

PLANS AND DOCUMENTS
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DEVELOPMENT APPROVAL

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Robert
Bird
Group

Site Services and Stormwater Management Report

Albert Street Commercial Tower

Issue: F

19 May 2023

Prepared For: CRR Albert Street Pty Ltd (ACN 660 319 693) as trustee for CRR Albert Street Trust

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Date: 19 May 2023

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1 Purpose of Document

This document has been prepared by Robert Bird Group (**RBG**) as part of the Development Application submission to the Minister for Economic Development Queensland (**MEDQ**) for the development of a commercial tower with a GFA – Area Total of 52,755 m² as per architect drawing number ALB-ARC-DRW-DA0002.

The purpose of this report is to address the engineering infrastructure that will be required to service the proposed development.

This report was prepared using information obtained from the following sources:

- Brisbane City Council – City Plan 2014.
- Brisbane City Council – eBIMAP2.
- Dial Before You Dig (**DBYD**) Service Information.
- Survey Information.

2 Introduction

2.1 Project Description

The Proposed development is to be located on an existing developed lot, which is located on the corner of Albert Street and Mary Street, opposite the proposed Albert Cross River Rail Station.

The proposed development is anticipated to comprise predominantly commercial office and retail use up to level 37, including a rooftop. Above rooftop L37 will be terrace/plant floors up to level 40.

The building will include two basement levels over the full site with B1 containing the Loading Facilities with the balance of B1 and B2 being car parking. The finished floor level of B2 is currently proposed at RL -5.0m. The Tower is anticipated to be in the order of 180m tall.

Under the Brisbane City Plan, the site is classified as PC1 Principal Centre (City Centre) with an existing area of approximately 2,500m².



Figure 1: Proposed Tower Render (By Henning Larsen/Architectus)

2.2 Topography

The site is currently occupied by a temporary acoustic structure that services the construction of the Albert Street Cross River Rail Station.

The site level is close to RL 4m, varying from RL 3.97m to RL 3.99m. Refer to the survey information in Appendix C.

2.3 Location

The proposed Albert Street Commercial Development site is located opposite the proposed Albert Street Cross River Rail Station (**CRR**). The site is noted as FOSD Lot 2 in Figure 2 below:

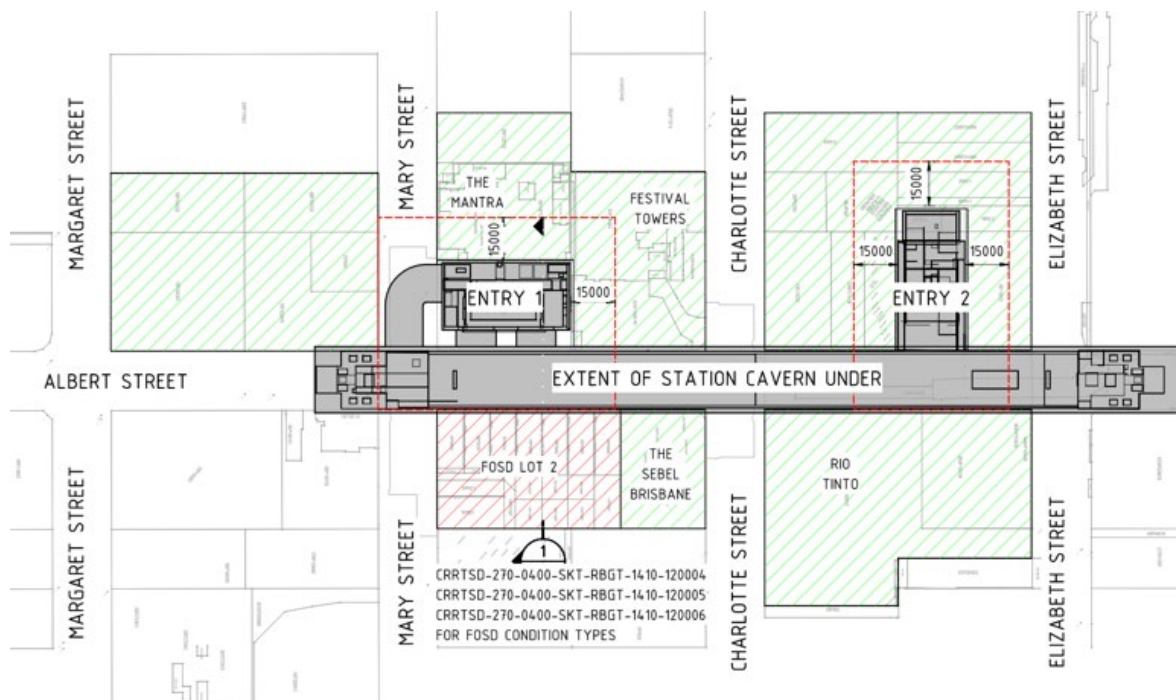


Figure 2: Site Map

The site abuts the Station Cavern that runs under Albert Street and sits between Mary Street and the Brisbane Sebel Development. Two developments abut the Northern boundary, that being 110 Mary Street and 119 Charlotte Street. Refer to Figure 3 below.

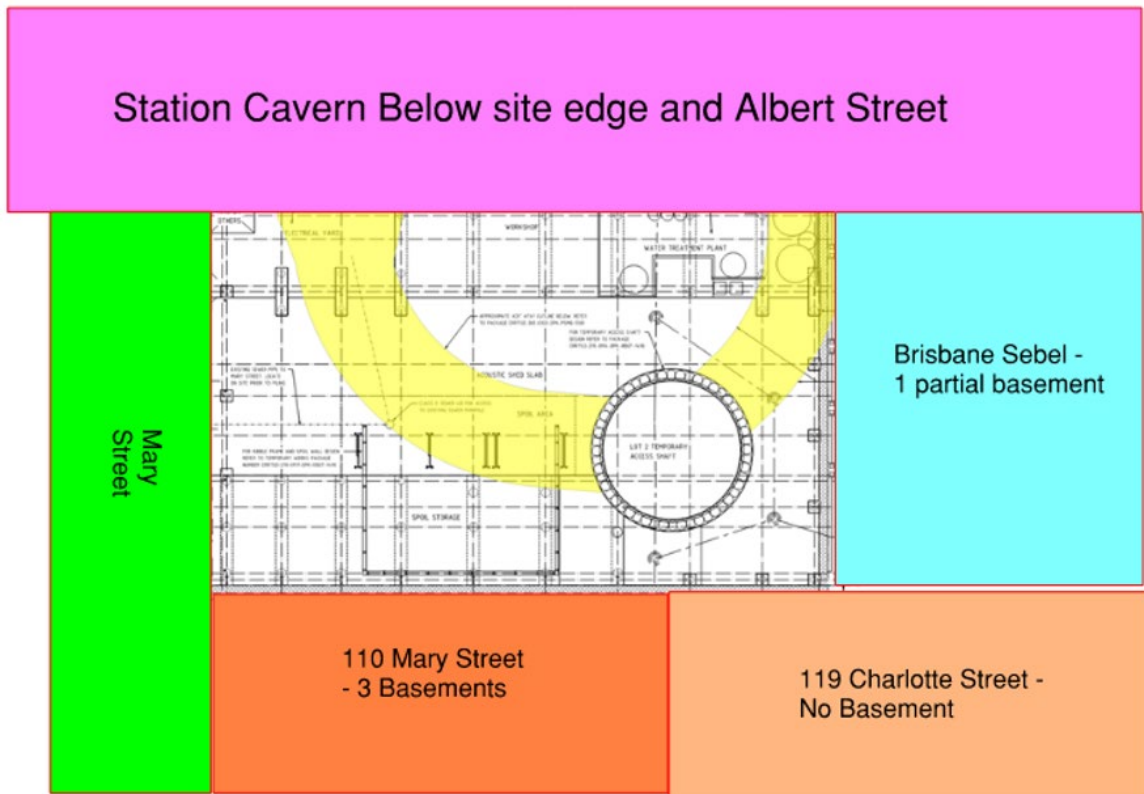


Figure 3: Site Plan

The temporary structure currently on site is an industrial shed that feeds material to the Cross River Rail (CRR) Station, via a temporary shaft and two access adits that connect to the adjoining station Cavern below ground.

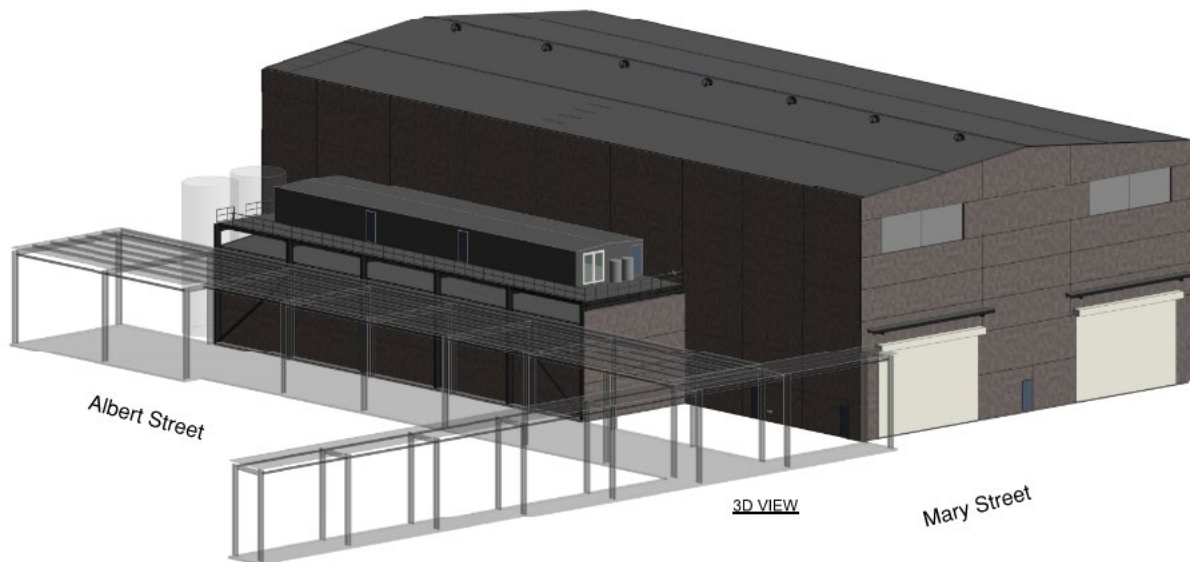


Figure 4: Existing CRR Acoustic Shed

Upon completion of the CRR Station, the shed and the slab on the ground will be removed to facilitate the new development. It is understood that existing piles will be cut off at grade level. The access shaft and temporary adits are to be filled (refer to Figure 5 below). The methodology and material for filling the shafts and adits need to be developed with input required from a geotechnical commission.

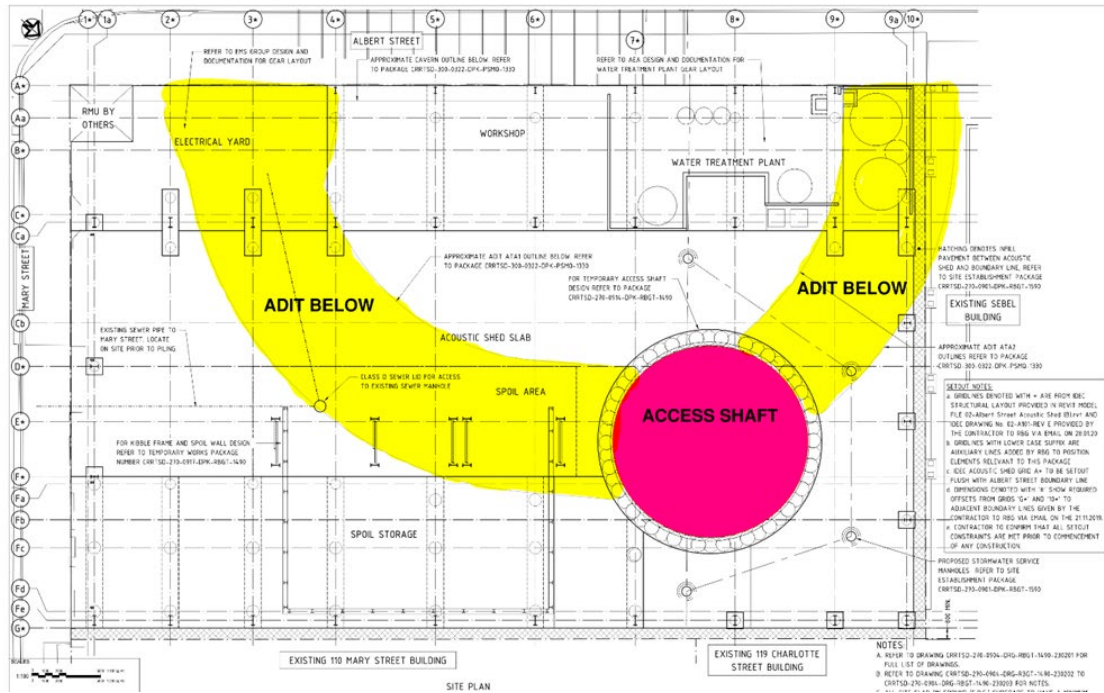


Figure 5: Plan Existing CRR Acoustic Shed Substructure

3 Stormwater

3.1 Existing Stormwater Infrastructure

It is understood from the CRR project that an existing roof water pipe traverses the site from the existing properties to the east toward Albert Street. Under the CRR works, it is understood that this pipe was locally diverted around the shaft, as shown in Figure 6 below. Refer to Appendix D.

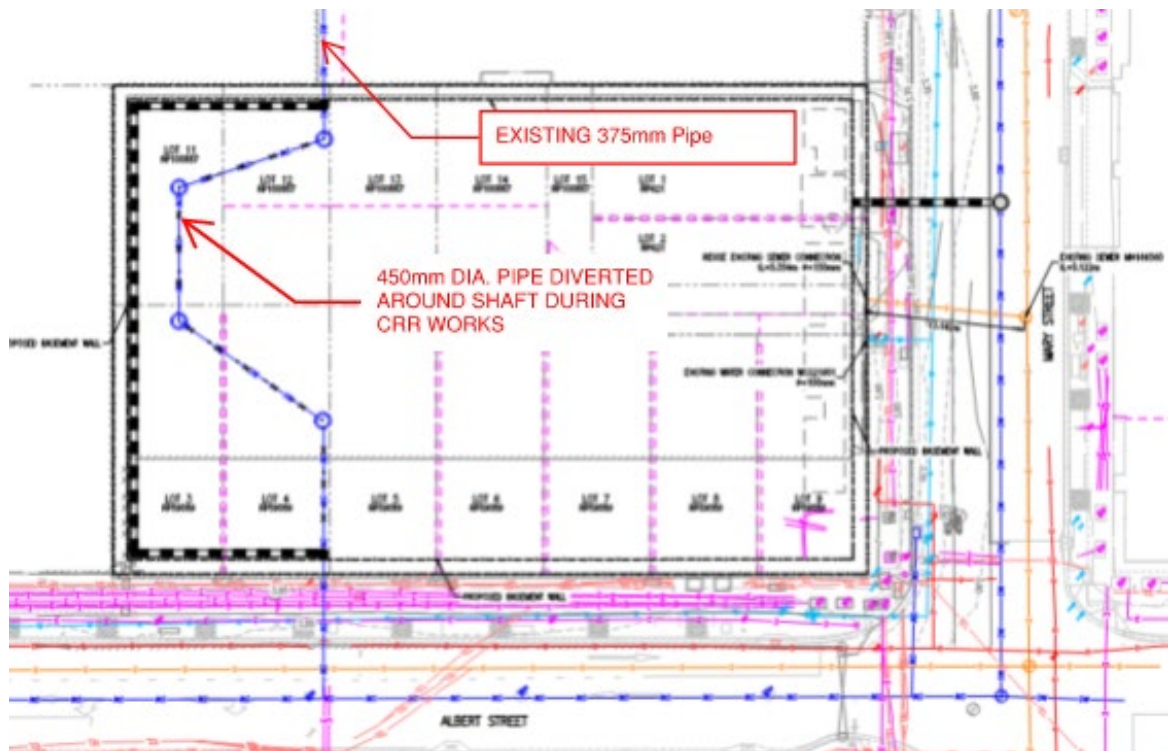


Figure 6: Indicative layout of the existing stormwater

Based on BCC eBimap information, the existing site stormwater is assumed to discharge into the existing infrastructure located on both Albert Street and Mary Street. Under the CRR works, it is understood the upstream stormwater pipe (375mm diameter pipe shown below) is privately owned. Stormwater is discharged to an existing 600mm stormwater pipe (BCC asset) that runs along the western side of the site, along Albert Street. Note that the stormwater diversion around the CRR shaft, shown above, is not indicated on the eBimap information, as shown in Figure 7 below.

