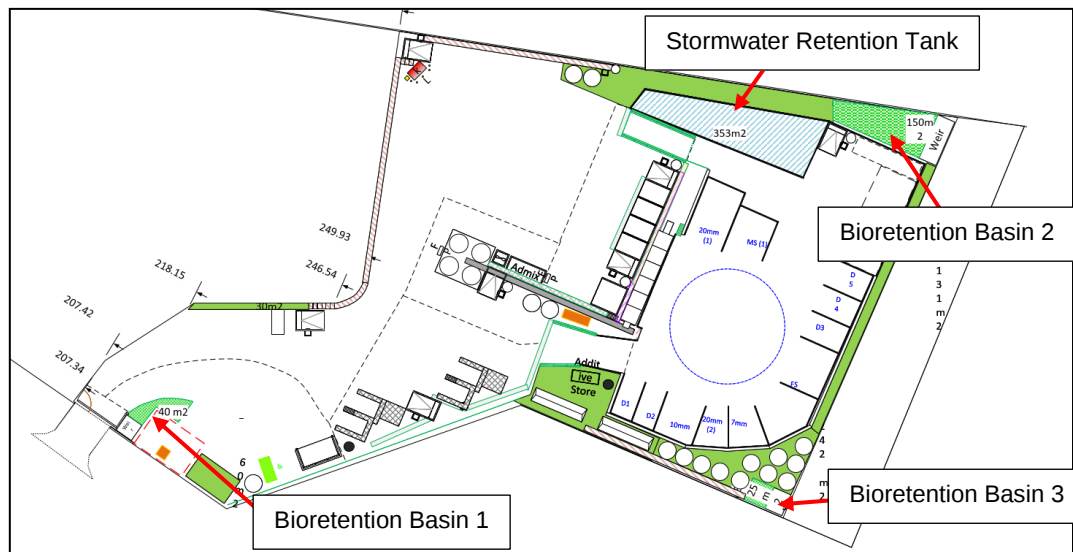


Figure 4 – Onsite Stormwater Detention Devices

Table 4 – Detention details

Characteristic	Detail			
	Bioretention Basin 1	Stormwater Retention Tank	Bioretention Basin 2	Bioretention Basin 3
Elevation vs Detention area and OSD Volume	27.00m – 1m ² – OSD Invert Level 28.10m AHD – 1m ² – Top of Extended Detention 28.10m AHD – 40m ² 28.40m AHD – 40m ² – Basin Overflow Level	28.10m – 377m ² – Overflow Level 28.30m AHD – 377m ² – Highflow Bypass	27.00m – 1m ² – OSD Invert Level 28.10m AHD – 1m ² – Top of Extended Detention 28.10m AHD – 150m ² 28.40m AHD – 150m ² – Basin Overflow Level	27.00m – 1m ² – OSD Invert Level 28.10m AHD – 1m ² – Top of Extended Detention 28.10m AHD – 25m ² 28.40m AHD – 25m ² – Basin Overflow Level
Outlet Details	Low level Outlet – 80mm Ø Orifice at 28.10m AHD High Level Weir (Top of Field Inlet) – 3.6m wide at 28.20m AHD High flow outlet – 140mm Ø Orifice at 27.00m AHD High Level Weir (Basin Overflow) – 5m wide at 28.40m AHD	Low level Outlet – 300mm Ø Orifice at 28.10m AHD High Level Weir – 40m wide at 28.30m AHD	Low level Outlet – 50mm Ø Orifice at 27.00m AHD High Level Weir (Basin Overflow) – 5m wide at 28.40m AHD	Low level Outlet – 50mm Ø Orifice at 27.00m AHD High Level Weir (Basin Overflow) – 5m wide at 28.40m AHD
1% AEP Ponding Level – OSD Volume	OSD – 28.30m AHD – 8.0m ³	OSD – 28.33m AHD – 86.7m ³	OSD – 28.33m AHD – 34.5m ³	OSD – 28.42m AHD – 8.0m ³

Table 5 shows the mitigating effect of the OSD on the developed sites peak flows. The mitigated site shall decrease peak stormwater flows (when compared with the existing site) for all design events. Therefore, ensuring that the downstream environment will not experience an increase in peak stormwater flow from the proposed development.

It should be noted that the modelling of the proposed stormwater quantity system does not make allowance for the stormwater reuse onsite. The development site proposes to collect and store the volume of runoff from the site for reuse on site for plant activities. It is likely that the volume of runoff will be greatly reduced due to this practice. The modelling is therefore considered conservative by not allowing for this (ie. Assuming that the retention tanks are full during the design storm events).

Table 5 – Mitigated peak flow (inclusive of external catchment flows)

ARI Storm Event	Peak Flow Rate (L/s)	
	Existing	Mitigated Site
63%	31	26
39%	52	31
18%	79	37
10%	103	42
5%	126	51
2%	159	60
1%	189	66

4 STORMWATER QUALITY MANAGEMENT

4.1 Operational Phase

The development is required to meet the stormwater quality management design objectives in accordance with Section 3.6.1.4 of the LCC Planning Scheme Policy 5 – Infrastructure as it involves a development application with greater than 2500m² of land. The required pollutant load reduction objectives as set out in the State Planning Policy (July 2017) are as follows:

- ≥ 80 % reduction in total suspended solids load (TSS)
- ≥ 60 % reduction in total phosphorus load (TP)
- ≥ 45 % reduction in total nitrogen load (TN)
- ≥ 90 % reduction in gross pollutant load

The proposed development shall utilise the three proposed bioretention basins to treat runoff from the proposed development prior to discharging offsite to meet the above requirements of LCC. MUSIC modelling has been undertaken by Westera Partners to achieve the stipulated reductions targets above. Runoff from the proposed development shall be directed to each catchment's respective bioretention basin prior to discharge offsite.

The MUSIC model layout of the stormwater treatment train for the development is presented below in Figure 5 and in Appendix B.

4.2 Stormwater Quality Treatment solution

The developed site has been modelled using the stormwater quality modelling program MUSIC (modelling by Westera Partners).

The proposed site will have two contributing catchment with four sub catchments. The developed site sub catchments have been modelled as either 'Industrial' or "revegetated land" land use types with impervious percentage as per the determined land use averaged over the total sub catchment area. The only area that has been identified as bypassing treatment is a small strip of land on the eastern side of the development. The bypassing area has been included in the model for completeness.

The proposed treatment train modelled in MUSIC will consist of a single bioretention basin for each respective catchment.

Table 6 outlines the developed catchment and relevant treatment device details.

Table 6 – Catchment Summary / Treatment Details

Catchment	Catchment			
	Catchment 1	Catchment 2		
Sub Catchments	DEV 1	DEV 2	DEV 3	DEV 4
Area	1,970m ²	8,550m ²	610m ²	130m ²
% Impervious	100%	95%	20%	0%
Bypass Area	-	-	-	130m ²
Treatment device details	Bioretention Basin 1 Filter Area = 40m ² Filter Media Depth = 0.50m Extended Detention Depth = 0.30m	Bioretention Basin 2 Filter Area = 150m ² Filter Media Depth = 0.50m Extended Detention Depth = 0.30m	Bioretention Basin 3 Filter Area = 25m ² Filter Media Depth = 0.50m Extended Detention Depth = 0.30m	-

Figure 5 outlines the treatment train's effectiveness and the pollutant load reductions achieved using MUSIC, the stormwater quality modelling program; modelling files are available upon request. MUSIC details are presented in Appendix B.

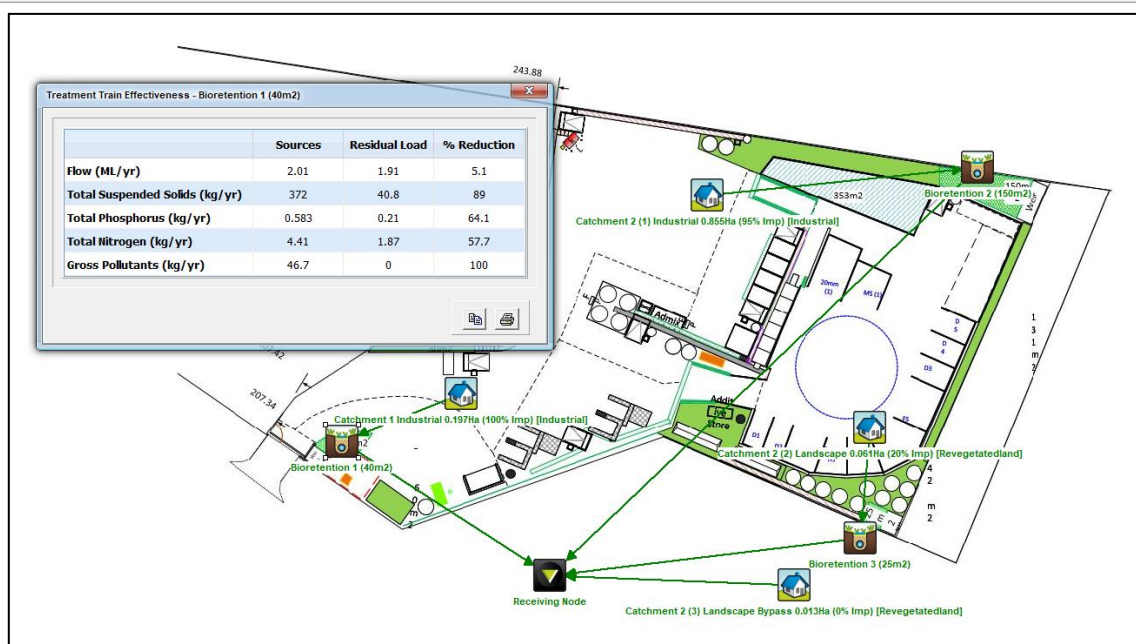


Figure 5 – MUSIC Model & Pollutant load reductions

Table 7 outlines the treatment trains effectiveness.

Table 7 – Pollutant load reductions achieved

Pollutant	Mean annual % load reduction from unmitigated development	
	Required	Achieved
Total Suspended Solids (TSS)	80	89.0 (+9.0)
Total Phosphorous (TP)	60	64.1 (+4.1)
Total Nitrogen (TN)	45	57.7 (+12.7)
Gross Pollutants>5mm (GP)	90	100 (+10.0)

The proposed treatment train exceeds all the required pollutant load reductions stipulated by LCC.

4.3 Additional Tertiary Treatment Measures

The development site proposes additional stormwater controls to those required by LCC. The additional measures relate to removal of oil and grease, first flush diversion and bunding requirements for fuel and admixture storage areas.

The development proposes to install a Gross Pollutant Trap (GPT) inline between the proposed retention tank and Bioretention Basin 2. The GPT will remove hydrocarbons and oils prior to flows entering the bioretention basin. The GPT has not been modelled in MUSIC as LCC does not consider them to remove the identified pollutants (TSS, TP and TN). The GPTs size and specification shall be confirmed during the detailed design phase.

The proposed site drainage for areas subject to contaminated runoff is subject to a first flush diversion system. The first flush system will collect and store a pre-determined volume of runoff based on the catchment area. A preliminary design of the first flush system has been prepared by others as part of the overall plant operational water management system.

All areas proposed to be used for storage of hazardous materials (e.g. diesel and admixture) shall be covered with a roof and bunded in accordance with environmental legislation. The design of contaminate storage related to the above is being designed by others.

4.4 Construction Phase

Management of stormwater run-off during construction is necessary to avoid pollution of downstream waterways from sediment and gross pollutant loading. Pollutants typically generated during construction phase are described in Table 8.

Table 8 – Pollutants typically generated during the construction phase

Pollutant	Sources
Litter (Gross Pollutants)	Paper, construction packaging, food packaging, cement bags.
Sediment	Unprotected exposed soils and stockpiles during earthworks and building.
Hydrocarbons	Fuel and oil spills, leaks from construction equipment.
Toxic materials	Cement slurry, asphalt prime, solvents, cleaning agents, wash waters.
pH altering substances	Acid sulphate soils, cement slurry and wash waters.

Refer Table A in Qld State Planning Policy (*SPP*) *Appendix 2* for further stormwater management design objectives that are applicable to all climatic regions.

4.4.1 Erosion and Sediment Control (ESC)

Impacts of inadequate erosion and sediment control downstream from the site include:

1. Traffic safety problems
2. Blocked drains
3. Local flooding problems
4. Aesthetic pollution of drainage paths, and
5. Damage to local ecosystems

Best practice erosion and sediment controls must be installed to minimise the discharge of sediment laden run-off during construction.

Erosion and sediment control plans shall be developed during detailed design phase and must be continually maintained and amended as required to minimise environmental harm.

Erosion and sediment control plans are based on three sets of control measures:

1. Drainage control
2. Erosion control
3. Sediment control

These control measures must be maintained in an effective operational condition. Sediment disposal from site is to occur to the satisfaction of LCC. Defects in erosion and sediment control devices, such as sediment fences and baskets, are to be inspected and documented. Upon inspection, the Contractor is to determine whether the device should be replaced or repaired. Documentation is to include how the damage (if applicable) was caused and what measures can be implemented to reduce the possibility of repeat occurrences. Any damage to either permanent or temporary water quality control structures or devices is to be immediately rectified at the Contractor's expense.

The effectiveness of the erosion and sediment control devices can be monitored by visual audits. All ESC measures are to be inspected:

- at least daily (when work is occurring on site) or weekly (when work is not occurring on site)
- within 24 hours of expected rain
- within 18 hours of a rainfall event (i.e. an event of sufficient intensity and duration to mobilise sediment on site)

Drainage paths are to be inspected to ensure the sediment fences are not being bypassed as a result of soil erosion.

Sediment laden run-off shall be prevented from entering neighbouring properties. This shall be achieved by landscaping disturbed areas immediately and prior to a rainfall event.

An erosion hazard assessment has been conducted in accordance with the International Erosion Control Association (IECA).

The proposed development received an erosion hazard score of 16. The risk score for this development does not exceed the trigger value of 17. Detailed ESC plans are proposed to be completed at the detailed design/OPW phase. See Appendix A for the completed erosion hazard assessment form.

A Construction Environmental Management Plan (CEMP) which includes sediment and erosion control measures will be developed and implemented by the Contractor for site activities during the construction phase and maintenance period. The CEMP shall be prepared by others for submission to the relevant Authorities prior to the commencement of construction on site.

4.4.2 Maintenance and Monitoring Requirements

Periodic maintenance and monitoring of stormwater devices proposed in this report during the construction phase and maintenance period is crucial to ensure effective operation and design life. The ongoing maintenance and monitoring of the installed devices during the operational phase of the development will be the responsibility of the owner/operator of the concrete batching plant.

Inspect field inlet grates, pits and underground pipes for blockage or damage at least 6 monthly or after significant rainfall event. The pond will require removal of weed species in the riparian zone as required. The edge of the bank shall be monitored for instability and subsidence after rainfall events to ensure that uneven surfaces do not create a safety risk. pH and nutrient testing should be undertaken periodically to ensure that the proposed circulation/aeration system is adequate for the prevailing conditions to prevent algae outbreaks. Should an algae bloom occur, a suitably qualified person should be engaged to recommend remedial measures to fix the situation. Results of the initial 12 months maintenance program shall be used to determine future maintenance intervals. Refer manufacturers maintenance and monitoring methodology for specific details.

Table 9 – Maintenance of ESC measures

ESC Measure	Maintenance Trigger	Timeframe for Completion of Maintenance
Sediment basins	When settled sediment exceeds the volume of the sediment storage zone	Within 7 days of the inspection.
Other ESC measures	The capacity of ESC measures falls below 75%.	By the end of the day.

Sediment accumulation on ESC devices is to be removed and disposed of to the satisfaction of LCC.

5 CONCLUSION

This SWMR together with the preliminary engineering drawings outline how stormwater run-off from the site will be managed in order to not adversely impact the receiving environment.

The current application is for a development permit for a material change of use for Medium Impact Industry (Concrete batching plant).

The site is considered to have two LPODs (in the developed case). The first LPOD is the existing swale on the southern side of the development within the Greenbank Road verge. The second LPOD is considered to be the existing stormwater culvert located underneath the Mt Lindesay highway.

The existing subject site is flood affected in the DFL according to LCC's online interactive flood mapping. The existing site levels are generally above the DFL from LCC's mapping and therefore flood compensation is not considered to be required for the required filling of the site. As the site is likely to store materials considered hazardous or noxious it is considered that all storage areas shall have a minimum level equal to or greater than the 0.2% AEP event (28.7m AHD). This requirement is only considered to be applicable for storage areas and not the whole site. For occupied areas the minimum flood planning level is considered to be the 1% AEP level + 0.5m freeboard (28.1m AHD).

The existing and developed catchments have been modelled using XPStorm utilising Laurenson's method. OSD is required as the proposed development has been shown to increase peak stormwater runoff compared to the existing case. The modelled OSD has been shown to decrease peak stormwater discharge (compared to the existing case) for all design events.

The proposed development triggers the requirement for stormwater quality from LCC. Water quality modelling was completed using MUSIC (by Westera Partners). The proposed water quality treatment train consists of three separate bioretention basins. The proposed treatment train has been shown to meet the reduction targets outlined by LCC.

By implementing the proposed stormwater management system, and providing adequate maintenance, the downstream environment and neighbouring properties will not experience any adverse deterioration of water quality as a result of the proposed development.

6 APPENDICES

6.1 Appendix A – Erosion Hazard Assessment

The following erosion hazard assessment form is presented as an example. Regulatory authorities may choose to modify its contents and/or trigger value to better address local issues and conditions (e.g. within the catchment of sensitive receiving waters).

The **total score** is used to identify certain actions required by the proponent, or may simply be used to identify *low-risk* and *high risk* sites. Within the attached form, a total score of 17 (default value) or greater may be considered *high-risk*.

The **trigger values** are used to identify issues of particular importance and to trigger specific actions required by the proponent, such as the submission of a preliminary ESCP during the planning phase of the development.

Erosion Hazard Assessment Form

Condition	Points	Score	Trigger value
AVERAGE SLOPE OF DISTURBANCE AREA [1] - not more than 3% [3% . 33H:1V] - more than 3% but not more than 5% [5% = 20H:1V] - more than 5% but not more than 10% [10% = 10H:1V] - more than 10% but not more than 15% [15% . 6.7H:1V] - more than 15%	0 1 2 4 6	0	4
SOIL CLASSIFICATION GROUP (AS1726) [2] - GW, GP, GM, GC - SW, SP, OL, OH - SM, SC, MH, CH - ML, CL, or if <i>imported fill</i> is used, or if soils are untested	0 1 2 3	3	
EMERSON (DISPERSION) CLASS NUMBER [3] - Class 4, 6, 7, or 8 - Class 5 - Class 3, (default value if soils are untested) - Class 1 or 2	0 2 4 6	4	6
DURATION OF SOIL DISTURBANCE [4] - not more than 1 month - more than 1 month but not more than 4 months - more than 4 months but not more than 6 months - more than 6 months	0 2 4 6	2	6
AREA OF DISTURBANCE [5] - not more than 1000 m² - more than 1000 m² but not more than 5000 m² - more than 5000 m² but not more than 1 ha - more than 1 ha but not more than 4 ha - more than 4 ha	0 1 2 4 6	2	4
WATERWAY DISTURBANCE [6] - No disturbance to a watercourse, open drain or channel - Involves disturbance to a constructed open drain or channel - Involves disturbance to a natural watercourse	0 1 2	1	2
REHABILITATION METHOD [7] Percentage of area (relative to total disturbance) revegetated by seeding without light mulching (i.e. worst-case revegetation method). - not more than 1% - more than 1% but not more than 5% - more than 5% but not more than 10% - more than 10%	0 1 2 4	0	
RECEIVING WATERS [8] - Saline waters only - Freshwater body (e.g. creek or freshwater lake or river)	0 2	2	
SUBSOIL EXPOSURE [9] - No subsoil exposure except of service trenches - Subsoils are likely to be exposed	0 2	0	
EXTERNAL CATCHMENTS [10] - No external catchment - External catchment diverted around the soil disturbance - External catchment not diverted around the soil disturbance	0 1 2	1	
ROAD CONSTRUCTION [11] - No road construction - Involves road construction works	0 2	0	
pH OF SOILS TO BE REVEGETATED [12] - more than pH 5.5 but less than pH 8 - other pH values, or if soils are untested	0 1	1	
Total Score ^[13]		16	

Explanatory notes

Requirements: Specific issues or actions required by the proponent.