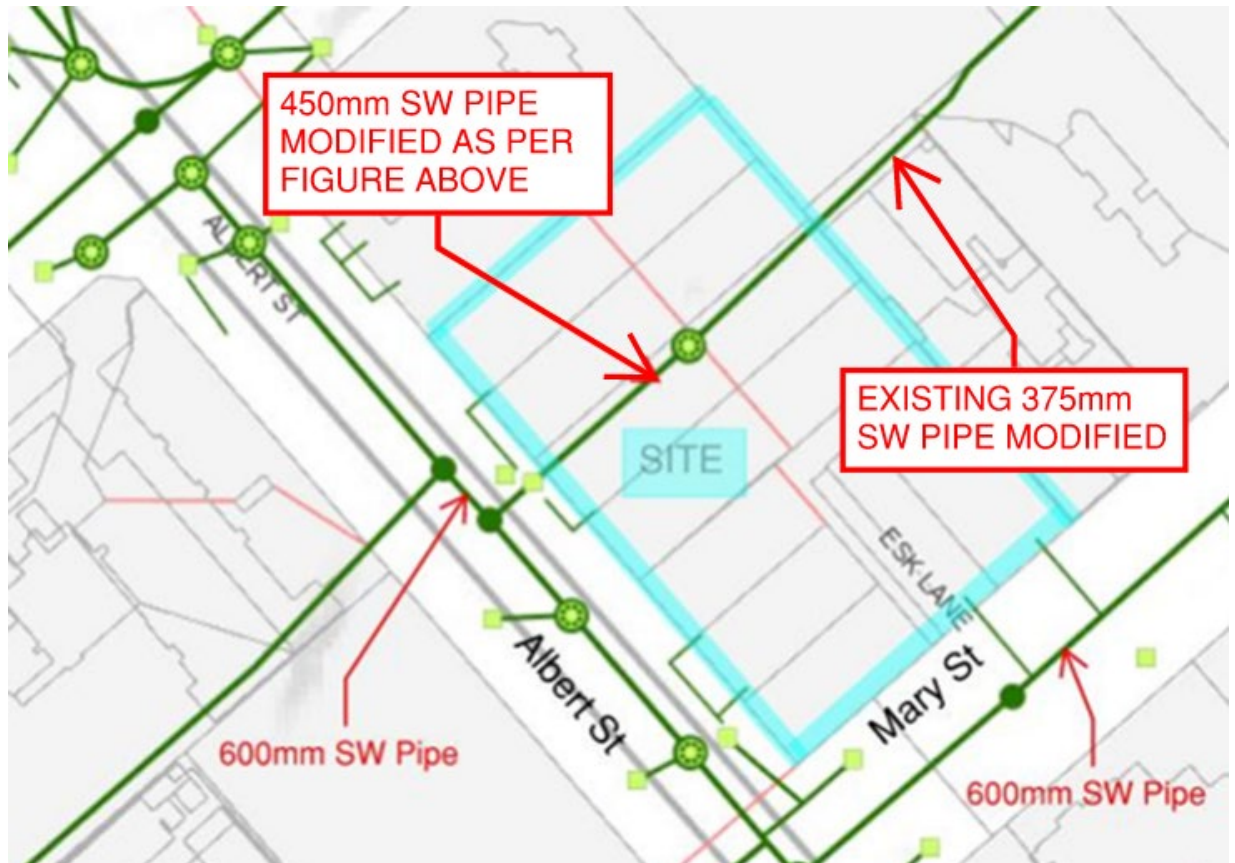


Figure 7: BCC eBimap information

3.2 Proposed Stormwater Infrastructure

As part of the development, there will be a requirement to divert the stormwater around the basement to discharge the pipework to the Council infrastructure in Albert Street. The system incorporates a spatial setback for the pipes, fittings, and structural protection along the alignment to accommodate the works. Provision has been made in the basement layout for these works.

The stormwater infrastructure upstream of the proposed site currently comprises a 375mm diameter pipe. An analysis was conducted to evaluate the capacity and hydraulic gradeline of the stormwater system pre-and-post development. Based on the results obtained, it has been determined that the post-development stormwater system will outperform the pre-development system. The analysis reveals that no significant nuisance will be experienced either upstream or downstream of the proposed development.

The proposed stormwater layout is shown in Figure 8 below. Refer to Appendix D for drawings. It is proposed to connect to the upstream stormwater infrastructure on the northern side of the site using a fitting such as a 90-degree DICL fitting to connect to the existing infrastructure. It is proposed that the downstream connection be inside the building in basement 1, also using a fitting such as a 90-degree DICL fitting.

In the event of a storm that surpasses on-site detention capacity, the proposal recommends connecting to a high-flow stormwater pipe located downstream of the stormwater tank on basement level 1, which will link to existing stormwater infrastructure in Mary Street via a newly constructed manhole, as illustrated in Figure 8 (refer to Appendix D for detailed drawings).

It is proposed to utilise DICL material with bolted fittings or HDPE in consideration of its strength and low maintenance requirements, as well as its ease of repairing damage.

In the unlikely event of a potential stormwater system failure within the basement, spoon drains throughout all basement levels will drain towards a silt trap and wet well and ultimately pumped to the stormwater tank on Basement 1. Refer hydraulic concept in appendix G.

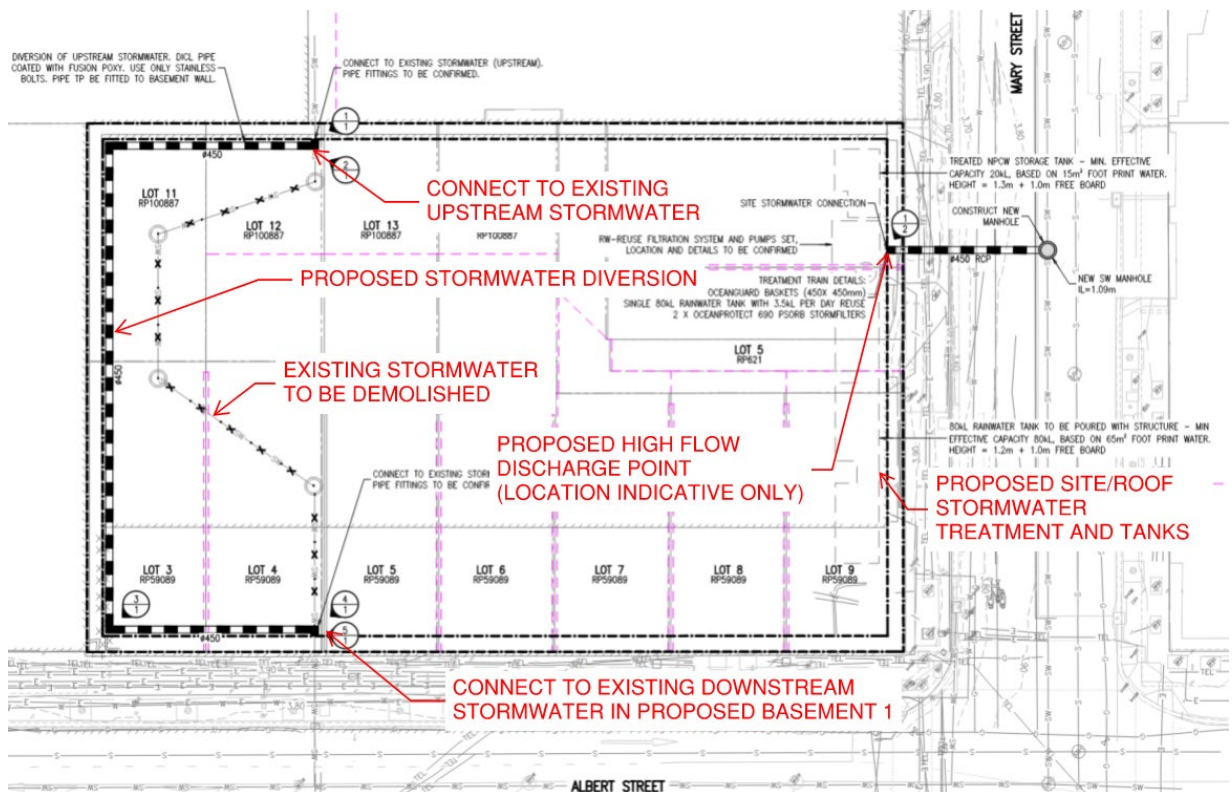


Figure 8: Proposed Stormwater Layout

3.3 Flooding Objectives

Refer to the Flood Engineer's report.

3.4 Stormwater Quantity

The existing site was previously fully developed. Brisbane City Plan 2014 – Schedule 6 PSP – Infrastructure design PSP Section 7.5.5, states that sites with greater than 60% existing sealed impervious surfaces will generally not require stormwater detention.

4 Stormwater Quality Management

4.1 During Construction

4.1.1 Construction Phase

During the construction phase of a development, the stormwater management design objectives in the Queensland Government's State Planning Policy (**SPP**) July 2017 are to be met. The Stormwater Management Design Objectives are reproduced from the **SPP** in Table 1 below:

Table 1: Stormwater Management Design Objectives – Construction

Issue	Desired Outcomes
Drainage control	(1) Manage stormwater flows around or through areas of exposed soil to avoid contamination. (2) Manage sheet flows to avoid or minimise the generation of rill or gully erosion. (3) Provide stable concentrated flow paths to achieve the construction phase stormwater management design objectives for temporary drainage works (Sections 2). (4) Provide emergency spillways for sediment basins to achieve the construction phase stormwater management design objectives for emergency spillways on temporary sediment basins (Section 3).
Erosion control	(1) Stage clearing and construction works to minimise the area of exposed soil at any one time. (2) Effectively cover or stabilise exposed soils prior to predicted rainfall. (3) Prior to completion of works for the development, and prior to removal of sediment controls, all site surfaces must be effectively stabilised using methods that will achieve effective short-term stabilisation.
Sediment control	(1) Direct runoff from exposed site soils to sediment controls that are appropriate to the extent of disturbance and level of erosion risk. (2) All exposed areas greater than 2500 metres ² must be provided with sediment controls that are designed, implemented, and maintained to a standard that would achieve at least 80% of the average annual runoff volume of the contributing catchment treated (i.e.: 80% hydrological effectiveness) to 50mg/L Total Suspended Solids (TSS) or less, and pH in the range (6.5–8.5).
Water quality	(1) Remove gross pollutants and litter. (2) Avoid the release of oil or visible sheen to released waters. (3) Dispose of waste containing contaminants at authorised facilities.
Waterway stability and flood flow management	(1) Where measures are required to meet post-construction waterway stability objectives (specified in table B, SPP), these are either installed prior to land disturbance, are integrated with erosion and sediment controls, or equivalent alternative measures are implemented during construction. (2) Earthworks and the implementation of erosion and sediment controls are undertaken in ways that ensure flooding characteristics (including stormwater quantity characteristics) external to the development site are not worsened during construction for all events up to and including the 1 in 100-year ARI (1% AEP).

4.1.2 Erosion and Sediment Control During Construction

The Erosion Hazard Assessment Form (**EHA**) in Appendix A of this report indicates that the site is medium risk in terms of erosion and sedimentation.

BCC Infrastructure Design Planning Scheme Policy Section 7.11 contains BCC requirements for Erosion and Sediment Control (**ESC**). Table 7.11.2.1.A from the planning scheme requires that a

Registered Professional Engineer Queensland (**RPEQ**) or Certified Professional in Erosion and Sediment Control (**CPESC**) is required to prepare an ESC Program and plan and supporting documentation for the site where an EHA indicates that the site is a medium risk. This requirement will become a condition of the Development Assessment Approval Conditions.

Refer to Appendix D for the ESC plan that was prepared in accordance with the BCC Infrastructure Design Planning Scheme Policy and the International Erosion Control Association (Australasia) (**IECA**) Best Practice Erosion & Sediment Control – for building and construction sites.

Initial construction works on site will consist of the demolition of the existing structure, as described in Section 2 of this report. For this work, there will be a requirement to divert the stormwater around the basement wall to discharge the pipework to Council infrastructure in Albert or Mary Street.

The main construction works will consist of this site being shored around its perimeter. Excavation is permitted across the full site to extend down to RL -8.0m. No excavation below RL-8.0m is permitted in the zone 10m from the cavern as illustrated below. Excavation can extend to RL -20.0m across the section of the site that is greater than 10m away from the station cavern. Refer to Figure 9 and Figure 10 below.

The proposed basement 2 level for the development is RL -5.0m, with most of the bulk earthworks to be RL -5.7m and local areas around the lifts at RL -6.6m. Refer to Appendix D.

During minor storm flows, the upstream catchment will be diverted around the excavation, as discussed above. Any stormwater that may enter the excavation during a major storm will be tested for turbidity and suspended solids and flocculated if required, prior to the water being pumped to the existing stormwater network.

Control entry-exit points to the site will be maintained during excavation works to ensure that any spoil deposited onto BCC roads will be minimised. Should any spoil be inadvertently deposited onto BCC roads it will be cleaned up as soon as practical in accordance with the Contractors approved Construction Management Plan (**CMP**).

Access routes between the site and the approved spoil disposal location will be in accordance with the Contractor's approved CMP.

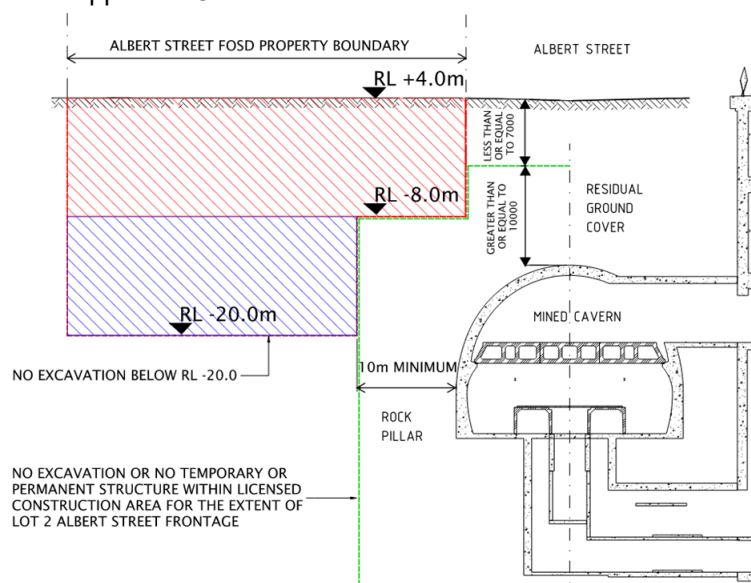


Figure 9: CRRDA Excavation Limitations – Section View

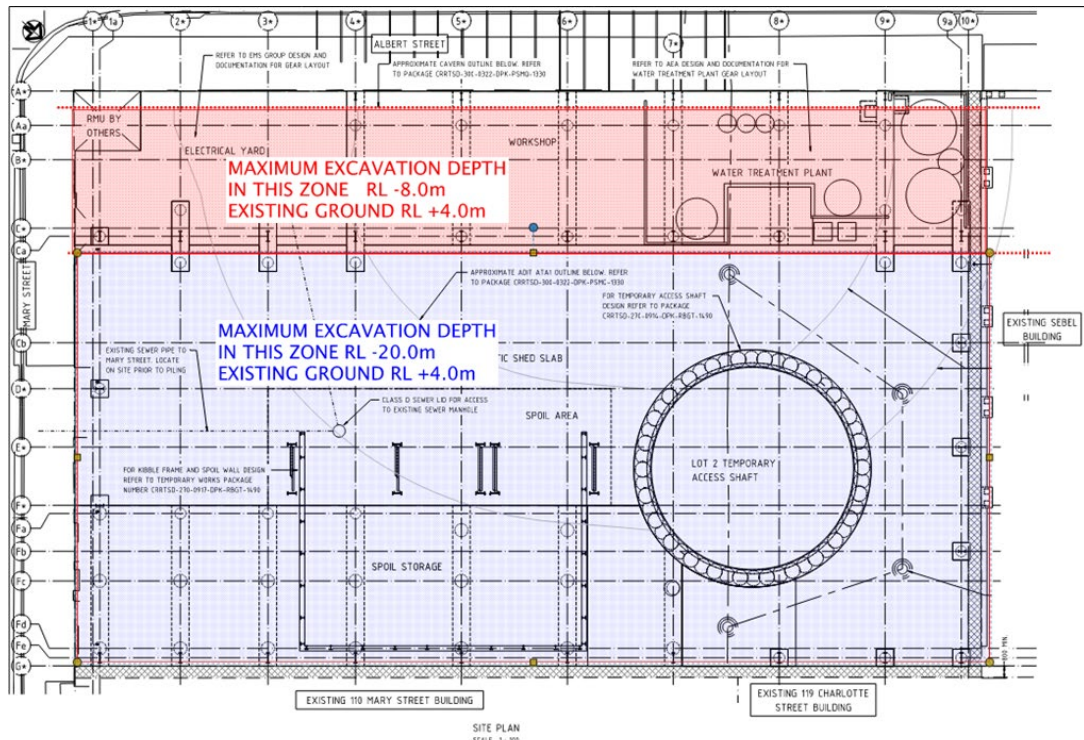


Figure 10: CRRDA Excavation Limitations – Plan View

4.2 Operational Phase

4.2.1 Stormwater Quality Management

The proposed area of soil disturbance is greater than 2,500m², which will be assessable under Queensland Government SPP July 2017. Based on the nature of the development proposed as described above, we have assessed this site to be a "high-risk" development according to Brisbane City Plan 2014 - Stormwater code. A stormwater treatment train will be adopted for the Stormwater Quality Design.

The minimum objectives as specified by BCC for best practice urban stormwater management are identified and are summarised in Table 2 below (detailed in Table 6.2 in the SPP/BCC Stormwater Quality Management Design Objectives).

Table 2: SPP/BCC Stormwater Quality Management Design Objectives

Pollutants	WQO's
Total Suspended Solids	80%
Total Phosphorous	60%
Total Nitrogen	45%
Gross Pollutants	90%

The project intends to achieve a 6 Star Green Star Rating from a baseline of 5 Star Green Star Rating. Table 3 below summarises the reduction targets to achieve the minimum project target of a 5 Star Green Star Rating.

Table 3: Star Green Star Stormwater Quality Management Design Objectives

Pollutants	WQO's
Flow Reduction	40%
Total Suspended Solids	85%
Total Phosphorous	65%
Total Nitrogen	45%
Gross Pollutants	90%

4.2.2 Stormwater Quantity Management

A rainwater harvesting system is proposed to reduce the dependence on town-main cold water and serve as the building's non-potable cold-water supply. Rainwater shall be collected from trafficable and non-trafficable areas and be treated/stored for irrigation purposes only.

The rainwater harvesting system on-site retention effective capacity is proposed to be 200kL in accordance with a 1-month irrigation supply requirement to the building.