Warnings: Issues that should be considered by the proponent.

Comments: General information relating to the topic.

[1] **REQUIREMENTS:**

For sites with an average slope of proposed land disturbance greater than 10%, a preliminary ESCP must be submitted to the regulatory authority for approval during planning negotiations.

Proponents must demonstrate that adequate erosion and sediment control measures can be implemented on-site to effectively protect downstream environmental values.

If site or financial constraints suggest that it is not reasonable or practicable for the prescribed water quality objectives to be achieved for the proposal, then the proponent must demonstrate that alternative designs or construction techniques (e.g. pole homes, suspended slab) cannot reasonably be implemented on the site.

WARNINGS:

Steep sites usually require more stringent drainage and erosion controls than flatter grade sites.

COMMENTS:

The steeper the land, the greater the need for adequate drainage controls to prevent soil and mulch from being washed from the site.

[2] **REQUIREMENTS:**

If the actual soil K-factor is known from soil testing, then the Score shall be determined from Table 1.

If a preliminary ESCP is required during planning negotiations, then it must be demonstrated that adequate space is available for the construction and operation of any major sediment traps, including the provision for any sediment basins and their associated embankments and spillways. It must also be demonstrated that all reasonable and practicable measures can be taken to divert the maximum quantity of sediment-laden runoff (up to the specified design storm) to these sediment traps throughout the construction phase and until the contributing catchment is adequately stabilised against erosion.

WARNINGS:

The higher the point score, the greater the need to protect the soil from raindrop impact and thus the greater the need for effective erosion control measures. A point score of 2 or greater will require a greater emphasis to be placed on revegetation techniques that do not expose the soil to direct rainfall contact during vegetation establishment, e.g. turfing and *Hydromulching*.

COMMENTS:

Table 2 provides an *indication* of soil conditions likely to be associated with a particular Soil group based on a statistical analysis of soil testing across NSW. This table provides only an initial estimate of the likely soil conditions.

The left-hand-side of the table provides an indication of the type of sediment basin that will be required (Type C, F or D). The right-hand-side of the table provides an indication of the likely erodibility of the soil based on the Revised Universal Soil Loss Equation (RUSLE) K-factor.

Table 3 provides some general comments on the erosion potential of the various soil groups.

Table 1 – Score if soil K-factor is known

	RUSLE soil erodibility K-factor			
	K < 0.02	0.02<K<0.04	0.04<K<0.06	K > 0.06
Score	0	1	2	3

Table 2 – Statistical analysis of NSW soil data^[1]

Unified Soil Class System	Likely sediment basin classification (%)			Probable soil erodibility K-factor (%) ^[2]			
	Dry	Wet		Low	Moderate	High	Very High
	Type C	Type F	Type D	K < 0.02	0.02<K<0.04	0.04<K<0.06	K > 0.06
GM	30	58	12	12	51	26	12
GC	42	33	25	13	71	17	0
SW	40	48	12	49	39	12	0
SP	53	32	15	76	18	5	1
SM	21	67	12	26	48	25	1
SC	26	50	24	16	64	18	2
ML	5	63	32	4	35	45	16
CL	9	51	39	12	56	19	13
OL	2	80	18	34	61	5	1
MH	12	41	48	15	19	41	25
CH	5	44	51	39	43	11	7

Notes: [1] Analysis of soil data presented in Landcom (2004).

[2] Soil erodibility based on Revised Universal Soil Loss Equation (RUSLE) K-factor.

Unified Soil Classification System (USCS)

- GW Well graded gravels, gravel-sand mixtures, little or no fines
- GP Poorly graded gravels, gravel-sand mixture, little or no fines
- GM Silty gravels, poorly graded gravel-sand-silt mixtures
- GC Clayey gravels, poorly graded gravel-sand-clay mixtures
- SW Well graded sands, gravelly sands, little or no fines
- SP Poorly graded sands, gravelly sands, little or no fines
- SM Silty sands, poorly graded sand-silt mixtures
- SC Clayey sands, poorly graded sand-clay mixtures
- ML Inorganic silts & very fine sands, rock flour, silty or clayey fine sands with slight plasticity
- CL Inorganic clays, low-medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
- OL Organic silts and organic silt-clays of low plasticity
- MH Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
- CH Inorganic clays of high plasticity, fat clays
- OH Organic clays of medium to high plasticity

Table 3 – Typical properties of various soil groups^[1]

Soil Groups	Typical properties ^[2]
GW, GP	Low erodibility potential.
GM, GC	- Low to medium erodibility potential. - May create turbid runoff if disturbed as a result of the release of silt and clay particles.
SW, SP	Low to medium erodibility potential.
SM, SC	- Medium erodibility potential. - May create turbid runoff if disturbed as a result of the release of silt and clay particles.
MH, CH	- Highly variable (low to high) erodibility potential. - Will generally create turbid runoff if disturbed.
ML, CL	- High erodibility potential. - Tendency to be dispersive. - May create some turbidity in runoff if disturbed.

Note: [1] After Soil Services & NSW DLWC (1998).

[2] Any soil can represent a high erosion risk if the binding clays or silts are unstable.

Table 4 provides **general** guidelines on the suitability of various soil groups to various engineering applications.

Table 4 – Engineering suitability based on Unified Soil Classification^[1]

Unified Soil Class	USC Group	Embankments		Fill	Slope stability	Untreated roads
		Water retaining	Non water retaining			
Well graded gravels	GW	Unsuitable	Excellent	Excellent	Excellent	Average
Poorly graded gravel	GP	Unsuitable	Average	Excellent	Average	Unsuitable
Silty gravels	GM	Unsuitable	Average	Good	Average	Average
Clayey gravels	GC	Suitable	Average	Good	Average	Excellent
Well graded sands	SW	Unsuitable	Excellent	Excellent	Excellent	Average
Poorly graded sands	SP	Unsuitable	Average	Good	Average	Unsuitable
Silty sands	SM	Suitable ^[2]	Average	Average	Average	Poor
Clayey sands	SC	Suitable	Average	Average	Average	Good
Inorganic silts	ML	Unsuitable	Poor	Average	Poor	Unsuitable
Inorganic clays	CL	Suitable ^[2]	Good	Average	Good	Poor
Organic silts	OL	Unsuitable	Unsuitable	Poor	Unsuitable	Unsuitable
Inorganic silts	MH	Unsuitable	Poor	Poor	Poor	Unsuitable
Inorganic clays	CH	Suitable ^[2]	Average	Unsuitable	Average	Unsuitable
Organic clays	OH	Unsuitable	Unsuitable	Unsuitable	Unsuitable	Unsuitable
Highly organic soils	Pt	Unsuitable	Unsuitable	Unsuitable	Unsuitable	Unsuitable

Notes: [1] Modified from Hazelton & Murphy (1992)

[2] Suitable only after modifications to soil such as compaction and/or erosion protection

- [3] If the soils have not been tested for Emerson Class, then adopt a score of 4.

REQUIREMENTS:

Works proposed on sites containing Emerson Class 1 or 2 soils have a very high pollution potential and must submit a conceptual ESCP to the regulatory authority for review and/or approval (as required by the authority) during planning negotiations.

WARNINGS:

Class 3 and 5 soils disturbed by cut and fill operations or construction traffic are highly likely to discolour stormwater (i.e. cause turbid runoff). Chemical stabilisation will likely be required if these soils are placed immediately adjacent to a retaining wall. Any disturbed Class 1, 2, 3 and 5 soils that are to be revegetated must be covered with a non-dispersive topsoil as soon as possible (unless otherwise agreed by the regulatory authority).

Class 1 and 2 soils are highly likely to discolour (pollute) stormwater if exposed to rainfall or flowing water. Treatment of these soils with gypsum (or other suitable substance) will most likely be required. These soils should not be placed directly behind a retaining wall unless it has been adequately treated (stabilised) or covered with a non-dispersible soil.

- [4] The duration of disturbance refers to the total duration of soil exposure to rainfall up until a time when there is at least 70% coverage of all areas of soil.

REQUIREMENTS:

All land developments with an expected soil disturbance period greater than 6 months must submit a conceptual ESCP to the regulatory authority for review and/or approval (as required by the authority) during planning negotiations.

COMMENTS:

Construction periods greater than 3 months will generally experience at least some significant storm events, independent of the time of year that the construction (soil disturbance) occurs.

- [5] **REQUIREMENTS:**

Development proposals with an expected soil disturbance in excess of 1ha must submit a conceptual ESCP to the regulatory authority for review and/or approval (as required by the regulatory authority) during planning negotiations.

The area of disturbance refers to the total area of soil exposed to rainfall or dust-producing winds either as a result of:

- (a) the removal of ground cover vegetation, mulch or sealed surfaces;
- (b) past land management practices;
- (c) natural conditions.

WARNINGS:

A *Sediment Basin* will usually be required if the disturbed area exceeds 0.25ha (2500m²) within any sub-catchment (i.e. land flowing to one outlet point).

COMMENTS:

For soil disturbances greater than 0.25ha, the revegetation phase should be staged to minimise the duration for which soils are exposed to wind, rain and concentrated runoff.

[6] REQUIREMENTS:

All developments that involve earthworks or construction within a natural watercourse (whether that watercourse is in a natural or modified condition) must submit a conceptual ESCP to the regulatory authority for review and/or approval (as required by the regulatory authority) during planning negotiations.

Permits and/or licences may be required from the State Government, including possible submission of the ESCP to the relevant Government department.

[7] REQUIREMENTS:

No areas of soil disturbance shall be left exposed to rainfall or dust-producing winds at the end of a development without an adequate degree of protection and/or an appropriate action plan for the establishment of at least 70% cover.

COMMENTS:

Grass seeding without the application of a light mulch cover is considered the least favourable revegetation technique. A light mulch cover is required to protect the soil from raindrop impact, excessive temperature fluctuations, and the loss of essential soil moisture.

[8] COMMENTS:

All receiving waters can be adversely affected by unnatural quantities of sediment-laden runoff. Freshwater ecosystems are generally more susceptible to ecological harm resulting from the inflow of fine or dispersible clays than saline water bodies. The further inland a land disturbance is, the greater the potential for the released sediment to cause environmental harm as this sediment travels towards the coast.

For the purpose of this clause it is assumed that all sediment-laden runoff will eventually flow into saline waters. Thus, sediment-laden discharges that flow first into freshwater are likely to adversely affect both fresh and saline water bodies and are therefore considered potentially more damaging to the environment.

This clause does **not** imply that sediment-laden runoff will not cause harm to saline waters.

[9] COMMENTS:

This clause refers to subsoils exposed during the construction phase either as a result of past land practices or proposed construction activities. The exposure of subsoils resulting from the excavation of minor service trenches should not be considered.

[10] WARNINGS:

The greater the extent of external catchment, the greater the need to divert up-slope stormwater runoff around any soil disturbance.

COMMENTS:

The ability to separate "clean" (i.e. external catchment) stormwater runoff from "dirty" site runoff can have a significant effect on the size, efficiency and cost of the temporary drainage, erosion, and sediment control measures.

[11] REQUIREMENTS:

Permission must be obtained from the owner of a road reserve before placing any erosion and sediment control measures within the road reserve.

WARNINGS:

Few sediment control techniques work efficiently when placed on a road and/or around roadside stormwater inlets. Great care must be taken if sediment control measures are located on a public roadway, specifically:

- safety issues relating to road users;
- the risk of causing flooding on the road or within private property.

The construction of roads (whether temporary or permanent) will usually modify the flow path of stormwater runoff. This can affect how “dirty” site runoff is directed to the sediment control measures.

COMMENTS:

“On-road” sediment control devices are at best viewed as secondary or supplementary sediment control measures. Only in special cases and/or on very small projects (e.g. kerb and channel replacement) might these controls be considered as the “primary” sediment control measure.

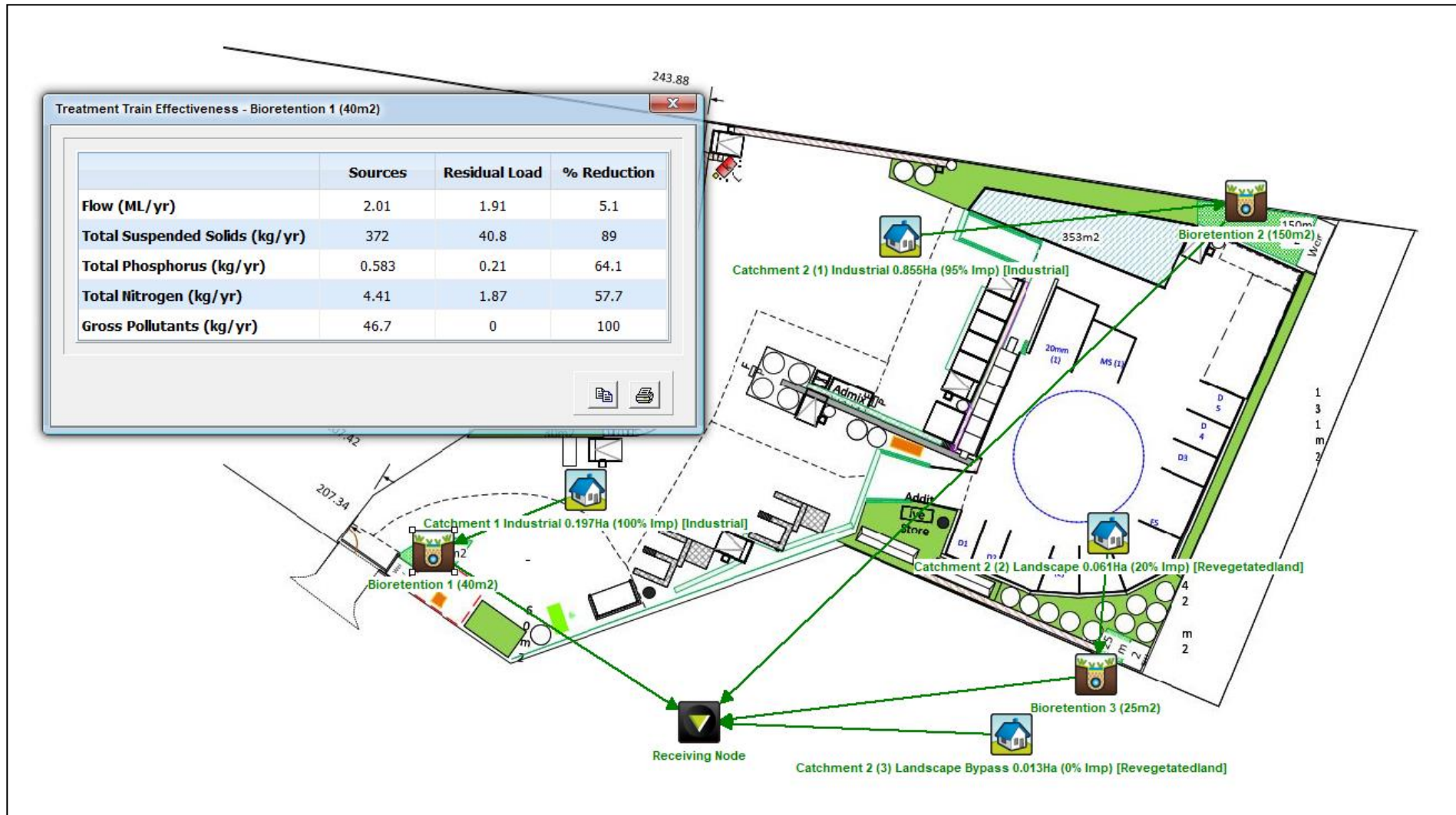
[12] WARNINGS:

Soils with a pH less than 5.5 or greater than 8 will usually require treatment in order to achieve satisfactory revegetation. Soils with a pH of less than 5 (whether naturally acidic or in acid sulfate soil areas) may also limit the choice of chemical flocculants (e.g. Alum) for use in the flocculation of *Sediment Basins*.

[13] REQUIREMENTS:

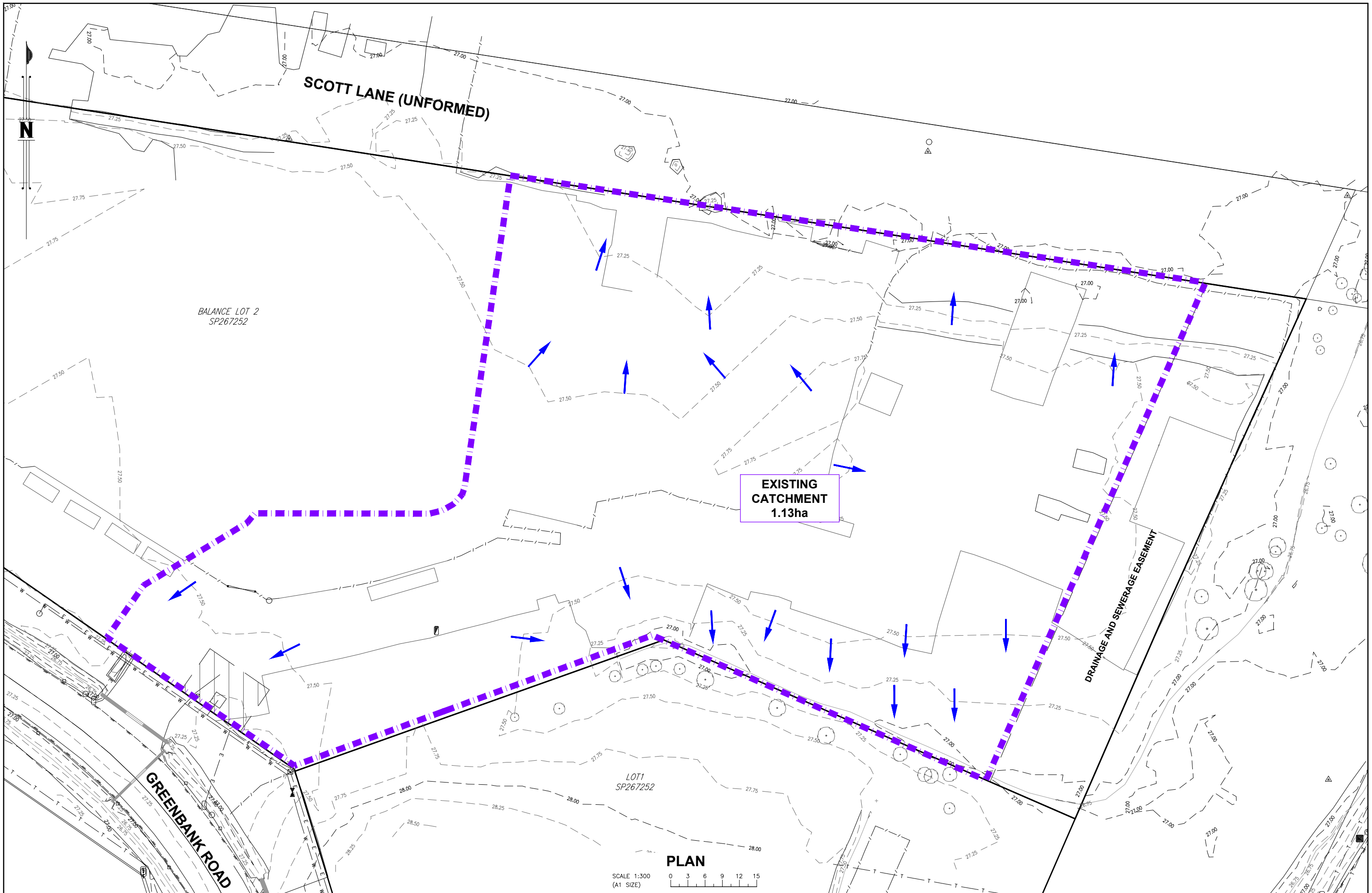
A preliminary ESCP must be submitted to the local government for approval during the planning phase for any development that obtains a total point score of 17 or greater or when any trigger value is scored or exceeded.