The proposed system shall comprise of:

- 80kL rainwater storage tank & 20kL non-potable cold water (NPCW) storage tank on Basement Level 01
- 50kL NPCW storage tank on Level 10
- 50kL NPCW storage tank on Roof Level
- Ocean guard filters (3x number off)
- Ocean filters (2x number off)
- Irrigation Filtration equipment (pre-treatment)
- Non-potable cold water booster pumps

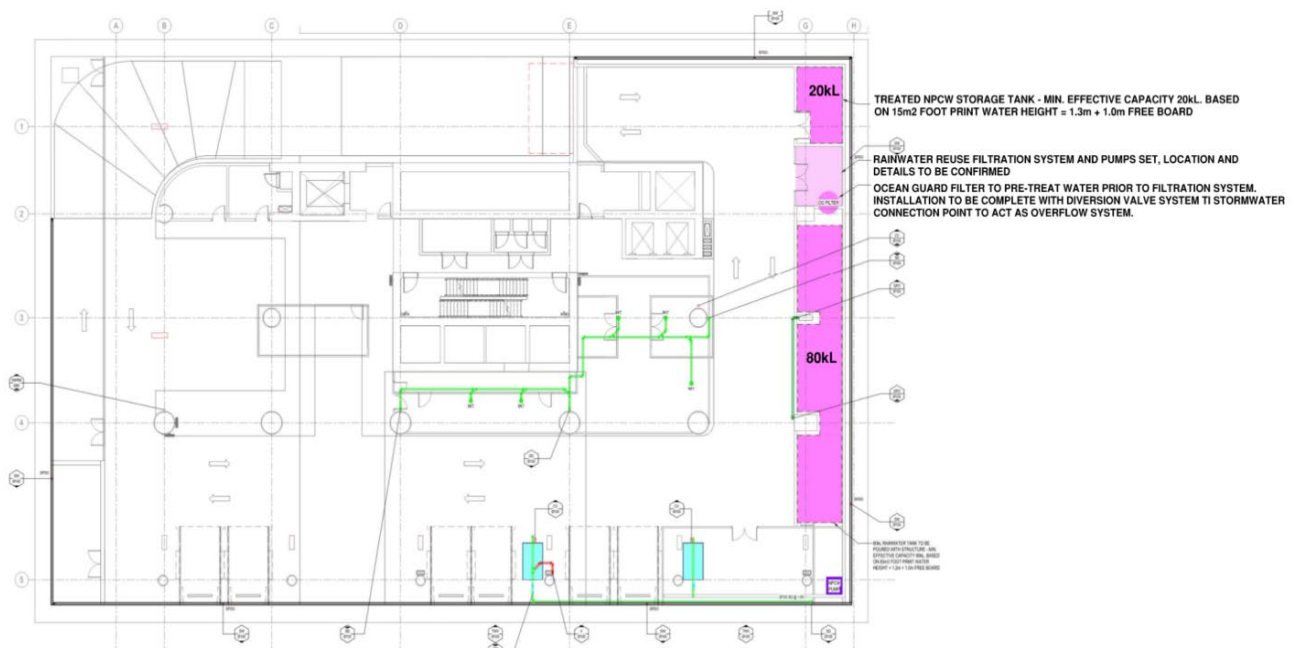


Figure 11: Location of the Rainwater Tank and Treatment Devices on Basement Level

Refer to the figure below, prepared by ADP, showing the proposed schematic of the rainwater harvesting system. Refer to appendix G.

Refer to architectural drawings for detailed stormwater tank locations. The collected water shall be pre-treated with the ocean guard filters located within the 80kL rainwater storage tank prior to the non-potable cold-water filtration system.

Rainwater tank high flow overflow shall discharge to civil stormwater boundary pit; low flow shall be pumped through rainwater filtration equipment and connected to the 20kL non-potable cold water storage tank on basement 1 level.

In normal circumstances, treated non-potable cold water shall be transferred up the building via non-potable cold water relay pumps and stored in 2 x 50kL non-potable cold-water tanks, each located in the plant rooms at Level 10 and Roof level (Level 38).

Non-potable cold water shall be conveyed to respective irrigation systems via gravity/pressure boosters (for upper levels where gravity cannot be utilised).

This proposed system shall minimise rainwater storage within Basement 01 tanks (80kL and 20kL tanks) to maximise catchment/retention capacity and reduce outflow to local infrastructure.

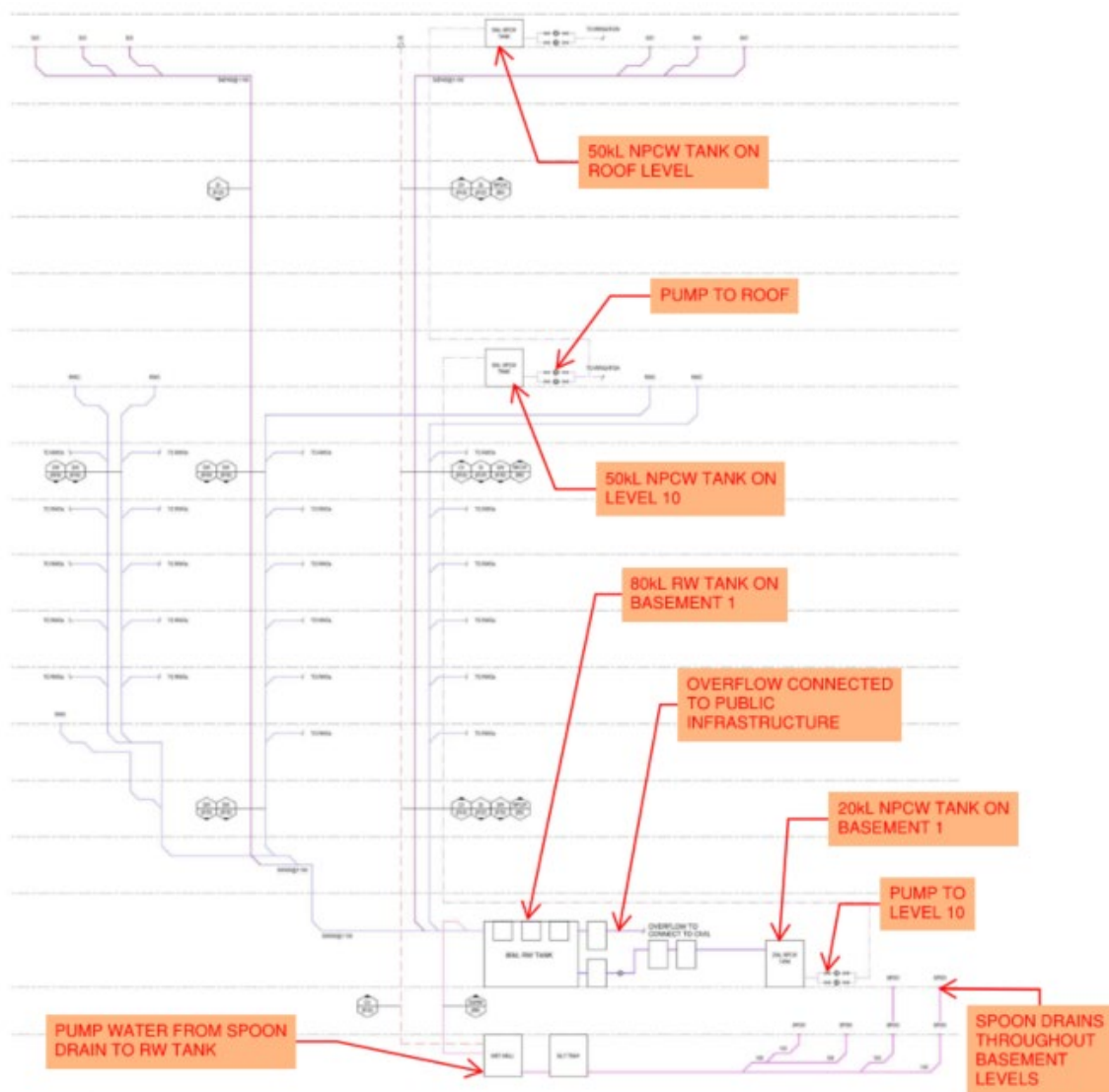


Figure 12: Rainwater Harvesting System Schematic

4.2.2.1 MUSIC Model Parameters

MUSIC modelling was completed for the project in accordance with Healthy Waterways Water by Design MUSIC Modelling Guidelines Version 3.0 – 2018. The model is based on Brisbane rainfall data using a six-minute time step for a ten-year modelling period.

The input parameters used in the MUSIC modelling for each proposed SQID are listed below:

- StormFilter and Oceanguard nodes supplied by Ocean Protect.
- Rainwater tank node

Table 4: Music Model Parameter

Inlet Properties	
High-flow bypass (m3/s)	100
Low-flow bypass (m3/s)	0
Storage Properties	
Volume below overflow (kL)	80
Depth above overflow (m)	0.05
Surface area (m2)	65
Outlet Properties	
Overflow Pipe Diameter (mm)	450
Re-use Properties	
Annual Demand (kL/year)	0
Daily Demand (kL/day)	3.5
Monthly Distribution of Annual Demand (kL/year)	0
User Defined Time Series	Not Used

4.2.2.2 Stormwater Quality Treatment Train

The proposed development will consist of landscaped areas, concrete footpaths, driveways and roofs. The following stormwater quality improvement devices (**SQID**) may suit the characteristic of the proposed development and the constraints of the site. A selection of these devices will be implemented in the proposed development:

Table 5: Proposed SQIDs

SQID	Discussion
Ocean Protect Oceanguard	Oceanguard (gully pit basket) is designed to remove gross pollutants, coarse sediment and associated pollutants (Hydrocarbons, metals & nutrients) at high flows.
Ocean Protect StormFilter	Stormfilter uses rechargeable, self-cleaning, media-filled cartridges to absorb and retain the most challenging pollutants from stormwater runoff, including total suspended solids, hydrocarbons, nutrients, soluble heavy metals, and other common pollutants.
Rainwater	Rainwater tank captures the runoff during storms and contains it for re-use throughout the building.

Refer to a summary of the treatment train results in Table 6 below obtained from the Music Model as shown in Figure 13, also in Appendix E.

Table 6: Treatment Train

Pre-Treatment / Efficiencies		Rainwater Re-use Tank	Cartridge System/Efficiencies		WQO's Achieved	
3 x Oceanguard at inlet of tank Treatable flow = 20L/s (per basket)	TSS 71.6%	Single 80kL tank 3.5kL per day re-use	2 x Stormfilter 690mm P sorb Cartridges (Downstream of rainwater re-use tanks) Treatable flow = 1.8L/s; 0.9L/s per cartridge device	TSS 86.8%	Flow Reduction (%)	40
	TP 30%			TP 77.6%	TSS (%)	88
	TN 21%			TN 51.2%	TP (%)	70.5
					TN (%)	62.7
					Gross Pollutants (%)	100

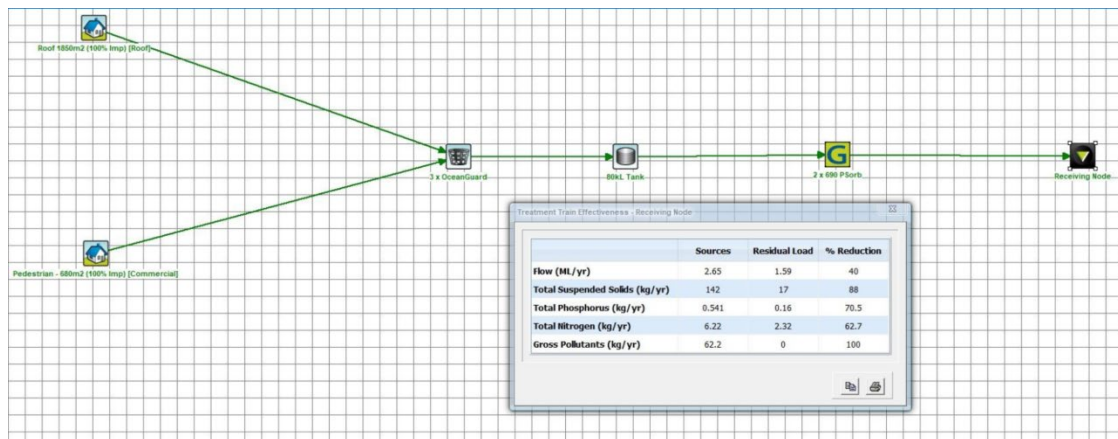


Figure 13: Music Modelling results

4.2.2.3 MUSIC Modelling

The performance of the proposed stormwater quality treatment train has been assessed with MUSIC modelling. The compliance of the proposed stormwater quality treatment train to the requirements as set out in BCC's planning scheme policies for the stormwater quality has been assessed. The minimum WQO's as specified by BCC and 5-star Green Star Rating for best practice urban stormwater management, are identified and summarised in Table 7 below, along with the results.

The MUSIC modelling objectives for the post-development scenario are summarised in Table 7 below:

Table 7: MUSIC Modelling Objectives – Post-Development Scenario
 (Commercial Development with Stormwater Treatment)

POLLUTANT	BCC MIN WQO'S	Green Star Rating MIN WQO'S	WQO'S ACHIEVED
Flow Reduction	-	40%	40%
Total Suspended Solids	80%	85%	88%
Total Phosphorous	60%	65%	70.5%
Total Nitrogen	45%	45%	62.7%
Gross Pollutants	90%	90%	100%

The results in Table 7 above (Refer Appendix E) demonstrate that the proposed development will achieve all WQO's required by SPP, BCC and 5-star Green Star Rating. The model uses three (3) Oceanguards and two (2) Stormfilter cartridges for both catchment areas, since the roof and pedestrian areas are trafficable. All catchments lead to the 80kL rainwater tank, before distribution to other tanks, which has a re-use amount of 3.5kL/day.

4.2.2.4 Maintenance Plans

Maintenance for the SQIDs proposed for this development is to be consistent with the requirements of this report and the manufacturer's recommendations. The general requirement of maintenance during the operational phase will be:

- Ocean Protect Oceanguards and StormFilter:
 - In accordance with the manufacturer's recommendations/owner's manual.
- Rainwater Tank
 - To be inspected and cleaned on an annual basis
 - Re-use pumps are to be maintained in accordance with the supplier's requirements.
- Pumps
 - In accordance with the manufacturer's recommendations/owner's manual.

5 Water Supply

5.1 Existing Infrastructure

According to the BCC eBimap information, there is a 180mm polyethylene pipe parallel to the north side of Mary Street that will likely be proposed as the connection point.

5.2 Point of Connection

The size of the existing connection point would need further analysis to determine if it could be used for the new development. Details and connections will be subject to further detailed design by the hydraulic consultant.

5.3 Preliminary Assessment of Existing Water Network Capacity

An assessment completed by Queensland Urban Utilities (QUU) indicates that the existing water supply has sufficient capacity to service the proposed development. Refer to Appendix F for the Service Advice Notice (SAN) provided by QUU.

6 Sewerage

6.1 Existing Infrastructure

According to the BCC eBimap information, an existing 450mm diameter un-reinforced gravity sewerage main is located along the eastern side of Albert Street, and a 225mm earthenware gravity sewerage main is located on the south side of Mary Street, with a property connection to the proposed site from Mary Street.

6.2 Point of Connection

A proposed connection can be provided at the existing manhole MH166560 in Mary Street. Further details of sewer connections will be subject to further detailed design by the Hydraulic consultant.

The current connection is a 150mm diameter pipe that could be upgraded to a 225mm diameter pipe.

6.3 Preliminary Assessment of Existing Sewer Network Capacity

An assessment completed by Queensland Urban Utilities (QUU) indicates that the existing wastewater network has sufficient capacity to service the proposed development. QUU has no objection to upgrading the sewer connection to a 225mm diameter pipe. Refer to Appendix F for the Service Advice Notice (SAN) provided by QUU.

7 Electrical Supply

According to the DBYD, Energex electrical cables are located on both sides of Albert Street and Mary Street which run along the property boundaries.

Further investigation should be carried out by the electrical consultant to determine the extent of any upgrading works that may be required due to the proposed development. Refer to the DBYD application 210441818.

8 Telecommunications

According to DBYD information, the following assets are only some of the telecommunication assets that are located around the site:

- Powerlink optic fibre cables are located along the north side of Mary Street and along the western side of Albert Street. Refer to DBYD application 210441813.
- Optus telecommunication cables (located in other utility conduits) are located along the south side of Mary Street and along the western side of Albert Street. Refer to DBYD application 2104418123.
- Aecomm telecommunication cables are located along the western side of Albert Street. Refer to DBYD application 2104418123.

- TPG Carrier Pipe Networks are located along the southeastern corner of the site, on the northern side of Mary Street. Refer to DBYD application 210441816.
- Primus cables are located near the north-western corner of the site crossing Albert Street. Refer to DBYD application 210441819.

Further investigations are to be carried out by the services consultant to determine the extent of any upgrading works that may be required due to the proposed development.

9 Gas

According to DBYD information, a medium-pressure gas pipe is located on Albert Street and Mary Street. Multiple connections branch off from the main line to the proposed site from both Albert Street and Mary Street. Refer to the DBYD application 210441826.

Further investigations are to be carried out by the Services Consultant to determine the extent of any upgrading works that may be required due to the proposed development.

Any upgrading, extension, or relocation works of the existing gas reticulation main would need to be undertaken by the Services Consultant in conjunction with the asset owner.

10 Conclusion

The site was previously developed and was adequately serviced by public utilities. All information discussed in this report has been sourced from Brisbane City Council information, Dial-Before-You-Dig records, and as-constructed plans.

Existing water and sewer reticulation mains are located immediately adjacent to the site.

The site has electrical, telecommunication, and gas services located adjacent to the site. If any of these services require an upgrade, this will be confirmed and addressed by the relevant service consultants at the detailed design stage of the project.

11 References

Dial Before You Dig.

Brisbane City Council - City Plan 2014.

Brisbane City Council – eBIMAP2.

Queensland Urban Drainage Manual.

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Appendix A BCC Erosion Hazard Assessment Form



Erosion Hazard Assessment - June 2014

Brisbane City Council (BCC), Erosion Hazard Assessment form must be read in conjunction with the Erosion Hazard Assessment- Supporting Technical Notes (June 2014 or later version) for explanatory terms and Certification information.

What is an Erosion Hazard Assessment?

Soil erosion and sediment from urban development, particularly during construction activities, is a significant source of sediment pollution in Brisbane's waterways. The Erosion Hazard Assessment determines whether the risk of soil erosion and sediment pollution to the environment is 'low', 'medium' or 'high'.

When is the EHA required?

An *Erosion Hazard Assessment* form must be completed and lodged with BCC for any Development Application (ie MCU or ROL) that will result in soil disturbance OR Operational Works or Compliance Assessment Application for 'Filling' or Excavation.

Failure to submit this form during lodgement of an application may result in assessment delays or refusal of the application.

Privacy Statement

The personal information collected on this form will be used by Brisbane City Council for the purposes of fulfilling your request and undertaking associated Council functions and services. Your personal information will not be disclosed to any third party without your consent, unless this is required or permitted by law.

Assessment Details

1 Please turn over and complete the erosion hazard assessment.

2 Based on the erosion hazard assessment overleaf, is the site:

A 'low' risk site

Best practice erosion and sediment control (ESC) must be implemented but no erosion and sediment control plans need to be submitted with the development application. Factsheets outlining best practice ESC can be found at <http://www.waterbydesign.com.au/factsheets>

A 'medium' risk site

If the development is approved, the applicant will need to engage a Registered Professional Engineer (RPEQ) or Certified Professional in Erosion and Sediment Control (CPESC) to prepare an ESC Program and Plan and supporting documentation — in accordance with the requirements of the Infrastructure Design Planning Scheme Policy.