6.2 Appendix B – MUSIC details

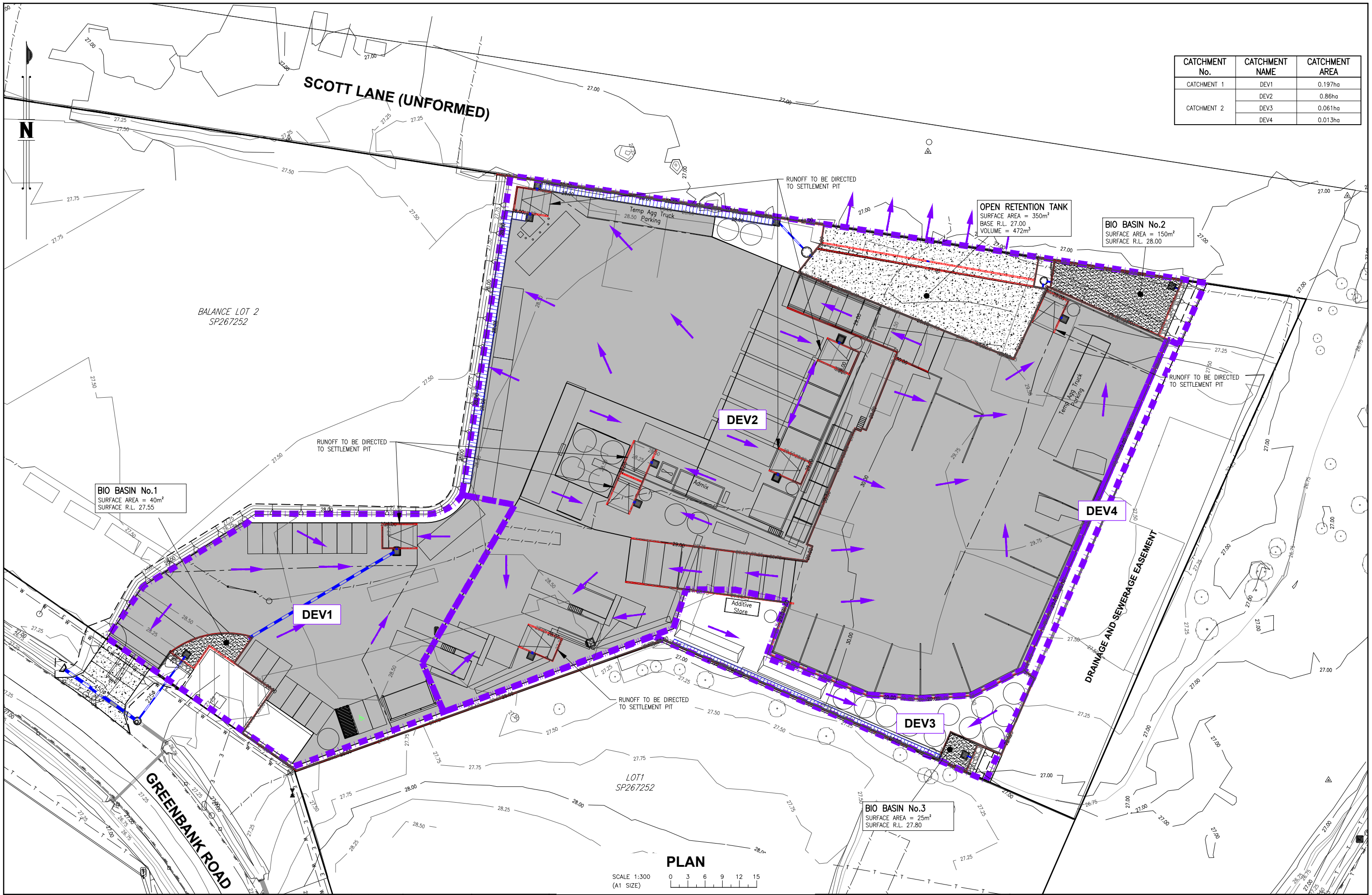


MUSIC Model Layout – Entire Development site

6.3 Appendix C – Engineering Drawings

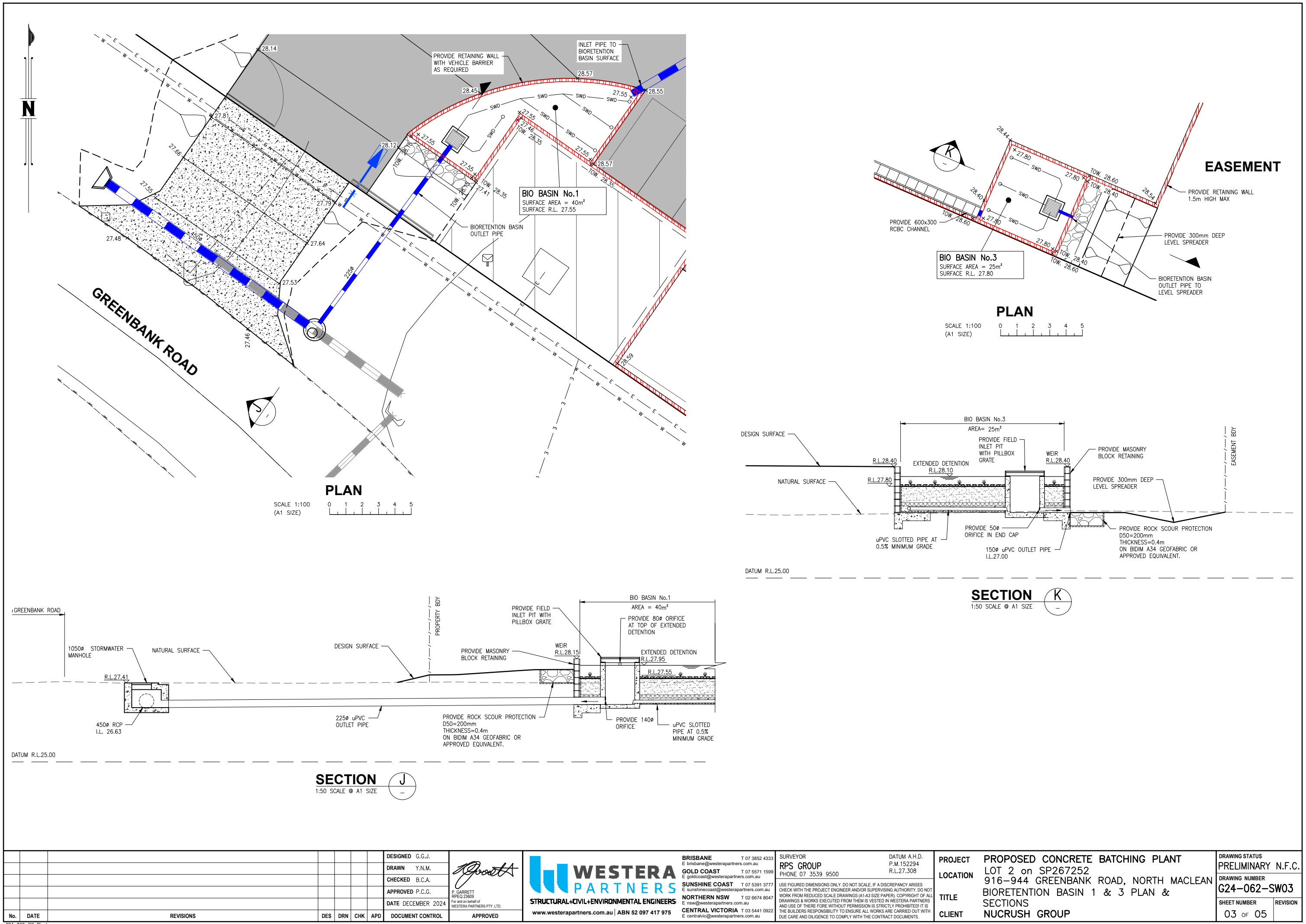


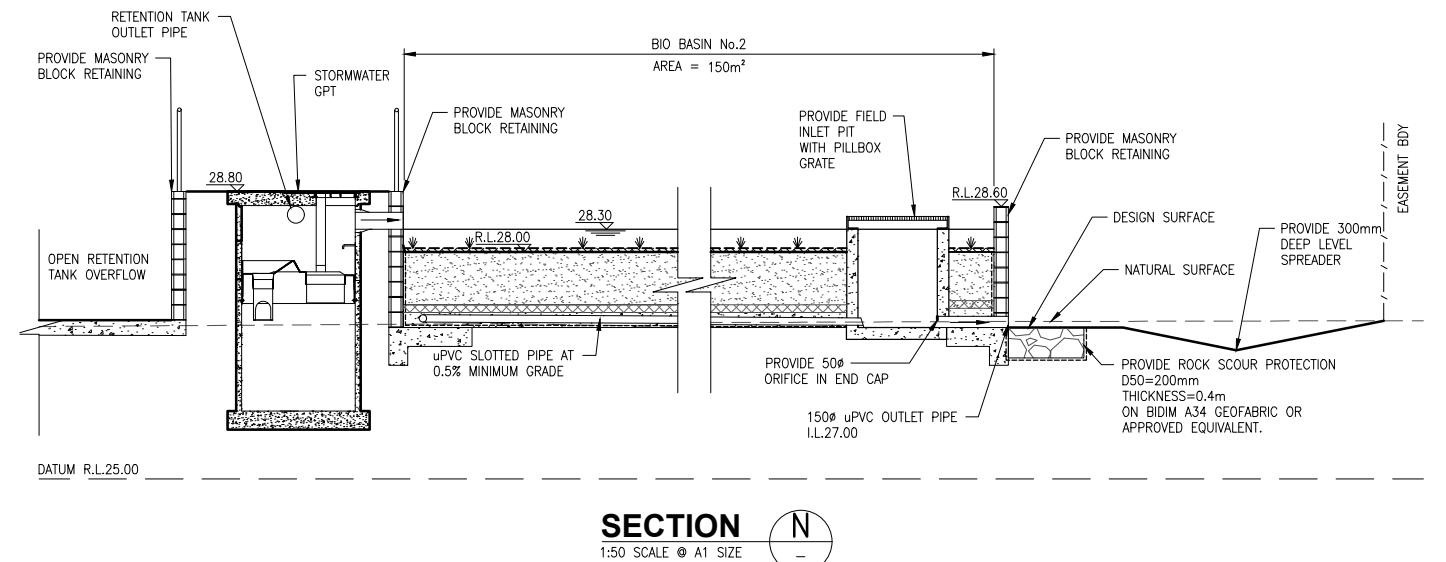
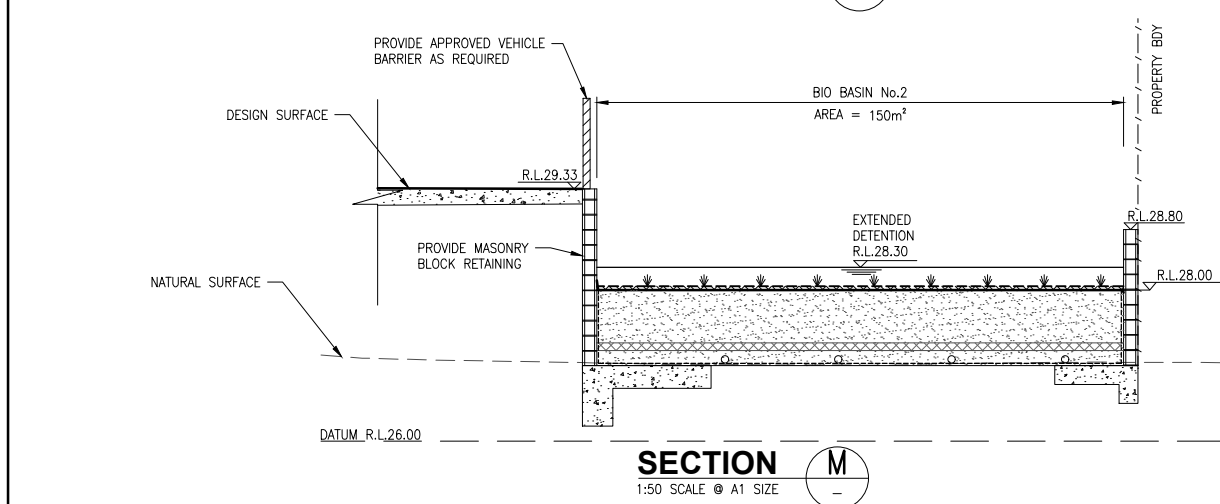
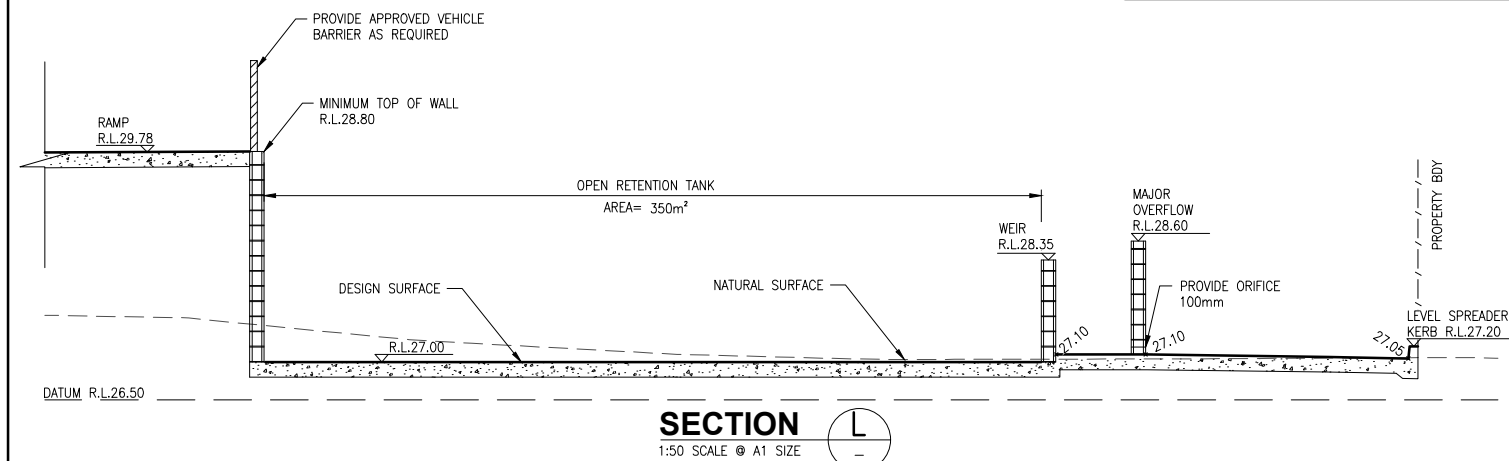
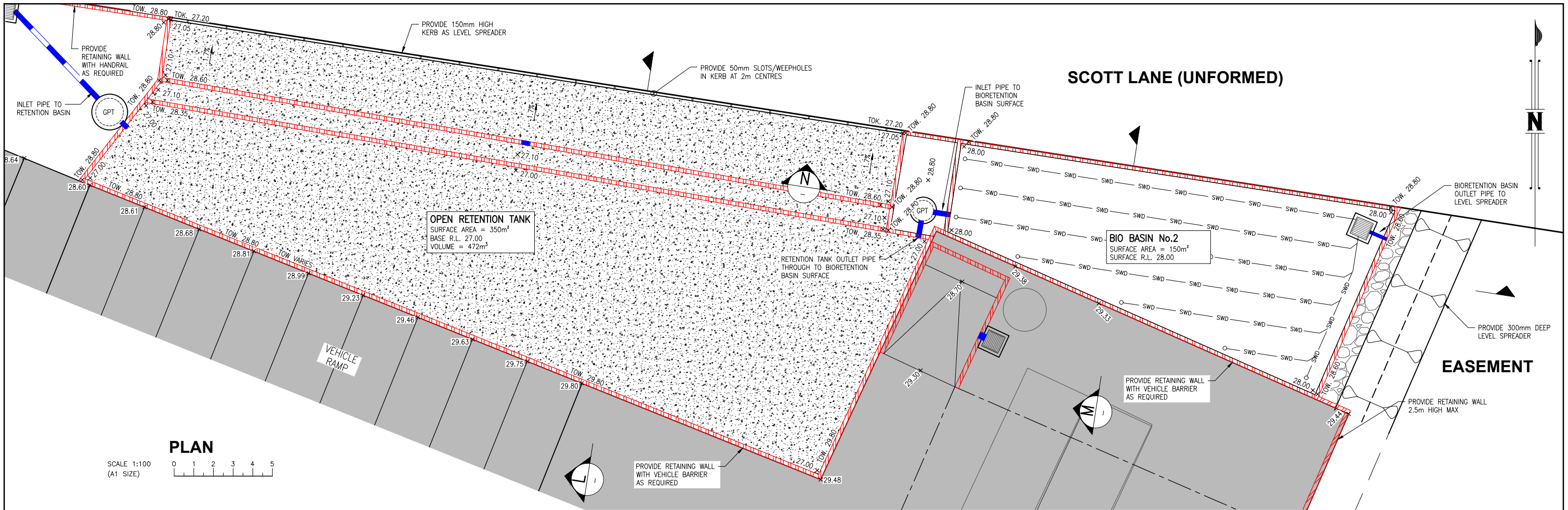
				DESIGNED G.G.J.	 P. GARRETT RPEQ 23609 For and on behalf of WESTERA PARTNERS PTY. LTD.	 WESTERA PARTNERS STRUCTURAL+CIVIL+ENVIRONMENTAL ENGINEERS www.westerapartners.com.au ABN 52 097 417 975	BRISBANE T 07 3852 4333 E brisbane@westerapartners.com.au GOLD COAST T 07 5571 1599 E goldcoast@westerapartners.com.au SUNSHINE COAST T 07 5391 3777 E sunshinecoast@westerapartners.com.au NORTHERN NSW T 02 6874 8047 E nsw@westerapartners.com.au CENTRAL VICTORIA T 03 5441 0922 E centralvic@westerapartners.com.au	SURVEYOR RPS GROUP PHONE 07 3539 9500 DATE 15/12/2024 R.L. 27.308	PROJECT LOCATION TITLE CLIENT	PROPOSED CONCRETE BATCHING PLANT LOT 2 on SP267252 916-944 GREENBANK ROAD, NORTH MACLEAN EXISTING CATCHMENT PLAN NUCRUSH GROUP	DRAWING STATUS PRELIMINARY N.F.C. DRAWING NUMBER G24-062-SW01 SHEET NUMBER 01 OF 05	REVISION
				DRAWN Y.N.M.								
				CHECKED B.C.A.								
				APPROVED P.C.G.								
No.	DATE	REVISIONS			DES	DRN	CHK	APD	DOCUMENT CONTROL	APPROVED		