A 'high' risk site

If the development is approved, the applicant will need to engage a RPEQ and CPESC to prepare an ESC Program and Plan and supporting documentation — in accordance with the requirements of the Infrastructure Design Planning Scheme Policy. The plans and program will need to be certified by a CPESC.

3 Site Information and Certification

Application number (if known)

Site address

83 Albert Street, Brisbane City QLD
Postcode 4000

I certify that:

- I have made all relevant enquiries and am satisfied no matters of significance have been withheld from the assessment manager.
- I am a person with suitable qualifications and/or experience in erosion and sediment control.
- The Erosion Hazard Assessment was completed in accordance with the Erosion Hazard Assessment Supporting Technical Notes and the BCC Infrastructure Design Planning Scheme Policy.
- The Erosion Hazard Assessment accurately reflects the site's overall risk of soil erosion and sediment pollution to the environment.
- I acknowledge and accept that the BCC, as assessment manager, relies, in good faith, on this certification as part of its development assessment process and the provision of false or misleading information to the BCC constitutes an offence for which BCC may take punitive steps/ action against me/ enforcement action against me.

Certified by Print name

IAN MCCUBBIN

Certifier's signature

Date

18/05/23

Table 1: Low Risk Test

		Yes	No
1.1	is the area of land disturbance > 1000 m ²	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1.2	does any land disturbance occur in a BCC mapped waterway corridor	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1.3	is there any slope on site (longer than three metres in length) before, during or after construction that is steeper than 5%	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1.4	does any land disturbance occur below 5 m AHD	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1.5	does development involve endorsement of a staging plan	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1.6	is there an upstream catchment passing through the site > 1 hectare	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Have you answered 'yes' to any of the questions in Table 1?

Yes	No
<input checked="" type="checkbox"/>	<input type="checkbox"/>

If 'No' then site is low risk with respect to erosion and sediment control

If 'Yes' then proceed to Table 2

Table 2: Medium Risk Test

		Yes	No
2.1	is the area of land disturbance > 1 hectare	<input type="checkbox"/>	<input checked="" type="checkbox"/>

If 'No' then site is medium risk with respect to erosion and sediment control

If 'Yes' then proceed to Table 3

Table 3: High Risk Test

3.1	is there an upstream catchment passing through the site > 1 hectare	<input type="checkbox"/>	<input type="checkbox"/>
3.2	does any land disturbance occurs in a BCC mapped waterway corridor	<input type="checkbox"/>	<input type="checkbox"/>
3.3	is there any slope on site (longer than three metres in length) before, during or after construction that is steeper than 15%	<input type="checkbox"/>	<input type="checkbox"/>

Have you answered 'yes' to any of the questions in Table 3?

Yes	No
<input type="checkbox"/>	<input type="checkbox"/>

If 'No' then site is medium risk with respect to erosion and sediment control

If 'Yes' then site is high risk with respect to erosion and sediment control

Appendix B BCC Codes



FILLING AND EXCAVATING CODE

BRISBANE CITY COUNCIL 2014

Performance outcomes		Acceptable outcomes		Performance outcome
PO1	Development for filling or excavation minimises visual impacts from retaining walls and earthworks.	AO1	Development ensures that the total height of any cut and fill, whether or not retained, does not exceed: (a) 2.5m in a zone in the Industry zones category; (b) 1m in all other zones, or if adjoining a sensitive zone.	Acceptable solution provided: The proposed development will have more than 1m of cut. The excavation is to create a footing that will not have any visual impacts. The design of footings and retaining system will be lodged with the building application.
PO2	Development of a retaining wall proposed as a result of filling or excavation : (a) is designed and constructed to be fit for purpose; (b) does not impact adversely on significant vegetation; (c) is capable of easy maintenance. Editor's note—A retaining wall also needs to comply with the Building Regulation and embankment gradients will need to comply with the Building Regulation . Note—Guidance on the protection of native vegetation is included in the Biodiversity areas planning scheme policy .	AO2.1	Development of a retaining structure, including footings, surface drainage and subsoil drainage: (a) is wholly contained within the site; (b) if the total height to be retained is greater than 1m, then: (i) the retaining wall at the property boundary is no greater than 1m above the ground level; (ii) all further terracing from the 1m high boundary retaining wall is 1 vertical unit:1 horizontal unit; (iii) the distance between each successive retaining wall (back of lower wall to face of higher wall) is no less than 1m horizontally to incorporate planting areas.	Complies with AO2.1: Any retaining structures and footings will be designed and constructed in accordance with Council requirements and the code. The designs will be lodged with the building application.
		AO2.2	Development of a retaining wall over 1m in height protects significant vegetation on the site and on adjoining land and is designed and constructed in accordance with the structures standards in the Infrastructure design planning scheme policy and certified by a Registered Professional Engineer Queensland .	Complies with AO2.2: Any retaining structures and footings will be designed and constructed in accordance with Council requirements and the code. The designs will be lodged with the building application.

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Performance outcomes		Acceptable outcomes		Performance outcome
		AO2.3	Development provides a retaining wall finish that presents to adjoining land that is maintenance free if the setback is less than 750mm from the boundary.	Complies with AO2.3:
		AO2.4	Development for filling only uses clean fill that does not include any construction rubble, debris, weed seed or viable parts of plant species listed as an undesirable plant species in the Planting species planning scheme policy.	AO2.4 can be complied with.
PO3	Development ensures that a rock anchor is designed and constructed to be fit for purpose.	AO3	Development ensures that a rock anchor: <ul style="list-style-type: none"> (a) is constructed in accordance with the standards in the <u>Infrastructure design planning scheme policy</u>; (b) where it extends beyond the property boundary, is supported by a letter of consent from the adjoining land and building owners. 	Complies with AO3: If any rock anchors are proposed, they will be designed and constructed in accordance with Council requirements and the code. The design of any rock anchors will be lodged with the operational works application.
PO4	Development protects all services and public utilities.	AO4	Development protects services and public utilities and ensures that any alteration or relocation of services or public utilities meets the standard design specifications of the responsible service authorities.	Complies with AO4: Should any relocation works associated with proposed services and/or public utilities be required, the works will be done in accordance with the relevant BCC standard specifications and the requirements of the responsible service authorities.
PO5	Development provides surface and sub-surface drainage to prevent water seepage, concentration of run-off or ponding of stormwater on adjacent land.	AO5	Development ensures all flows and subsoil drainage are directed to a lawful point of discharge of a surface water diversion drain, including to the top or toe of a retaining wall in accordance with the stormwater drainage section of the <u>Infrastructure design planning scheme policy</u>	Complies with AO5: Refer to Site Services Report. The proposed development will utilise the existing drainage infrastructure. The drainage has been designed by hydraulic consultants and further details

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Performance outcomes		Acceptable outcomes		Performance outcome
				will be lodged with the building approval application.
PO6	Development ensures that the design and construction of all open drainage works is undertaken in accordance with natural channel design principles, being the development of a stormwater conveyance system for major flows, by using a vegetated open channel or drain that approximates the features and functions of a natural waterway to enhance or improve riparian values of those stormwater conveyance systems. Editor's note—Guidance on natural channel design principles can be found in the Council's publication Natural channel design guidelines .	AO6	Filling or excavation does not involve the construction of open drainage.	AO6: Not applicable to this development.
PO7	Development for filling or excavation : (a) does not degrade water quality or adversely affect environmental values in receiving waters; (b) ensures site sediment and erosion control standards are best practice.	AO7.1	Development for filling or excavation provides water quality treatment that complies with the stormwater drainage section of the Infrastructure design planning scheme policy .	Complies with AO7.1: Erosion and sediment control measures will be in place as described in the Site Services Report, which comply with the Infrastructure design planning scheme policy. Further sketches and details will be lodged with the operational works application.
		AO7.2	Development provides erosion and sediment control standards that are in accordance with the stormwater drainage section of the Infrastructure design planning scheme policy .	Complies with AO7.2: Refer AO7.1. Further details will be lodged with the operational works application.
PO8	Development for filling or excavation is	AO8.1	Development ensures that no dust emissions extend	Complies with AO8.1: A noise

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Performance outcomes		Acceptable outcomes		Performance outcome
	<p>conducted such that adverse impacts at a sensitive use due to noise and dust are prevented or minimised.</p> <p>Note—A noise and dust impact management plan prepared in accordance with the Management plans planning scheme policy can assist in demonstrating achievement of this performance outcome.</p>		beyond the boundary of the site, including dust from construction vehicles entering and leaving the site.	and dust impact management plan will be prepared as part of the construction management plan to be lodged by the contractor prior to the commencement of works.
		AO8.2	Development for <u>filling or excavation</u> activity only occurs between the hours of 6:30am and 6:30pm Monday to Saturday, excluding public holidays.	Complies with AO8.2:
PO9	<p>Development ensures that vibration generated by the filling or excavation operation does not exceed the vibration criteria in Table 9.4.3.3.B, Table 9.4.3.3.C, Table 9.4.3.3.D and Table 9.4.3.3.E.</p> <p>Note—A noise management report prepared in accordance with the Noise impact assessment planning scheme policy can assist in demonstrating achievement of this performance outcome.</p>	AO9	Development involving <u>filling or excavation</u> does not cause a ground-borne vibration beyond the boundary of the site.	Complies with AO9: A noise and vibration management report can be provided as part of the construction management plan to be lodged by the contractor prior to the commencement of works.
PO10	Development ensures that heavy trucks hauling material to and from the site do not affect the amenity of established areas and limits environmental nuisance impact on adjacent land.	AO10	Development ensures that heavy trucks hauling material to and from the site: (a) occur for a maximum of 3 weeks; (b) use a major road to access the site; (c) only use a minor road for the shortest-most-direct route that has the least amount of environmental nuisance if there is no major road alternative.	Alternative solution provided: Excavation works are likely to take more than 3 weeks to complete. A construction management plan will be developed and lodged by the contractor prior to the commencement of works.
PO11	Development for filling or excavation protects the environment and community health and wellbeing from exposure to contaminated land and contaminated	AO11	Development does not involve: (a) excavation on land previously occupied by a notifiable activity or on land listed on the Environmental Management Register or the Contaminated Land	Complies with AO11: The site is not included in the Contaminated Land Registers. If fill is to be used, it will be in

FILLING AND EXCAVATING CODE

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Performance outcomes		Acceptable outcomes		Performance outcome
	material.		<u>Register</u> ; (b) filling with material containing a contaminant.	accordance with BCC development guidelines.
PO12	Development provides for: (a) landscaping for water conservation purposes; (b) water sensitive urban design measures which are employed within the landscape design to maximise stormwater use and to reduce any adverse impacts on the landscape; (c) stormwater harvesting to be maximised and any adverse impacts of stormwater minimised.	AO12.1	Development provides landscaping which is designed using the standards in the <u>Landscape design guidelines for water conservation planning scheme policy</u> .	Complies with AO12.1: Landscaping is to be designed in accordance with the landscape design guidelines for water conservation planning scheme policy where applicable. Refer to landscape architect's documentation for details.
		AO12.2	Development ensures that the design and requirements for irrigation are in compliance with the standards in the <u>Landscape design guidelines for water conservation planning scheme policy</u> .	Complies with AO12.2: Design and requirements for irrigation will be done in accordance with the landscape design guidelines for water conservation planning scheme policy. Refer to landscape architect's documentation for details.
		AO12.3	Development provides areas of pavement, turf and mulched garden beds which are drained. Note—This may be achieved through the provision and/or treatment of swales, spoon drains, field gullies, sub-surface drainage and stormwater connections.	Complies with AO12.3: Further details will be lodged with the building works application by relevant consultants.
PO13	Development ensures cutting and filling for the development of canals or artificial waterways avoids adverse impacts on coastal resources and processes.	AO13	Development does not involve the creation of canals or artificial waterways.	Complies with AO13: Not applicable to this development. No new canals or waterways are proposed.

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Performance outcomes		Acceptable outcomes		Performance outcome
PO1	<p>Development provides roads, pavement, edging and landscaping which:</p> <ul style="list-style-type: none"> (a) are designed and constructed in accordance with the road hierarchy; (b) provide for safe travel for pedestrians, cyclists and vehicles; (c) provide access to properties for all modes; (d) provide utilities; (e) provide high levels of aesthetics and amenity, improved liveability and future growth; (f) provide for the amelioration of noise and other pollution; (g) provide a high-quality streetscape; (h) provide a low-maintenance asset with a minimal whole-of-life cost. <p>Note—This can be demonstrated in an engineering report prepared and certified by a Registered Professional Engineer Queensland in accordance with the Infrastructure design planning scheme policy.</p>	AO1	<p>Development provides roads and associated pavement, edging and landscaping which are designed and constructed in compliance with the road corridor design standards in the Infrastructure design planning scheme policy.</p>	<p>Complies with AO1: The site is currently serviced by existing road infrastructure.</p>
PO2	<p>Development provides road pavement surfaces which:</p> <ul style="list-style-type: none"> (a) are well designed and constructed; (b) durable enough to carry the wheel loads of the intended types and numbers of travelling and parked vehicles; (c) ensures the safe passage of vehicles, pedestrians and cyclists, the discharge of stormwater run-off and the preservation of all-weather access; (d) allows for reasonable travel comfort. 	AO2	<p>Development provides road pavement surfaces which are designed and constructed in compliance with the road corridor design standards in the Infrastructure design planning scheme policy.</p>	<p>Complies with AO2: The proposed development fronts existing roads.</p> <p>Vehicle access to the site is proposed via Mary Street.</p>
PO3	<p>Development provides a pavement edge which is designed and constructed to:</p> <ul style="list-style-type: none"> (a) control vehicle movements by delineating the carriageway for all users; (b) provide for people with disabilities by allowing safe passage of wheelchairs and other mobility aids. 	AO3	<p>Development provides pavement edges which are designed and constructed in compliance with the road corridor design standards in the Infrastructure design planning scheme policy.</p>	<p>Complies with AO3: The proposed development fronts existing roads.</p>

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Performance outcomes		Acceptable outcomes		Performance outcome
PO4	Development provides verges which are designed and constructed to: (a) provide safe access for pedestrians clear of obstructions and access areas for vehicles onto properties; (b) provide a sufficient area for public utility services; (c) be maintainable by the Council.	AO4	Development provides verges which are designed and constructed in compliance with the road corridor design and streetscape locality advice standards in the Infrastructure design planning scheme policy .	Complies with AO4: The proposed development fronts existing roads.
PO5	Development provides a lane or laneway identified in a neighbourhood plan which: (a) allows equitable access for all modes; (b) is safe and secure; (c) has 24-hour access; (d) is a low-speed shared zone environment; (e) has a high-quality streetscape.	AO5	Development provides a lane or laneway identified in a neighbourhood plan which is embellished in compliance with the streetscape locality advice standards in the Infrastructure design planning scheme policy .	Not applicable to this development.
PO6	Development of an existing premises provides at the frontage to the site, if not already provided, the following infrastructure to an appropriate urban standard: (a) an effective, high-quality paved roadway; (b) an effective, high-quality roadway kerb and channel; (c) safe, high-quality vehicle crossings over channels and verges; (d) safe, accessible, high-quality verges compatible and integrated with the surrounding environment; (e) safe vehicle access to the site that enables ingress and egress in a forward gear; (f) provision of and required alterations to public utilities; (g) effective drainage; (h) appropriate conduits to facilitate the provision of required street-lighting systems and traffic signals.	AO6	Development of an existing premises provides at the frontage of the site, if not already existing, the following infrastructure to the standard that would have applied if the development involved new premises as stated in the road corridor design standards in the Infrastructure design planning scheme policy : (a) concrete kerb and channel; (b) forming and grading to verges; (c) crossings over channels and verges; (d) a constructed bikeway; (e) a constructed verge or reconstruction of any damaged verge; (f) construction of the carriageway; (g) payment of costs for required alterations to public utility mains, services or installations; (h) construction of and required alterations to public utility mains, services or installations; (i) drainage works; (j) installation of electrical conduits.	Complies with AO6: The proposed development fronts existing roads to a standard that matches the adjoining frontages. New vehicular crossovers will be provided in accordance with BCC Standard Drawings

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Performance outcomes		Acceptable outcomes		Performance outcome
PO7	<p>Development provides both cycle and walking routes which:</p> <ul style="list-style-type: none"> (a) are located, designed and constructed to their network classification (where applicable); (b) provide safe and attractive travel routes for pedestrians and cyclists for commuter and recreational purposes; (c) provide safe and comfortable access to properties for pedestrians and cyclists; (d) incorporate water sensitive urban design into stormwater drainage; (e) provide for utilities; (f) provide for a high level of aesthetics and amenity, improved liveability and future growth; (g) are a low-maintenance asset with a minimal whole-of-life cost; (h) minimise the clearing of significant native vegetation. <p>Note—This can be demonstrated in an engineering report prepared and certified by a Registered Professional Engineer Queensland in accordance with the Infrastructure design planning scheme policy.</p>	AO7	<p>Development provides cycle and walking routes which are located, designed and constructed in compliance with the road corridor design and off-road pathway design standards in the Infrastructure design planning scheme policy.</p>	<p>Complies with AO7: Development will be designed to not impact existing cycle and walking routes.</p>
PO8	<p>Development provides refuse and recycling collection, separation and storage facilities that are located and managed so that adverse impacts on building occupants, neighbouring properties and the public realm are minimised.</p>	AO8.1	<p>Development provides refuse and recycling collection and storage facilities in accordance with the Refuse planning scheme policy.</p>	<p>Complies with AO8.1: Development will be designed in accordance with the refuse planning scheme policy.</p>
		AO8.2	<p>Development ensures that refuse and recycling collection and storage location and design do not have any adverse impact including odour, noise or visual impacts on the amenity of land uses within or adjoining the development.</p> <p>Note—Refer to the Refuse planning scheme policy for further guidance.</p>	<p>Complies with AO8.2: Development will be designed in accordance with the refuse planning scheme policy.</p>
PO9	<p>Development ensures that:</p>	AO9.1	<p>Development ensures that the reticulated water and sewerage distribution system for all services is in place before the first use is commenced.</p>	<p>Complies with AO9.1: The site is serviced by existing water and sewer networks.</p>

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Performance outcomes		Acceptable outcomes		Performance outcome
	(a) land used for an urban purpose is serviced adequately with regard to water supply and waste disposal; (b) the water supply meets the stated standard of service for the intended use and fire-fighting purposes.	AO9.2	Development provides the lot with reticulated water supply and sewerage to a standard acceptable to the distributor–retailer.	Complies with AO9.2: The site is serviced by existing water and sewer networks.
PO10	Development provides public utilities and street lighting which are the best current or alternative technology and facilitate accessibility, easy maintenance, minimal whole-of-life costs, and minimal adverse environmental impacts.	AO10.1	Development provides public utilities and street lighting which are located and aligned to: (a) avoid significant native vegetation and areas identified within the Biodiversity areas overlay map ; (b) minimise earthworks; (c) avoid crossing waterways, waterway corridors and wetlands or if a crossing is unavoidable, tunnel-boring techniques are used to minimise disturbance, and a disturbed area is reinstated and restored on completion of the work. Note—Guidance on the restoration of habitat is included in the Biodiversity areas planning scheme policy .	Not applicable to this development.
		AO10.2	Development provides compatible public utility services and street-lighting services which are co-located in common trenching for underground services.	Not applicable to this development.
		AO10.3	Development provides public utilities and street lighting which are designed and constructed in compliance with the public utilities standards in the Infrastructure design planning scheme policy .	Not applicable to this development.
PO11	Development ensures that land used for urban purposes is serviced adequately with telecommunications and energy supply.	AO11	Development provides land with the following services to the standards of the approved supplier: (a) electricity; (b) telecommunications services; (c) gas service where practicable.	Complies with AO11: The site is serviced by existing electrical and telecommunication networks.
PO12	Development ensures that major public projects promote the provision of affordable, high-bandwidth telecommunications services throughout the city.	AO12	Development provides conduits which are provided in all major Council and government works projects to enable the future provision of fibre optic cabling, if: (a) the additional expense is unlikely to be prohibitive; or (b) further major work is unlikely or disruption would be a major concern, such as where there is a limited capacity road; or	Not applicable to this development.

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Performance outcomes		Acceptable outcomes		Performance outcome
			<p>(c) there is a clear gap in the telecommunications network; or (d) there is a clear gap in the bandwidth available to the area.</p> <p>Editor's note—An accurate, digital 'as built' three-dimensional location plan is to be supplied for all infrastructure provided in a road.</p>	
PO13	<p>Development provides public art identified in a neighbourhood plan or park concept plan which:</p> <p>(a) is provided commensurate with the status and scale of the proposed development;</p> <p>(b) is sited and designed:</p> <p>(i) as an integrated part of the project design;</p> <p>(ii) as conceptually relevant to the context of the location;</p> <p>(iii) to reflect and respond to the cultural values of the community;</p> <p>(iv) to promote local character in a planned and informed manner.</p>	AO13	<p>Development provides public art identified in a neighbourhood plan or park concept plan which is sited and designed in compliance with the public art standards in the Infrastructure design planning scheme policy.</p>	Not applicable to this development.
PO14	<p>Development provides signage of buildings and spaces which promote legibility to help users find their way.</p>	AO14	<p>Development provides public signage:</p> <p>(a) at public transport interchanges and stops, key destinations, public spaces, pedestrian linkages and at entries to centre developments;</p> <p>(b) which details the location of the key destinations, public spaces and pedestrian linkages in the vicinity, the services available within the development and where they are located.</p> <p>Editor's note—Signage is to be in accordance with Local Law Number 1 (Control of Advertisements Local Law).</p>	Complies with AO14:
PO15	<p>Development that provides community facilities which form part of the development is functional, safe, low maintenance, and fit for purpose.</p>	AO15	<p>Development that provides community facilities which form part of the development is designed in compliance with the community facilities standards in the Infrastructure design planning scheme policy.</p>	Not applicable to this development.

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Performance outcomes		Acceptable outcomes		Performance outcome
PO16	<p>Development provides public toilets which:</p> <ul style="list-style-type: none"> (a) are required as part of a community facility or park; (b) are located, designed and constructed to be: <ul style="list-style-type: none"> (i) safe; (ii) durable; (iii) resistant to vandalism; (iv) able to service expected demand; (v) fit for purpose. 	AO16	<p>Development that provides public toilets is designed and constructed in compliance with the public toilets standards in the Infrastructure design planning scheme policy.</p>	Not applicable to this development.
PO17	<p>Development provides bridges, tunnels, elevated structures and water access structures that are designed and constructed using proven methods, materials and technology to provide for:</p> <ul style="list-style-type: none"> (a) safe movement of intended users; (b) an attractive appearance appropriate to the general surroundings and any adjacent structures; (c) functionality and easy maintenance; (d) minimal whole-of-life cost; (e) longevity; (f) current and future services. <p>Note—All bridges and elevated and associated elements must be designed and certified by a Registered Professional Engineer Queensland in accordance with the Infrastructure design planning scheme policy.</p>	AO17	<p>Development that provides bridges, tunnels, elevated structures and water access structures is designed and constructed in compliance with the standards in the Infrastructure design planning scheme policy.</p>	Not applicable to this development.
PO18	<p>Development provides culverts which are designed and constructed using proven methods, materials and technology to provide for:</p> <ul style="list-style-type: none"> (a) safety; (b) an attractive appearance appropriate to the general surroundings; (c) functionality and easy maintenance; (d) minimal whole-of-life cost; (e) longevity; (f) future widening; 	AO18	<p>Development that provides culverts is designed and constructed in compliance with the structures standards in the Infrastructure design planning scheme policy.</p>	Not applicable to this development.

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Performance outcomes		Acceptable outcomes		Performance outcome
	<p>(g) current and future services; (h) minimal adverse impacts, such as increase in water levels or flow velocities, and significant change of flood patterns.</p> <p>Note—All culverts and associated elements are to be designed and certified by a Registered Professional Engineer Queensland in accordance with the applicable design standards.</p>			
PO19	<p>Development provides batters, retaining walls, and seawalls and river walls which are designed and constructed using proven methods, materials and technology to provide for:</p> <p>(a) safety; (b) an attractive appearance appropriate to the surrounding area; (c) easy maintenance; (d) minimal whole-of-life cost; (e) longevity; (f) minimal water seepage.</p> <p>Note—All retaining walls and associated elements are to be designed and certified by a Registered Professional Engineer Queensland in accordance with the applicable design standards.</p>	AO19	<p>Development that provides batters, retaining walls, seawalls and river walls is designed and constructed in compliance with the structures standards in the Infrastructure design planning scheme policy.</p>	<p>Complies with AO19: The design of basement retaining walls will be designed in accordance with the policy.</p>
If for development with a gross floor area greater than 1,000m²				
PO20	<p>Development ensures that construction is managed so that use of public spaces and movement on pedestrian, cyclist and other traffic routes is not unreasonably disrupted and existing landscaping is adequately protected from short- and long-term impacts.</p> <p>Note—The preparation of a construction management plan can assist in demonstrating achievement of this performance outcome.</p>	AO20	<p>Development ensures that during construction:</p> <p>(a) the ongoing use of adjoining and surrounding parks and public spaces, such as malls and outdoor dining, is not compromised; (b) adjoining and surrounding landscaping is protected from damage; (c) safe, legible, efficient and sufficient pedestrian, cyclist and vehicular accessibility and connectivity to the wider network are maintained.</p>	<p>Complies with AO20: Development does not impact existing cycle and walking routes.</p>

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Performance outcomes		Acceptable outcomes		Performance outcome
	Note—The Transport, access, parking and servicing planning scheme policy provides advice on the management of vehicle parking and deliveries during construction.			
PO21	<p>Development ensures that construction and demolition activities are guided by measures that prevent or minimise adverse impacts including sleep disturbance at a sensitive use, due to noise and dust, including dust from construction vehicles entering and leaving the site.</p> <p>Note—A noise and dust impact management plan prepared in accordance with the Management plans planning scheme policy can assist in demonstrating achievement of this performance outcome.</p>	AO21.1	Development ensures that demolition and construction: <ul style="list-style-type: none"> (a) only occur between 6:30am and 6:30pm Monday to Saturday, excluding public holidays; (b) do not occur over periods greater than 6 months. 	AO21.1 can be complied. A construction management plan will be developed and submitted by the contractor, prior to commencement of works.
		AO21.2	Development including construction and demolition does not release dust emissions beyond the boundary of the site.	Complies with AO21.2: A soil erosion and sedimentation control plan will be developed and lodged with the Operational Works application. Additional dust suppression measures will be detailed in the construction management plan, to be submitted by the contractor prior to commencement of works.
		AO21.3	Development construction and demolition does not involve asbestos-containing materials.	Complies with AO21.3: If asbestos is found during demolition, the removal of asbestos will be carried out by licensed and trained personnel.
PO22	<p>Development ensures that:</p> <ul style="list-style-type: none"> (a) construction and demolition do not result in damage to surrounding property as a result of vibration; (b) vibration levels achieve the vibration criteria in Table 9.4.4.3.B, Table 9.4.4.3.C, Table 9.4.4.3.D and Table 9.4.4.3.E. <p>Note—A vibration impact assessment report prepared in accordance with the Noise impact assessment planning scheme policy can assist in demonstrating achievement of this performance outcome.</p>	AO22	Development ensures that the nature and scale of construction and demolition do not generate noticeable levels of vibration.	AO22 can be complied: A noise and vibration management report will be provided as part of the construction management plan.

STORMWATER CODE

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Performance outcomes	Acceptable outcomes	Performance outcome
Section A—If for a material change of use, reconfiguring a lot, operational work or building work		
Note—Compliance with the performance outcomes and acceptable outcomes in this section should be demonstrated by the submission of a site-based stormwater management plan for high risk development only.		
<p>PO1 Development provides a stormwater management system which achieves the integrated management of stormwater to:</p> <ul style="list-style-type: none"> (a) minimise flooding; (b) protect environmental values of receiving waters; (c) maximise the use of water sensitive urban design; (d) minimise safety risk to all persons; (e) maximise the use of natural waterway corridors and natural channel design principles. <p>Editor's note—The stormwater management system to be developed to address PO1 is not intended to require management of stormwater quality.</p>	<p>AO1 Development provides a stormwater management system designed in compliance with the <u>Infrastructure design planning scheme policy</u></p>	<p>Complies with AO1: Existing stormwater system is to be maintained and utilised. Refer to Site Services Report.</p>
<p>PO2 Development ensures that the stormwater management system and site work does not adversely impact flooding or drainage characteristics of premises which are up slope, down slope or adjacent to the site.</p>	<p>AO2.1 Development does not result in an increase in flood level or flood hazard on up slope, down slope or adjacent premises.</p>	<p>Complies with AO2.1: The proposed development does not increase flood level or hazards.</p>
	<p>AO2.2 Development provides a stormwater management system which is designed in compliance with the standards in the <u>Infrastructure design planning scheme policy</u>.</p>	<p>Complies with AO2.2: The existing stormwater system will be utilised, along with the proposed infrastructure. Refer to Site Services Report.</p>
<p>PO3 Development ensures that the stormwater management system does not direct stormwater run-off through existing or proposed lots and property where it is likely to adversely affect the safety of, or cause nuisance to properties.</p>	<p>AO3.1 Development ensures that the location of the stormwater drainage system is contained within a road reserve, drainage reserve, public pathway, park or waterway corridor.</p>	<p>Complies with Performance Outcome: Roofwater system for upstream properties is diverted through the development basement to the road reserve. This system is typically adopted in similar developments in Brisbane.</p>

STORMWATER CODE

BRISBANE CITY COUNCIL 2014

Performance outcomes		Acceptable outcomes		Performance outcome
		AO3.2	Development provides a stormwater management system which is designed in compliance with the standards in the <u>Infrastructure design planning scheme policy</u> .	Complies with AO3.2: Existing stormwater will be utilised, along with the proposed infrastructure. Refer to Site Services Report.
		AO3.3	Development obtains a lawful point of discharge in compliance with the standards in the <u>Infrastructure design planning scheme policy</u>	Complies with AO3.3: Refer to Site Services Report.
		AO3.4	Where on private land, all underground stormwater infrastructure is secured by a drainage easement.	Complies with Performance Outcome: Roofwater system for upstream properties is diverted through the development basement to the road reserve. This system is typically adopted in similar developments in Brisbane.
PO4	Development provides a stormwater management system which has sufficient capacity to safely convey run-off taking into account increased run-off from impervious surfaces and flooding in local catchments.	AO4.1	Development provides a stormwater conveyance system which is designed to safely convey flows in compliance with the standards in the <u>Infrastructure design planning scheme policy</u> .	Complies with AO4.1: Conveys stormwater in compliance with BCC policy.
		AO4.2	Development provides sufficient area to convey run-off which will comply with the standards in the <u>Infrastructure design planning scheme policy</u> .	Complies with AO4.2: Refer to AO4.1.
PO5	Development designs stormwater channels, creek modification works, bridges, culverts and major drains to protect and enhance the value of the waterway corridor or drainage path for fauna movement.	AO5	Development ensures the design of stormwater channels, creek modifications or other infrastructure, permits terrestrial and aquatic fauna movement.	Not applicable to this development.
PO6	Development ensures that location and design of stormwater detention and water quality treatment: (a) minimises risk to people and property;	AO6.1	Development locates stormwater detention and water quality treatment: (a) outside of a waterway corridor; (b) offline to any catchment not contained within the development.	Complies with AO6.1: Water quality treatment is proposed to be contained within an enclosed chamber within the development.

STORMWATER CODE

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Performance outcomes		Acceptable outcomes		Performance outcome
	(b) provides for safe access and maintenance; (c) minimises ecological impacts to creeks and waterways.			Stormwater detention is not required for this development.
		AO6.2	Development providing for stormwater detention and water quality treatment devices are designed in compliance with the standards in the Infrastructure design planning scheme policy	Complies with AO6.2: Water quality treatment is proposed to comply to BCC policy. Stormwater detention is not required for this development.
PO7	Development is designed, including any car parking areas and channel works to: (a) reduce property damage; (b) provide safe access to the site during the defined flood event .	AO7.1	Development (including any ancillary structures and car parking areas) is located above minimum flood immunity levels in Table 9.4.9.3.B , Table 9.4.9.3.C , Table 9.4.9.3.D , Table 9.4.9.3.E and Table 9.4.9.3.F . Note—Compliance with this acceptable outcome can be demonstrated by the submission of a hydraulic and hydrology report identifying flood levels and development design levels (as part of a site-based stormwater management plan).	Complies with AO7.1. Floor levels and carpark entry levels will comply with the minimum levels.
		AO7.2	Development including the road network provides a stormwater management system that provides safe pedestrian and vehicle access in accordance with the standards in the Infrastructure design planning scheme policy .	Complies with AO7.2: Road and pedestrian access levels to remain unchanged during the design process.
PO8	Development designs stormwater channels, creek modification works and the drainage network to protect and enhance the environmental values of the waterway corridor or drainage path.	AO8.1	Development ensures natural waterway corridors and drainage paths are retained.	Complies with AO8.1: Natural waterway corridors and drainage paths are not affected by the proposal.
		AO8.2	Development provides the required hydraulic conveyance of the drainage channel and floodway, while maximising its potential to maximise environmental benefits and minimise scour. Editor's note—Guidance on natural channel design principles can be found in the Council's publication Natural channel design guidelines	Complies with AO8.1: Drainage channels and floodway paths are not affected by the proposal.
		AO8.3	Development provides stormwater outlets into waterways, creeks, wetlands and overland flow paths with energy	Complies with AO8.3: The proposed stormwater outlet

STORMWATER CODE

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Performance outcomes		Acceptable outcomes		Performance outcome
			dissipation to minimise scour in compliance with the standards in the <u>Infrastructure design planning scheme policy</u>	will discharge into the existing infrastructure stormwater pipes.
		AO8.4	Development ensures that the design of modifications to the existing design of new stormwater channels, creeks and major drains is in compliance with the standards in the <u>Infrastructure design planning scheme policy</u>	Complies with AO8.4: Additional information for the stormwater diversion will be provided at Operational Works stage.
PO9	Development is designed to manage run-off and peak flows by minimising large areas of impervious material and maximising opportunities for capture and re-use.	AO9	No acceptable outcome is prescribed.	Complies with PO9: Rainwater harvesting is proposed for the development to capture runoff for reuse. Refer to Site Service Report.
PO10	Development ensures that there is sufficient site area to accommodate an effective stormwater management system. Note—Compliance with the performance outcome should be demonstrated by the submission of a site-based stormwater management plan for high-risk development only.	AO10	No acceptable outcome is prescribed.	Complies with PO10 Refer to Site Services Report.
PO11	Development provides for the orderly development of stormwater infrastructure within a catchment, having regard to the: (a) existing capacity of stormwater infrastructure within and external to the site, and any planned stormwater infrastructure upgrades; (b) safe management of stormwater discharge from existing and future up-slope development; (c) implication for adjacent and down-slope development.	AO11.1	Development with up-slope external catchment areas provides a drainage connection sized for ultimate catchment conditions that is directed to a lawful point of discharge.	Complies with PO11.1: The proposed stormwater diversion has been sized to cater for the upstream catchment.
		AO11.2	Development ensures that existing stormwater infrastructure that is undersized is upgraded in compliance with the <u>Priority infrastructure plan</u> and the standards in the <u>Infrastructure design planning scheme policy</u>	Not applicable to this development.
PO12	Development provides stormwater infrastructure which:	AO12.1	The stormwater management system is designed in compliance with the <u>Infrastructure design planning scheme</u>	Complies with AO12.1: Additional information for the

STORMWATER CODE

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Performance outcomes		Acceptable outcomes		Performance outcome
	(a) remains fit for purpose for the life of the development and maintains full functionality in the design flood event; (b) can be safely accessed and maintained cost effectively; (c) ensures no structural damage to existing stormwater infrastructure.		<u>policy</u>	stormwater diversion will be provided at Operational Works stage.
		AO12.2	Development provides a clear area with a minimum of 2m radius from the centre of an existing manhole cover and with a minimum height clearance of 2.5m.	Complies with AO12.2: A clear width will be provided above the proposed manhole cover.
PO13	Development ensures that all reasonable and practicable measures are taken to manage the impacts of erosion, turbidity and sedimentation, both within and external to the development site from construction activities, including vegetation clearing, earthworks, civil construction, installation of services, rehabilitation, revegetation and landscaping to protect: (a) the environmental values and water quality objectives of waters; (b) waterway hydrology; (c) the maintenance and serviceability of stormwater infrastructure. Note—The <u>Infrastructure design planning scheme policy</u> outlines the appropriate measures to be taken into account to achieve the performance outcome.	AO13	No acceptable outcome is prescribed.	Complies with AO13: The site is listed as “medium” risk. Best practice erosion and sediment controls will be implemented in accordance with BCC guidelines.
PO14	Development ensures that: (a) unnecessary disturbance to soil, waterways or drainage channels is avoided; (b) all soil surfaces remain effectively stabilised against erosion in the short and long term.	AO14	No acceptable outcome is prescribed.	Complies with PO14: Refer AO13.
PO15	Development does not increase: (a) the concentration of total suspended solids or other contaminants in stormwater flows during site	AO15	No acceptable outcome is prescribed.	Complies with PO15: Refer AO13.