CATCHMENT No.	CATCHMENT NAME	CATCHMENT AREA
CATCHMENT 1	DEV1	0.197ha
	DEV2	0.86ha
CATCHMENT 2	DEV3	0.061ha
	DEV4	0.013ha

DESIGNED G.G.J. DRAWN Y.N.M. CHECKED B.C.A. APPROVED P.C.G. DATE DECEMBER 2024		WESTERA PARTNERS STRUCTURAL+ENVIRONMENTAL ENGINEERS www.westerapartners.com.au ABN 52 097 417 975	BRISBANE T 07 3852 4333 E brisbane@westera.com.au GOLD COAST T 07 5571 1599 E goldcoast@westera.com.au SUNSHINE COAST T 07 5391 3777 E sunshinecoast@westera.com.au NORTHERN NSW T 02 6674 8047 E nsw@westera.com.au CENTRAL VICTORIA T 03 5441 0922 E centralvic@westera.com.au	SURVEYOR RPS GROUP PHONE 07 3539 9500 DATUM A.H.D. P.M.152294 R.L.27.308 USE FIGURED DIMENSIONS ONLY. DO NOT SCALE. IF A DISCREPANCY ARISES CHECK WITH THE PROJECT ENGINEER AND/OR SUPERVISING AUTHORITY. DO NOT WORK FROM REDUCED SCALE DRAWINGS (A1-A3 SIZE PAPER). COPYRIGHT OF ALL DRAWINGS & WORKS EXECUTED FROM THEM IS VESTED IN WESTERA PARTNERS AND USE OF THERE FORE WITHOUT PERMISSION IS STRICTLY PROHIBITED. IT IS THE BUILDERS RESPONSIBILITY TO ENSURE ALL WORKS ARE CARRIED OUT WITH DUE CARE AND DILIGENCE TO COMPLY WITH THE CONTRACT DOCUMENTS.	PROJECT LOCATION TITLE CLIENT	PROPOSED CONCRETE BATCHING PLANT LOT 2 on SP267252 916-944 GREENBANK ROAD, NORTH MACLEAN DEVELOPED CATCHMENT PLAN NUCRUSH GROUP	DRAWING STATUS PRELIMINARY N.F.C. DRAWING NUMBER G24-062-SW02 SHEET NUMBER 02 OF 05 REVISION
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					DESIGNED G.G.J.			BRISBANE T 07 3852 4333 E brisbane@westerapartners.com.au GOLD COAST T 07 5571 1599 E goldcoast@westerapartners.com.au SUNSHINE COAST T 07 5391 3777 E sunshinecoast@westerapartners.com.au NORTHERN NSW T 02 6674 8047 E nsw@westerapartners.com.au CENTRAL VICTORIA T 03 5441 0922 E centralvic@westerapartners.com.au	SURVEYOR RPS GROUP PHONE 07 3539 9500 DATUM A.H.D. P.M.152294 R.L.27.308	PROJECT LOCATION TITLE CLIENT	PROPOSED CONCRETE BATCHING PLANT LOT 2 on SP267252 916-944 GREENBANK ROAD, NORTH MACLEAN BIORETENTION BASIN 2 PLAN & SECTIONS NUCRUSH GROUP	DRAWING STATUS PRELIMINARY N.F.C.		
					DRAWN Y.N.M.							DRAWING NUMBER G24-062-SW04		
					CHECKED B.C.A.									
					APPROVED P.C.G.									
					DATE DECEMBER 2024									
No.	DATE	REVISIONS			DES	DRN	CHK	APD	DOCUMENT CONTROL	APPROVED				SHEET NUMBER 04 OF 05

[illegible]

6.4 Appendix D – Architectural Layout and Detailed Survey

DESIGN CRITERIA

- Development is to be in accordance with the provision of the Industry and Business Area -PDA Guideline No. 10 (May 2015 version), except for the following provisions:
- A. All advertising devices are to be in accordance with Logan City Council's Planning Scheme.
 - B. End of trip facilities are to be provided within all tenancies as per Guideline 10 - Industry and business areas.
 - C. All refuse storage areas, materials, plant areas and services will be suitably screened to all boundaries.
 - D. Buildings are shaped, designed and finished so that the maximum length of unvaried or unarticulated (blank) wall does not exceed 20 metres (unless facing a side or rear property boundary).
 - E. Roofing materials are pre coloured and non-reflective.
 - F. Glazing treatment must use non-reflective materials/products.
 - G. Where buildings face the public realm areas, including streets, parks and walkways, significant overlooking and surveillance opportunities must be incorporated with positive CPTED practice. Where public use walkways are incorporated between or within sites, the buildings must front activated zones to these walkways in accordance with positive CPTED practice.
 - H. All service areas, plant and air conditioning plant is to be screened, integrated into the building, or located on the roof with screening.
 - I. Maximum 75% site cover may be achieved, as per *Guideline 10 - Industry and business areas*, for the Low Impact Industry, Service Industry and Warehouse land uses site, independent of the maximum site cover of 75% for the concrete batching plant site:
 - J. Greenbank Road and Scott Lane frontage:
 - Building development along the Scott Lane must be setback a minimum of 2.0 metres;
 - Any building located within 3.0m of Greenbank Road must include an articulated facade and a minimum of 2 colours (which may contain glazing).
 - K. Zero setbacks to side and rear boundaries will be permitted subject to sight lines and other constraints affecting adjoining development.
 - L. Bicycle parking will be provided at the rate of one space per five car parking spaces.
 - M. Landscaping:-
 - Preference is to be given to utilising plant species that are native and endemic to the area and are low maintenance species.
 - All street frontages, not developed as Built to Boundary buildings will require a 2.0m minimum width landscape strip, except at vehicular and pedestrian access points.
 - N. Car parking:-
 - Car parking will be provided in accordance with Table 1.
 - Service vehicles must enter and leave the Site in a forward direction.
 - Where an onsite refuse collection area is provided, access and manoeuvring areas are designed and provided to enable access by a refuse collection vehicle based on the Design Service Vehicle in Austroads/Standards Australia HB72 Design Vehicles and Turning Path Templates.
 - All premises are identified by the provision of a street number in a prominent location, preferably near the site entry, i.e. on the kerb or letterbox or by signage on the building or site.
 - O. Clear and safe pedestrian movement must be maintained throughout the site.
 - P. For non-built form outcomes on the site, land uses must adhere to points A, C, H, N, and O.

DEVELOPMENT STANDARDS

All engineering works are to comply with the PDA Guideline No. 13 Engineering Standards, dated September 2017.
Driveway construction is to be in accordance with Council standards.

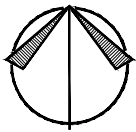
TABLE 1

Approved Uses *	Car Parking Rate
Low Impact Industry #	1 space per 50m² of GFA up to 500m²; plus 1 space per 100m² of GFA thereafter
Service Industry	1 space per 25m² of GFA
Warehouse	1 space per 100m² of GFA

NOTE:

Includes ancillary shop for the sale of goods directly associated with a low impact or Service Industry

PLAN REF: AU015412-POD-4a
DATE: 7 MAY 2025
CLIENT: NERANG PASTORAL CO. PTY LTD
DRAWN: BJB
SCALE (A2): 1:1000
SHEET: 2 of 2



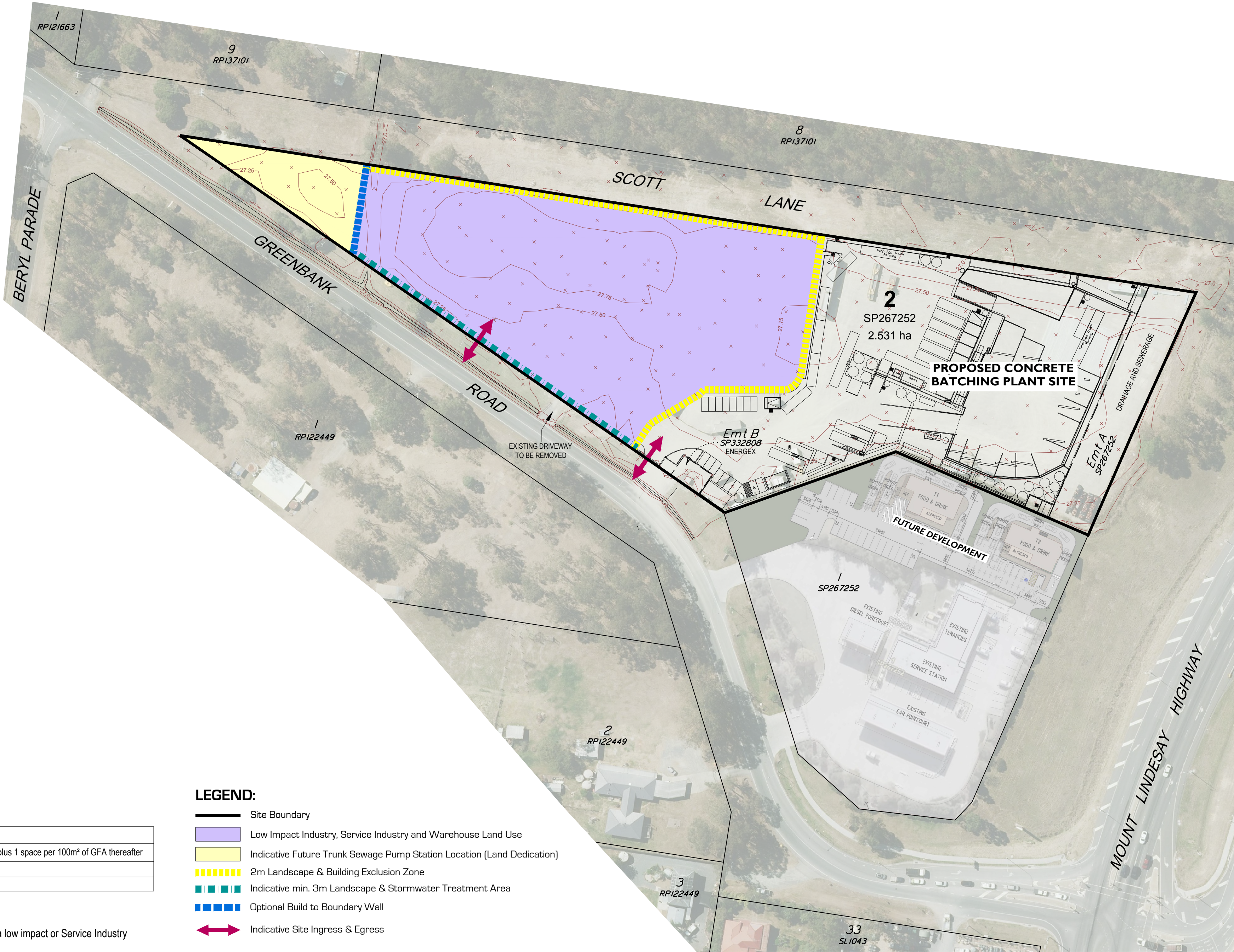
SITE PLAN - ALL STAGES

Lot 2 on SP267252
916 - 944 GREENBANK ROAD, NORTH MACLEAN



LEGEND:

- Site Boundary
- Low Impact Industry, Service Industry and Warehouse Land Use
- Indicative Future Trunk Sewage Pump Station Location (Land Dedication)
- 2m Landscape & Building Exclusion Zone
- Indicative min. 3m Landscape & Stormwater Treatment Area
- Optional Build to Boundary Wall
- Indicative Site Ingress & Egress



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DESIGN CRITERIA

- Development is to be in accordance with the provision of the Industry and Business Area -PDA Guideline No. 10 (May 2015 version), except for the following provisions:
- A. All advertising devices are to be in accordance with Logan City Council's Planning Scheme.
 - B. End of trip facilities are to be provided within all tenancies as per Guideline 10 - Industry and business areas.
 - C. All refuse storage areas, materials, plant areas and services will be suitably screened to all boundaries.
 - D. Buildings are shaped, designed and finished so that the maximum length of unvaried or unarticulated (blank) wall does not exceed 20 metres (unless facing a side or rear property boundary).
 - E. Roofing materials are pre coloured and non-reflective.
 - F. Glazing treatment must use non-reflective materials/products.
 - G. Where buildings face the public realm areas, including streets, parks and walkways, significant overlooking and surveillance opportunities must be incorporated with positive CPTED practice. Where public use walkways are incorporates between or within sites, the buildings must front activated zones to these walkways in accordance with positive CPTED practice.
 - H. All service areas, plant and air conditioning plant is to be screened, integrated into the building, or located on the roof with screening.
 - I. Maximum 75% site cover may be achieved, as per *Guideline 10 - Industry and business areas*, for the Low Impact Industry, Service Industry and Warehouse land uses site, independent of the maximum site cover of 75% for the concrete batching plant site:
 - J. Greenbank Road and Scott Lane frontage:
 - Building development along the Scott Lane must be setback a minimum of 2.0 metres;
 - Any building located within 3.0m of Greenbank Road must include an articulated facade and a minimum of 2 colours (which may contain glazing).
 - K. Zero setbacks to side and rear boundaries will be permitted subject to sight lines and other constraints affecting adjoining development.
 - L. Bicycle parking will be provided at the rate of one space per five car parking spaces.
 - M. Landscaping:-
 - Preference is to be given to utilising plant species that are native and endemic to the area and are low maintenance species.
 - All street frontages, not developed as Built to Boundary buildings will require a 2.0m minimum width landscape strip, except at vehicular and pedestrian access points.
 - N. Car parking:-
 - Car parking will be provided in accordance with Table 1.
 - Service vehicles must enter and leave the Site in a forward direction.
 - Where an onsite refuse collection area is provided, access and manoeuvring areas are designed and provided to enable access by a refuse collection vehicle based on the Design Service Vehicle in Austroads/Standards Australia HB72 Design Vehicles and Turning Path Templates.
 - All premises are identified by the provision of a street number in a prominent location, preferably near the site entry, i.e. on the kerb or letterbox or by signage on the building or site.
 - O. Clear and safe pedestrian movement must be maintained throughout the site.
 - P. For non-built form outcomes on the site, land uses must adhere to points A, C, H, N, and O.

DEVELOPMENT STANDARDS

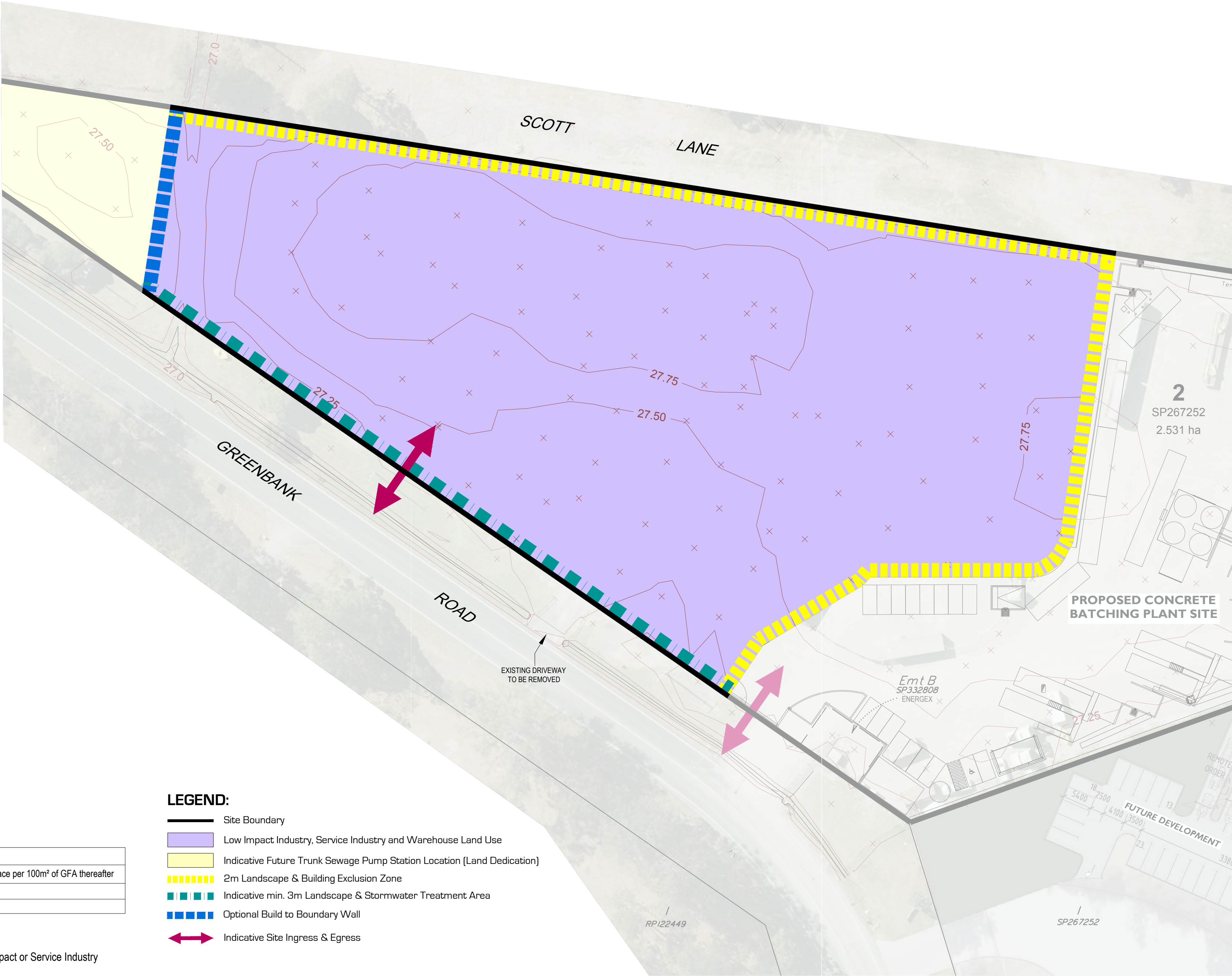
All engineering works are to comply with the PDA Guideline No. 13 Engineering Standards, dated September 2017.
Driveway construction is to be in accordance with Council standards.

TABLE 1

Approved Uses *	Car Parking Rate
Low Impact Industry #	1 space per 50m² of GFA up to 500m²; plus 1 space per 100m² of GFA thereafter
Service Industry	1 space per 25m² of GFA
Warehouse	1 space per 100m² of GFA

NOTE:

Includes ancillary shop for the sale of goods directly associated with a low impact or Service Industry



PLAN REF: AU015412-POD-4a
DATE: 7 MAY 2025
CLIENT: NERANG PASTORAL CO. PTY LTD
DRAWN: BJB
SCALE (A2): 1:500
SHEET: 1 of 2



SITE PLAN - STAGE 2

Lot 2 on SP267252
916 - 944 GREENBANK ROAD, NORTH MACLEAN







Amend	Description	Date	Surveyor	Locator	Drafter	Manager	Hz Datum: Plane	Local Authority: North Maclean	CLIENT	PROJECT
A	First Issue	12/11/2024	JP	---	AP	SN	PM152294 AHD PM152294 27.308m	Lat Long: 27°46'31" E 153°00'40" S DWS: Q1137 Greenbank Rd Detail Drawing L2D: Greenbank Detail	NUCRUSH GROUP Level 8 31 Duncan St Fortitude Valley QLD 4006 T+61 7 3539 9600 W rpsigroup.com	GREENBANK ROAD AND SCOTT LANE DETAIL Contour and Detail Survey
							SCALE IN METERS AT ORIGINAL REDUCTION RATIO 10 5 0 5 10 15 20 25	SCALE: A1 1:500	RPS A TETRA TECH COMPANY	© Copyright protects this plan SHEET 2 of 2 Q1137 1 A