STORMWATER CODE
BRISBANE CITY COUNCIL 2014

Performance outcomes		Acceptable outcomes		Performance outcome
	(b) construction; run-off which causes erosion either on site or off site.			

STORMWATER CODE

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<p>Section B—Additional criteria which apply to high-risk development, being one or more of the following:</p> <p>(a) a material change of use for an urban purpose which involves greater than 2,500m² of land that:</p> <ul style="list-style-type: none"> (i) will result in an impervious area greater than 25% of the net developable area; or (ii) will result in 6 or more dwellings. <p>(b) reconfiguring a lot for an urban purpose that involves greater than 2,500m² of land and will result in 6 or more lots;</p> <p>(c) operational work for an urban purpose which involves disturbing greater than 2,500m² of land.</p>				
<p>PO16</p>	<p>Development ensures that the entry and transport of contaminants into stormwater is avoided or minimised to protect receiving water environmental values.</p> <p>Note—Prescribed water contaminants are defined in the Environmental Protection Act 1994.</p> <p>Note—Compliance with the performance outcome should be demonstrated by the submission of a site-based stormwater management plan for high-risk development only.</p>	<p>AO16</p>	<p>Development provides a stormwater management system which is designed in compliance with the standards in the Infrastructure design planning scheme policy.</p>	<p>Complies with AO16: Stormwater Quality Treatment is proposed to mitigate impacts on the receiving waters. Refer to the Site Services Report for details.</p>
<p>PO17</p>	<p>Development ensures that:</p> <ul style="list-style-type: none"> (a) the discharge of wastewater to a waterway or external to the site is avoided; or (b) if the discharge cannot practicably be avoided, the development minimises wastewater discharge through re-use, recycling, recovery and treatment. <p>Note—The preparation of a wastewater management plan can assist in demonstrating achievement of this performance outcome.</p> <p>Editor's note—This code does not deal with sewerage which is the subject of the Wastewater code.</p>	<p>AO17</p>	<p>No acceptable outcome is prescribed.</p>	<p>Not applicable to this development.</p>

Appendix C Survey

LEGEND:

Road	Terrain
— Kerb Back	— Driveway
— Kerb Invert	— Footpath
— Edge of Bitumen	— Slab Edge
— Edge of Gravel	— Retaining Wall Base
— Road Crown	— Retaining Wall Top
— Traffic Park Meter	— Change of Grade
— Traffic Light	— Top of Bank
— Traffic Pit	— Toe of Bank
— Traffic Sign	— Waterline
— Traffic Post Box	— Garden Edge
	— Creek Toe of Bank
	— Creek Top of Bank
	— Creek Invert
	— Creek Waterline
	— Tree
	— Tree Canopy
	— Control Point/PSM
Structures	Drainage
— Building Line	— Drainage line
— Roof Ridgeline	— Open Drain
— Fence Line	— Manhole
— Gate	— Field Inlet
— Hand Rail	— Downpipe
— Cattle Grid	
— Bollard	
Sewer	Communications
— Sewer Line	— Communication Line
— Valve	— Overhead Line
— Inspection Opening	— Pits/Manholes
— Manhole	— Pillar
Electrical	Gas
— Electricity Line	— Gas Line
— Overhead Line	— Valve
— Pits/Manholes	— Marker
— Pole	
— Street Light	
— Light In-Ground	
Water	Subsurface Utility -QL
— Water Line	— (A) * Quality A (H±50mm,V±50mm)
— Meter	— (B) * Quality B (H±300mm,V±500mm)
— Valve	— (C) * Quality C (H±300mm,2D)
— Fire Hydrant	— (D) * Quality D (Exist Record)
— Tap	
— Sprinkler	
Fuel	
— Fuel Line	
— Fitting	

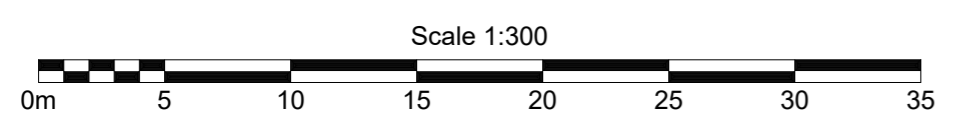
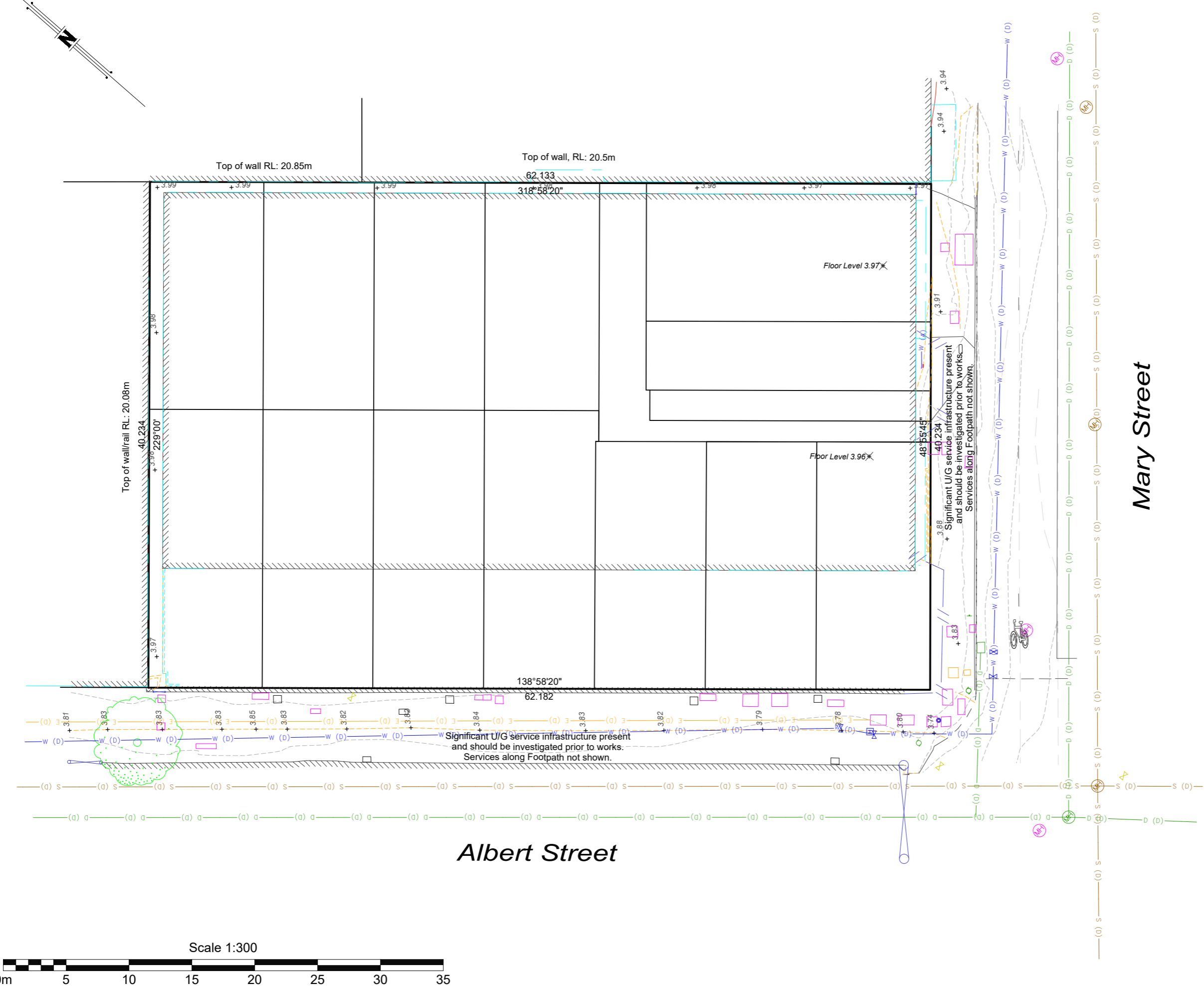
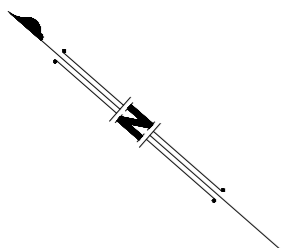
NOTES:

1. Drawn to scale on an A3 sheet.
2. Contour Interval... 0.10m
3. All levels are in metres on the Australian Height Datum referred to PM126563 - RL 13.482 AHD situated in cnr George & Charlotte St's.
4. All Boundaries are vide IS281877 and subject to confirmation by survey.
5. The Location of Underground services are in accordance with AS5488:2019, the Australian Standard for classification of Subsurface Utility Information (SUI). The exact nature and location of these services should be confirmed prior to construction.
6. Field Survey Completed on 20/04/22.
7. Combines Site area: 2501m²

Level datum: AHD Derived (PM126563)
Horiz datum: MGA Derived GNSS (27/09/02)
Coord Origin: GNSS (9000SC)
GDA System: GDA2020 Coordinate System: Plane 1:1
Meridian: MGA 56

Title:
VERIFICATION PLOT
83 Albert St, Brisbane City

Client:	QIC Ltd
Locality:	Brisbane
Local Gov:	Brisbane City Council
Surveyed By:	MO
Approved:	CS
Date Created:	17/05/22
Scale:	1:300
File Ref:	220404
Plan No:	2204004_S002_VER Rev: A



Scale 1:300

Appendix D Civil Schematic Drawings

ALBERT STREET COMMERCIAL TOWER

83 ALBERT STREET, BRISBANE CITY

CIVIL PACKAGE



LOCALITY PLAN
N.T.S.

DRAWING INDEX	
DRAWING NUMBER	DRAWING TITLE
22131-RBG-ZZ-XX-DR-SK-00000	COVER SHEET
22131-RBG-ZZ-XX-DR-SK-00001	GENERAL LAYOUT PLAN
22131-RBG-ZZ-XX-DR-SK-00002	BULK EARTHWORKS PLAN
22131-RBG-ZZ-XX-DR-SK-00003	EROSION AND SEDIMENT CONTROL PLAN
22131-RBG-ZZ-XX-DR-SK-00004	EROSION AND SEDIMENT CONTROL DETAILS
22131-RBG-ZZ-XX-DR-SK-00005	STORMWATER DRAINAGE PLAN
22131-RBG-ZZ-XX-DR-SK-00006	STORMWATER LONGITUDINAL SECTION
22131-RBG-ZZ-XX-DR-SK-00007	SERVICES PLAN

Rev	Revision Description	By	App	Date
P01	ISSUED FOR INFORMATION	LC	IM	08.12.22

Rev	Revision Description	By	App	Date

Scale 1:1 2:1 3:1 4:1 5:1 6:1 7:1 8:1 9:1 10:1 11:1 12:1 13:1 14:1 15:1 16:1 17:1 18:1

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Engineering Consultant

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ACN 010 580 248

Client

QIC
QUEENSLAND INVESTMENT
CORPORATION

Title
COVER SHEET

Project
**ALBERT STREET COMMERCIAL
TOWER**

Date
DEC 2022
Scale of A1
N.T.S.

Drawn
L.CHEN

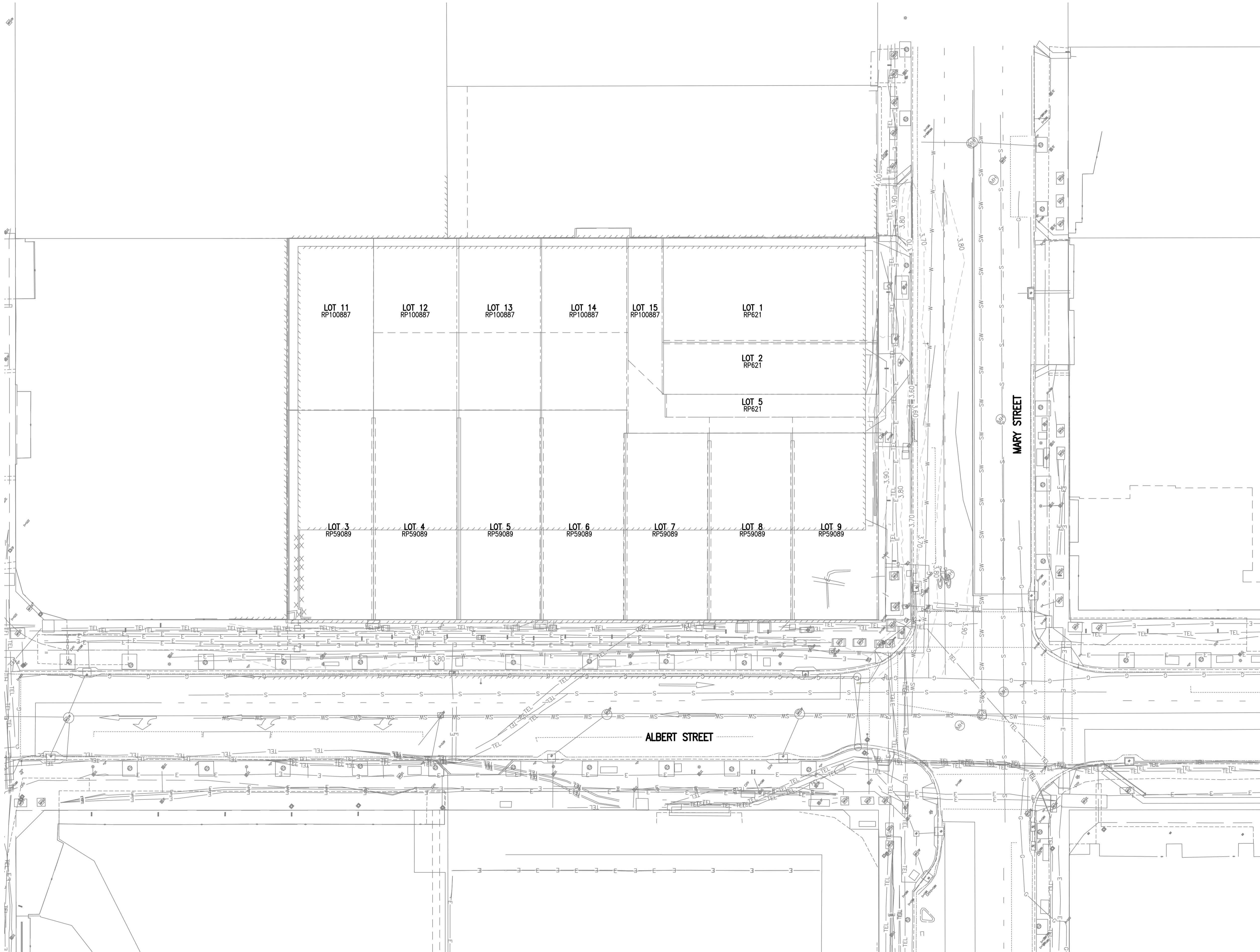
Design Checker
C.BARENDSE

Approved
I.McCUBBIN

NSEC000C0016FR000700

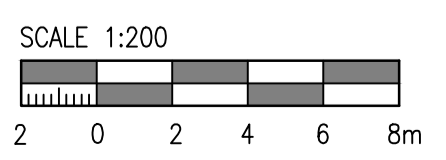
Drawing Number
22131-RBG-ZZ-XX-DR-SK-00000

Revision
P01



LEGEND

- EXISTING SITE BOUNDARY
- ////// EXISTING BUILDING
- 3.00 ----- EXISTING CONTOURS MAJOR
- 3.50 ----- EXISTING CONTOURS MINOR
- EXISTING FENCE
- XXXXXX EXISTING RETAINING WALL
- S-----● EXISTING SEWER MAIN AND MAINTENANCE HOLE
- SW-----SW EXISTING STORMWATER PIPE
- EXISTING WATER MAIN DIAMETER AND FEATURES
- W----- EXISTING WATER MAIN
- G----- EXISTING GAS MAIN
- TEL----- EXISTING TELSTRA CABLE
- E----- EXISTING ELECTRICITY LINE
- EXISTING BOLLARD



Rev	Revision Description	By	App	Date
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Scale 1:1 2:1 3:1 4:1 5:1 6:1 7:1 8:1 9:1 10:1 11:1 12:1 13:1 14:1 15:1 16:1 17:1 18:1

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ACN 010 580 248

Client

QIC
QUEENSLAND INVESTMENT CORPORATION

Title
GENERAL LAYOUT PLAN

Project
ALBERT STREET COMMERCIAL TOWER

Date
DEC 2022

Scale of A1
1:200

Drawn
L.CHEN

Designer
-

Design Checker
C.BARENDSE

Approved
I.McCUBBIN

NOT FOR CONSTRUCTION

Drawing Number
22131-RBG-ZZ-XX-DR-SK-00001

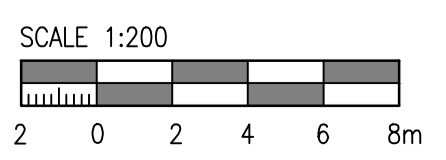
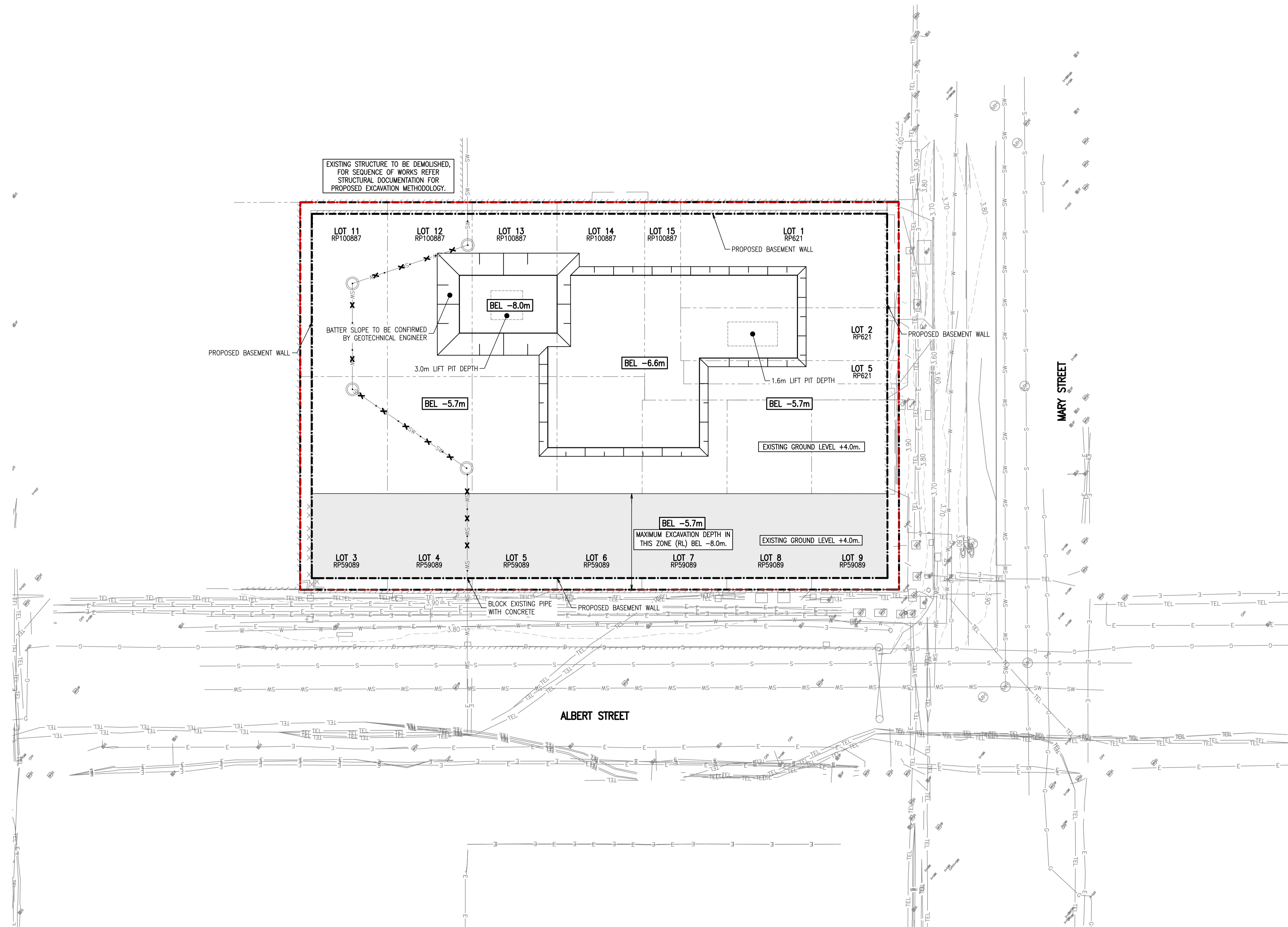
Revision
P01

LEGEND

- EXISTING SITE BOUNDARY
- ===== EXISTING BUILDING
- 3.00----- EXISTING CONTOURS MAJOR
- 3.50----- EXISTING CONTOURS MINOR
- E----- EXISTING ELECTRICITY LINE
- SW----- EXISTING STORMWATER PIPE
- EXISTING STORMWATER MAINTENANCE HOLE
- S----- EXISTING SEWER MAIN
- W----- EXISTING WATER MAIN
- PROPOSED BASEMENT EXTENT
- ===== PROPOSED BULK EARTHWORKS BATTER
- ===== PROPOSED BULK EARTHWORKS PAD LEVEL

BULK EARTHWORKS NOTES

1. THESE NOTES SHALL BE READ IN CONJUNCTION WITH:
 - A. GENERAL NOTES AND DISCLAIMERS FOR THE PROJECT
 - B. EROSION AND SEDIMENT CONTROL NOTES FOR THE PROJECT, AND
 - C. ENVIRONMENTAL NOTES FOR THE PROJECT.
2. THE CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL, AND DISPOSAL OF ALL EXCAVATED MATERIAL.
3. THE CONTRACTOR IS RESPONSIBLE FOR ENGAGING A GEOTECHNICAL ENGINEER TO UNDERTAKE THE FOLLOWING:
 - A. CARRY OUT LEVEL 1 SUPERVISION FOR ALL EARTHWORKS IN ACCORDANCE WITH AUSTRALIAN STANDARD 3798-2007
 - B. TO VERIFY THE STABILITY OF ALL BATTERS AS EXCAVATION PROCEEDS, AND
 - C. TO DESIGN ALL TEMPORARY BATTERS AND TEMPORARY SHORING.
 - D. DESIGN PILING PLATFORMS.
 - E. MONITOR VIBRATIONS OF ADJACENT STRUCTURES DURING CONSTRUCTION.
4. ALL EARTHWORKS IS TO BE COMPACTED TO 98% R.D.D. (STANDARD COMPACTION).
5. EXTREME CARE IS TO BE TAKEN WHILST EARTHWORKS ARE BEING CARRIED OUT IN THE VICINITY OF THE EXISTING SERVICES.
6. TEMPORARY BATTERS ARE TO BE A MAXIMUM OF 1 IN 2. PERMANENT BATTERS ARE TO BE A MAXIMUM OF 1 IN 4, U.N.O.
7. WHERE CLAY IS EXPOSED DURING EXCAVATION, THE AFFECTED AREA SHALL BE OVER EXCAVATED BY AT LEAST 200mm, AND A LAYER OF CLEAN COMPACTED COARSE GRAVEL IS TO BE PLACED AND COMPACTED, TO THE LEVEL SHOWN ON THE DRAWINGS, TO PROVIDE A WORKING SURFACE. THE THICKNESS OF THE GRAVEL LAYER IS DEPENDANT ON THE EXPECTED CONSTRUCTION LOADING, AND IS TO BE CONFIRMED ON SITE.
8. ALL EARTHWORKS AREAS ARE TO BE LEFT IN A FREE DRAINING STATE.



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Designer







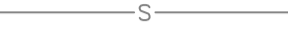
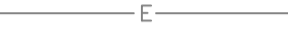
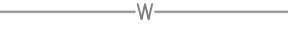
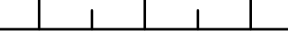
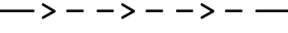


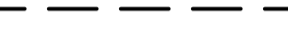



Design Checker
C.BARENDSE
Approved
I.McCUBBIN

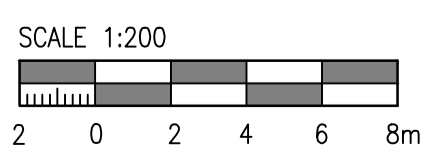
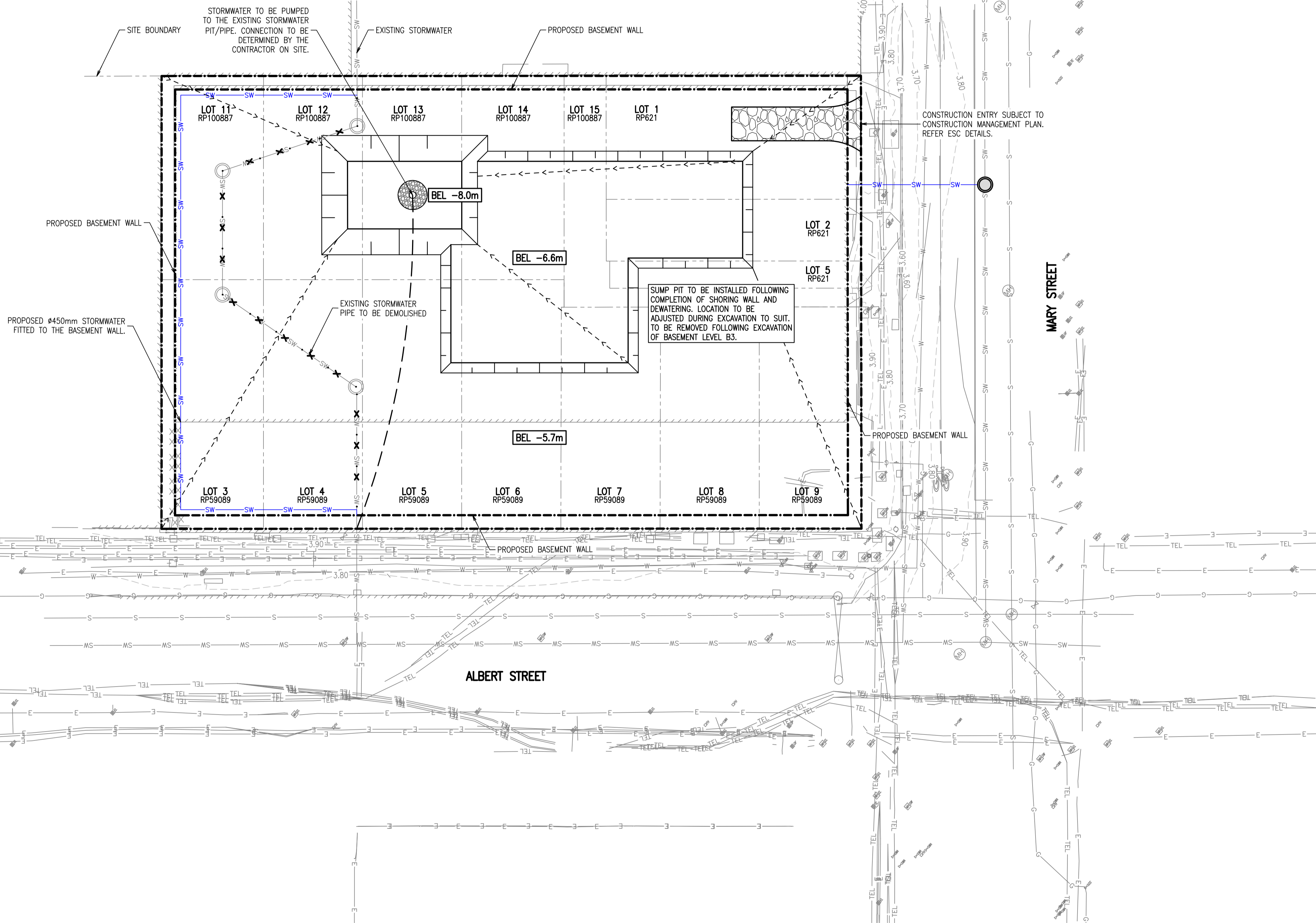
NOT FOR CONSTRUCTION

Drawing Number
22131-RBG-ZZ-XX-DR-SK-00002

Revision
P01

LEGEND

-  EXISTING SITE BOUNDARY
-  EXISTING BUILDING
-  EXISTING CONTOURS MAJOR
-  EXISTING CONTOURS MINOR
-  EXISTING STORMWATER PIPE
-  EXISTING STORMWATER MAINTENANCE HOLE
-  EXISTING SEWER MAIN
-  EXISTING ELECTRICITY LINE
-  EXISTING WATER MAIN
-  PROPOSED BULK EARTHWORKS BATTER
-  PROPOSED SWALE
-  PROPOSED BASEMENT EXTENT
-  PROPOSED STORMWATER PIPE
-  PROPOSED PUMP LINE
-  PROPOSED SUMP PIT
-  PROPOSED STORMWATER MAINTENANCE HOLE
-  PROPOSED ROCK PAD CONSTRUCTION EXIT



Rev	Revision Description	By	App	Date
P01	ISSUED FOR INFORMATION	LC	IM	08.12.22

Scale 1:1 2:1 3:1 4:1 5:1 6:1 7:1 8:1 9:1 10:1 11:1 12:1 13:1 14:1 15:1 16:1 17:1 18:1

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ACN 010 580 248

Client

QIC
QUEENSLAND INVESTMENT CORPORATION

Title
EROSION AND SEDIMENT CONTROL PLAN

Project
ALBERT STREET COMMERCIAL TOWER

Date
DEC 2022

Scale of A1
1:200

Drawn
L.CHEN

Designer
-

Design Checker
C.BARENDSE

Approved
I.McCUBBIN

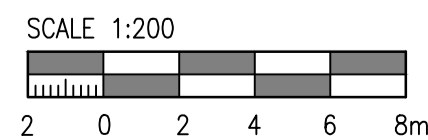
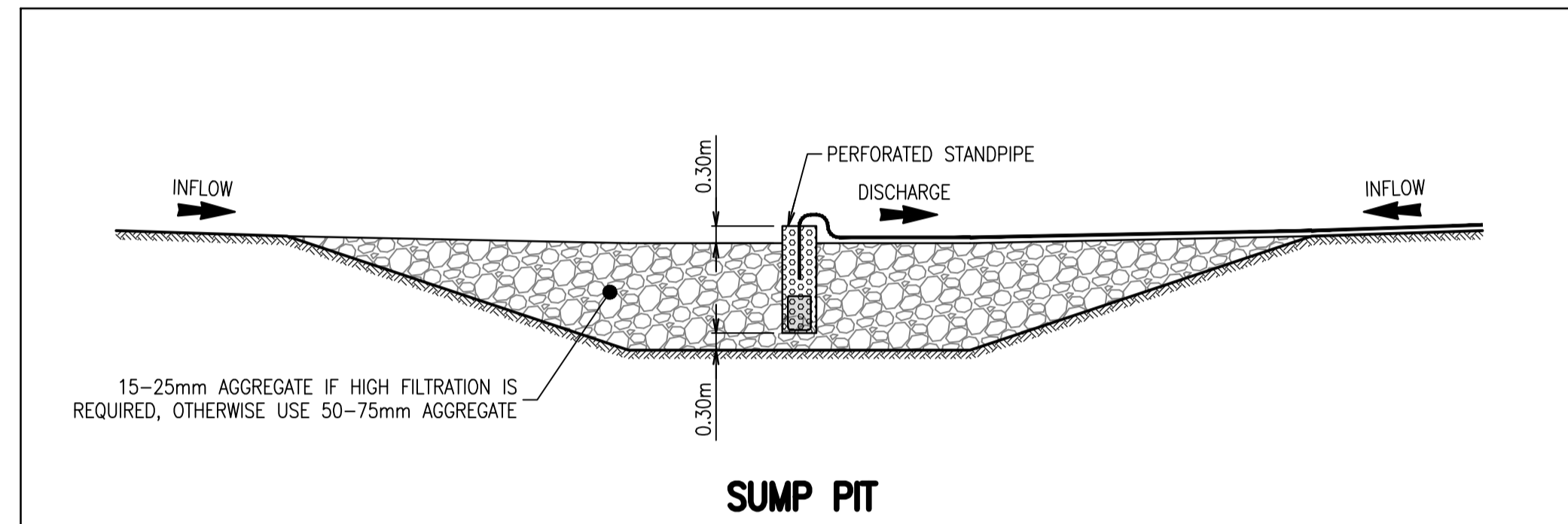
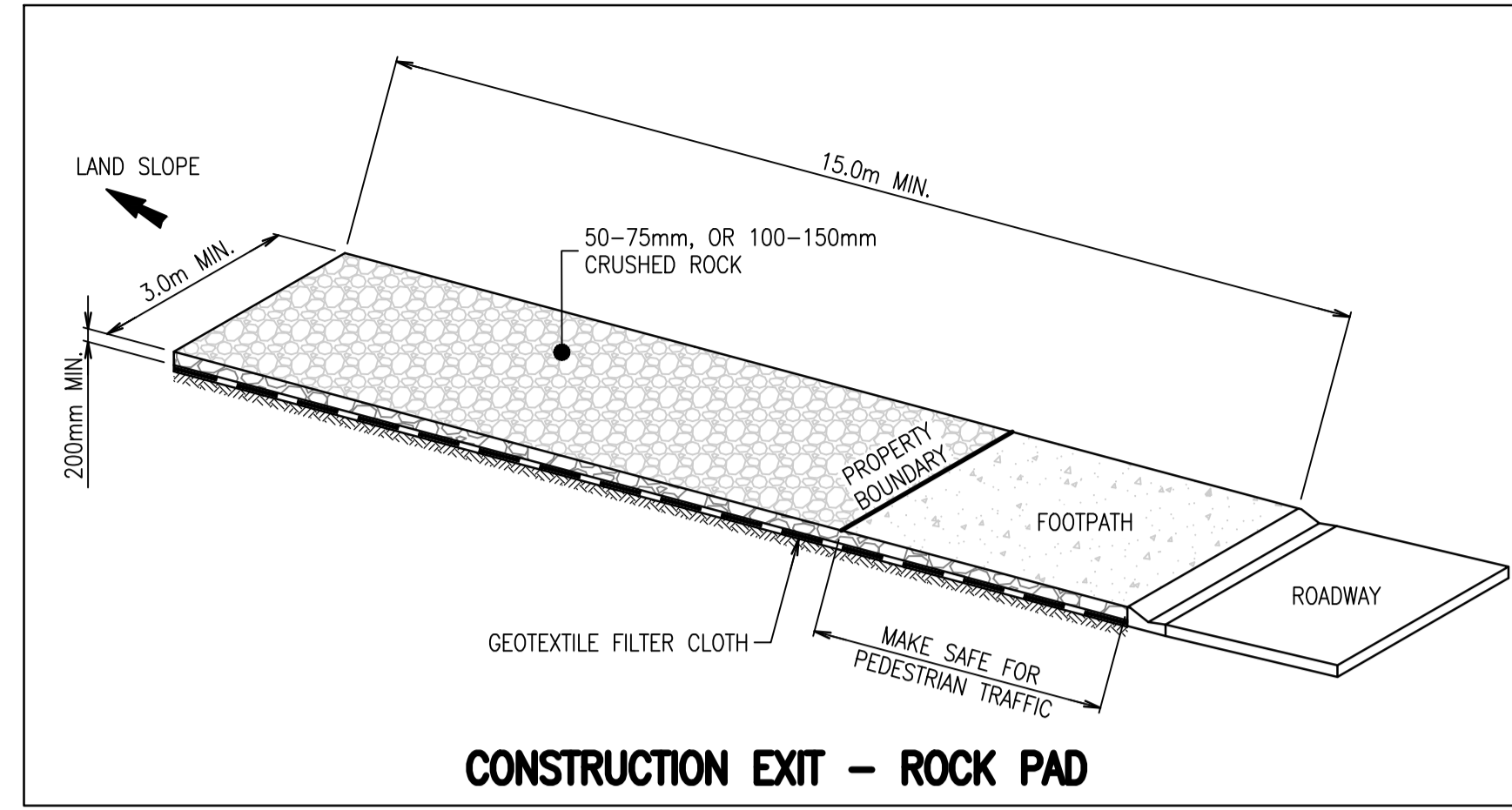
NOT FOR CONSTRUCTION

Drawing Number
22131-RBG-ZZ-XX-DR-SK-00003

Revision
P01

EROSION AND SEDIMENT CONTROL NOTES

- THESE NOTES SHALL BE READ IN CONJUNCTION WITH:
 - GENERAL NOTES AND DISCLAIMERS FOR PROJECT
 - ENVIRONMENTAL NOTES FOR THE PROJECT, AND
 - BULK EARTHWORKS NOTES FOR THE PROJECT.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A PLAN TO THE LOCAL AUTHORITY SPECIFYING THE STAGING OF THE VARIOUS EROSION AND SEDIMENT CONTROLS DURING THE DIFFERENT CONSTRUCTION PHASES.
- EROSION AND SEDIMENT CONTROL MEASURES IDENTIFIED BY THE CONTRACTOR AS BEING REQUIRED FOR THE FIRST CONSTRUCTION PHASE ARE TO BE PLACED PRIOR TO ANY CLEARING AND GRUBBING, AND ANY OTHER EARTHWORKS.
- ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO REMAIN OPERATIONAL UNTIL THE SITE IS ACCEPTED "ON MAINTENANCE" BY THE LOCAL AUTHORITY.
- EROSION AND SEDIMENT CONTROL DEVICES MUST COMPLY WITH:
 - LOCAL AUTHORITY GUIDELINES
 - IECA 2008, BEST PRACTICE EROSION AND SEDIMENT CONTROL. INTERNATIONAL EROSION CONTROL ASSOCIATION (AUSTRALASIA), PICTON NSW.
- UNDER NO CIRCUMSTANCES IS SILT TO BE ALLOWED TO LEAVE THE SITE.
- PRIOR TO THE RELEASE OF ANY STORMWATER RELEASED FROM THE SITE IS TO MEET THE FOLLOWING CRITERIA:
 - TOTAL SUSPENDED SOLIDS < 50 MG/L, AND
 - TURBIDITY < 100 NTU
 - PH 6.5 TO 8.5
- WHERE POSSIBLE, WATER QUALITY SAMPLES COLLECTED SHOULD BE TESTED IN A LABORATORY BEFORE DISCHARGE TO PROVE THAT SUSPENDED SOLID CONTENT IS BELOW RECOMMENDED LEVEL. IT IS STRONGLY RECOMMENDED THAT SUFFICIENT WATER TESTING IS CONDUCTED IN ORDER TO ENABLE A SITE-SPECIFIC CALIBRATION BETWEEN SUSPENDED SOLIDS CONCENTRATIONS (MG/L) AND NTU TURBIDITY READINGS. THIS WOULD ALLOW UTILISATION OF TURBIDITY METERS TO DETERMINE WHEN WATER QUALITY IS LIKELY TO HAVE REACHED THE EQUIVALENT OF 50 MG/L. A MINIMUM OF 10 WATER SAMPLES ALL IN THE RANGE OF 20 - 150 MG/L ARE REQUIRED TO ESTABLISH A RELATIONSHIP BETWEEN SUSPENDED SOLIDS AND TURBIDITY.
- IF THE LEVEL OF TOTAL SUSPENDED SOLIDS EXCEEDS 50 MG/L, THEN THE STORMWATER RUNOFF HELD IN THE SEDIMENT BASIN IS TO BE FLOCCULATED WITH A SUITABLE FLOCCULENT OR COAGULANT AT A RATE TO BE DETERMINED BY TEST RESULTS. THE STORMWATER RUNOFF IS TO BE HELD UNTIL THE TOTAL SUSPENDED SOLIDS ARE < 50 MG/L.
- AN ON SITE REGISTER LOGGING RAINFALL DATES, WATER QUALITY ANALYSIS RESULTS AND RELEASE DATES. THE REGISTER IS TO BE KEPT ONSITE AND MADE AVAILABLE FOR INSPECTION UPON REQUEST.
- ALL EROSION AND SEDIMENT CONTROL DEVICES ARE TO BE INSPECTED WITH A MINIMUM FREQUENCY OF WEEKLY, AND PRIOR TO ANY EXPECTED RAINFALL, AND AFTER ANY RAINFALL. ANY DAMAGE OR DEVICE FAILURE IS TO BE REPAIRED / MANAGED AS REQUIRED.
- ANY EROSION AND SEDIMENT CONTROL DEVICES NOT PERFORMING ADEQUATELY ARE TO BE SUPPLEMENTED WITH ADDITIONAL MEASURES, THAT COMPLY WITH THE RELEVANT GUIDELINES. THE SUPERINTENDENT IS TO BE ADVISED OF THE DETAILS OF ANY ADDITIONAL MEASURES PROPOSED.
- ALL EROSION AND SEDIMENT CONTROL DEVICES ARE TO BE MAINTAINED IN WORKING ORDER AT ALL TIMES. ANY DAMAGE TO ANY DEVICE IS TO BE IMMEDIATELY RECTIFIED.
- THE CONTRACTOR SHALL MINIMISE THE EXTENT OF AREAS DISTURBED BY EARTHWORKS AT ANY ONE TIME, AND SHALL RETAIN EXISTING VEGETATION COVER WHERE POSSIBLE.
- ALL DISTURBED SURFACES ARE TO BE REHABILITATED AS SHOWN ON THE DRAWINGS / SPECIFIED IN THE SPECIFICATIONS. IF REHABILITATION METHODS ARE NOT SHOWN / SPECIFIED THEN DISTURBED AREAS ARE TO BE REHABILITATED WITH GRASS SEED APPLIED AT A RATE OF 30kg OF SEED PER HECTARE. ALL SEEDED AREAS ARE TO BE WATERED UNTIL 90% GROUND COVER IS ACHIEVED.
- TOPSOIL STOCKPILES ARE TO BE NOT GREATER THAN 1m IN HEIGHT.
- ALL TOPSOIL STOCKPILES THAT ARE TO REMAIN FOR LONGER THAN 4 WEEKS ARE TO BE SEEDED WITH SEED THAT CAN BE USED FOR REHABILITATION, RYE OR MILLET SEED IF NO REHABILITATION SEED SPECIFIED AT A RATE OF 20kg OF SEED PER HECTARE OF STOCKPILE. ALL STOCKPILES ARE TO BE LOCATED CLEAR OF WATERCOURSE AND DRAINAGE WORK.
- ALL OTHER STOCKPILES ARE COVERED WITH BLACK PLASTIC TO PREVENT WEED GROWTH.



Rev	Revision Description	By	App	Date
P01	ISSUED FOR INFORMATION	LC	IM	08.12.22

Rev	Revision Description	By	App	Date

Scale 1:1 2:1 3:1 4:1 5:1 6:1 7:1 8:1

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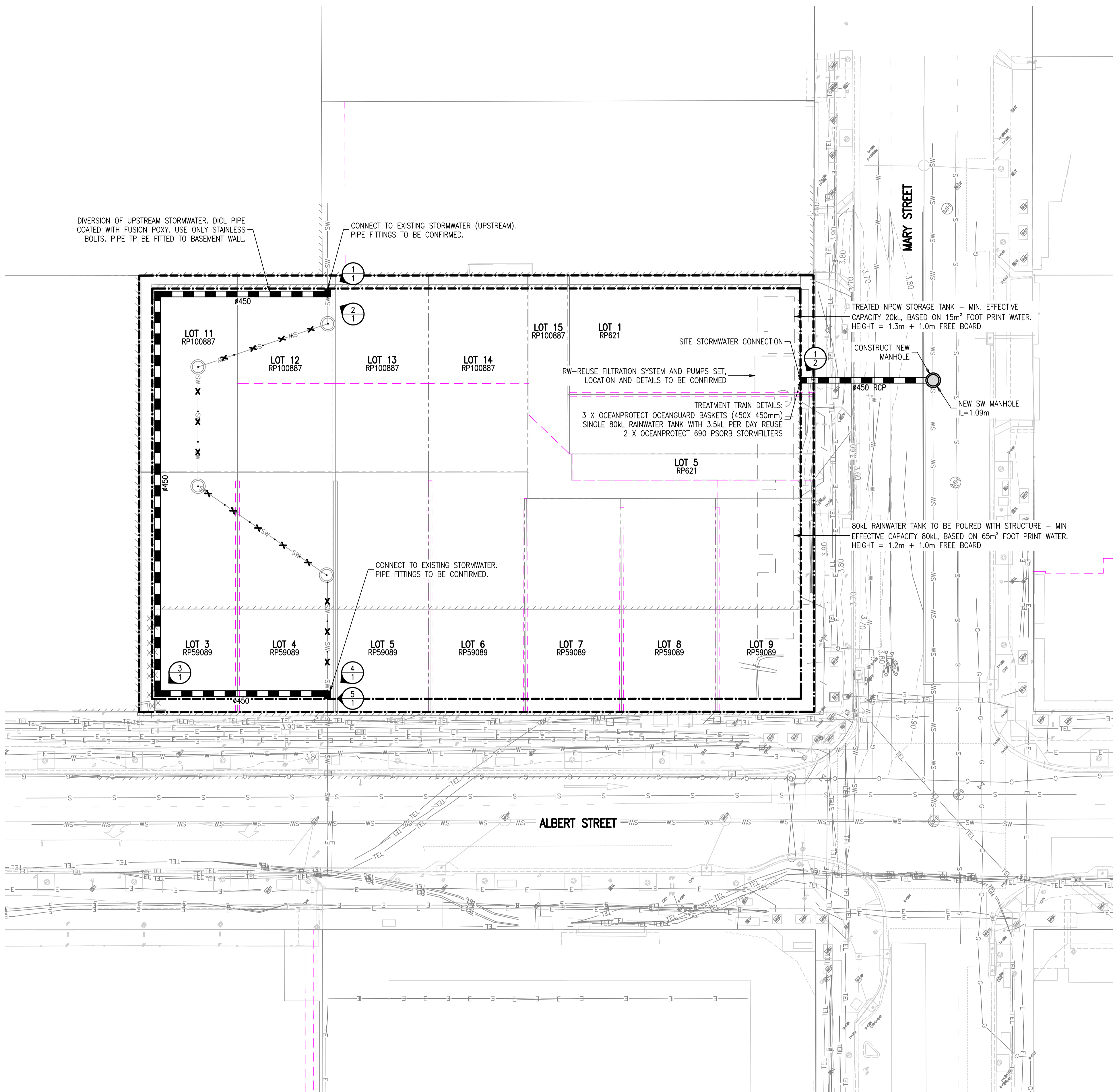
Client

QIC
QUEENSLAND INVESTMENT CORPORATION

Title
EROSION AND SEDIMENT CONTROL DETAILS

Project
ALBERT STREET COMMERCIAL TOWER

Date DEC 2022	Drawn L.CHEN	Design Checker C.BARENDSE
Scale at A1 1:200	Designer -	Approved I.McCUBBIN
NOT FOR CONSTRUCTION		
Drawing Number 22131-RBG-ZZ-XX-DR-SK-00004	Revision P01	



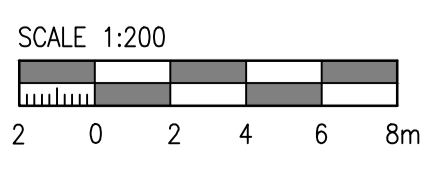
STORMWATER DRAINAGE NOTES

- THESE NOTES SHALL BE READ IN CONJUNCTION WITH:
A. GENERAL NOTES AND DISCLAIMERS FOR THE PROJECT, AND
B. ROADWORKS NOTES FOR THE PROJECT.
- STORMWATER DRAINAGE PIPES SHALL BE REINFORCED CONCRETE PIPE CLASS 2 U.N.O.
- STORMWATER DRAINAGE PIPES LESS THAN OR EQUAL TO 900mm DIAMETER SHALL BE SPIGOT AND SOCKET AND RUBBER RING JOINTED.
- STORMWATER DRAINAGE PIPES GREATER THAN 900mm DIAMETER SHALL BE FLUSH JOINT PIPES JOINTED WITH EXTERNAL ELASTOMERIC BANDS (SAND BANDS).
- STORMWATER DRAINAGE PIPES ARE TO BE BEDDED IN ACCORDANCE WITH THE LOCAL AUTHORITY'S STANDARD DRAWINGS, U.N.O.
- MANHOLES ARE TO BE CONSTRUCTED IN ACCORDANCE WITH THE LOCAL AUTHORITY'S STANDARD DRAWINGS, U.N.O.
- GULLY PITS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH THE LOCAL AUTHORITY'S STANDARD DRAWINGS, U.N.O.
- FIELD INLET PITS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH THE LOCAL AUTHORITY'S STANDARD DRAWINGS, U.N.O.
- HEADWALLS AND OUTLETS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH THE LOCAL AUTHORITY'S STANDARD DRAWINGS, U.N.O.
- ALL ACCESS COVERS AND GRATES SHALL BE MANUFACTURED AND SUPPLIED IN ACCORDANCE WITH AS3996.
- OUTLET LOCATIONS ARE TO BE CONFIRMED ON SITE BY THE PROJECT SURVEYOR PRIOR TO THE COMMENCEMENT OF STORMWATER DRAINAGE CONSTRUCTION.
- STRUCTURE LOCATIONS ARE TO BE CONFIRMED ON SITE BY THE PROJECT SURVEYOR PRIOR TO THE COMMENCEMENT OF STORMWATER DRAINAGE CONSTRUCTION.
- SETOUT POINTS (EASTINGS AND NORTHINGS, OR CHAINAGE AND OFFSET) AS SHOWN THE PLANS OR LONGITUDINAL SECTIONS ARE AS FOLLOWS:
• THE CENTRE OF STRUCTURE FOR MAINTENANCE HOLES.
• THE CENTRE OF STRUCTURE FOR FIELD INLETS.
• THE CENTRE OF STRUCTURE FOR KERB INLET GULLIES.
• THE PIPE CENTRE LINE AND FACE OF HEADWALL FOR OUTLETS.
- SURFACE LEVELS AS SHOWN ON THE LONGITUDINAL SECTIONS ARE AS FOLLOWS:
• THE CENTRE OF STRUCTURE FOR MAINTENANCE HOLES.
• THE TOP OF WALL (WEIR) FOR FIELD INLETS.
• THE INVERT OF KERB AND CHANNEL FOR KERB INLET GULLIES.
• THE TOP OF HEADWALL FOR OUTLETS.
- ROOFWATER DRAINAGE PITS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH THE LOCAL AUTHORITY'S STANDARD DRAWINGS, U.N.O.
- ROOFWATER DRAINAGE PROPERTY CONNECTIONS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH THE LOCAL AUTHORITY'S STANDARD DRAWINGS, U.N.O.
- ROOFWATER DRAINAGE PIPES ARE TO BE CONSTRUCTED FROM MATERIALS AS SPECIFIED IN THE LOCAL AUTHORITY'S SPECIFICATIONS AND STANDARD DRAWINGS, U.N.O.
- KERB ADAPTORS WHERE SPECIFIED ON THE DRAWINGS ARE TO BE INSTALLED IN ACCORDANCE WITH THE LOCAL AUTHORITY'S STANDARD DRAWINGS, U.N.O.

LEGEND

- EXISTING SITE BOUNDARY
- EXISTING BUILDING
- EXISTING CONTOURS MAJOR
- EXISTING CONTOURS MINOR
- EXISTING ELECTRICITY LINE
- EXISTING STORMWATER PIPE
- EXISTING STORMWATER PIPE TO BE REMOVED
- EXISTING STORMWATER MAINTENANCE HOLE
- EXISTING SEWER MAIN
- EXISTING WATER MAIN
- PROPOSED BASEMENT EXTENT
- PROPOSED STORMWATER PIPE
- PROPOSED STORMWATER MAINTENANCE HOLE
- PROPOSED STRUCTURE No./LINE No.

NOTES
1. TANK DETAILS TBC



Rev	Revision Description	By	App	Date
P01	ISSUED FOR INFORMATION	LC	IM	25.07.22
P02	ISSUED FOR INFORMATION	LC	IM	08.12.22
P03	ISSUED FOR INFORMATION	LQ	IM	14.04.23

Rev	Revision Description	By	App	Date
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Engineering Consultant

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ACN 010 580 248

Client

QUEENSLAND INVESTMENT CORPORATION

Title
STORMWATER DRAINAGE PLAN

Project
ALBERT STREET COMMERCIAL TOWER

Date
DEC 2022
Scale of A1
1:200

Drawn
L.CHEN
Designer

Design Checker
C.BARENDSE
Approved
I.McCUBBIN

NOT FOR CONSTRUCTION

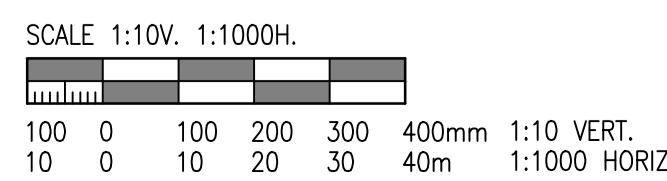
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22131-RBG-ZZ-XX-DR-SK-00005

Revision
P03

STRUCTURE NAME	1/1	2/1	3/1	4/1	5/1
STRUCTURE DESCRIPTION	PIPE CONNECTION - NO STRUCTURE	90 DEGREE BEND	90 DEGREE BEND	90 DEGREE BEND	90 DEGREE BEND
PIPE SIZE (mm)	450	450	450	450	
PIPE CLASS	DICL	DICL	DICL	DICL	
PIPE GRADE (%)	0.50%	0.50%	0.50%	0.50%	
PIPE SLOPE (1 in X)	200.0	200.0	200.0	200.0	
FULL PIPE FLOW VELOCITY (m/s)	1.02	1.02	1.02	1.02	
PART FULL FLOW VELOCITY (m/s)	1.41	1.41	1.41	1.41	
DATUM RL	-12.000				
PIPE FLOW (cumecs)		0.162	0.162	0.162	0.162
PIPE CAPACITY AT GRADE (cumecs)		0.202	0.202	0.202	0.202
HYDRAULIC GRADE LEVEL	2.315 2.209	2.207 2.101	2.066 1.960	1.866 1.760	1.659
DEPTH TO INVERT	2.243	2.231 2.231	2.312 2.312	2.413 2.413	2.468
INVERT LEVEL OF DRAIN	1.720	1.718 1.718	1.639 1.639	1.455 1.455	1.376
DESIGN SURFACE LEVEL (EXISTING SURFACE LEVEL)	3.963 E:502715.511 N:6961367.039	3.949 E:502715.135 N:6961366.710	3.951 E:502704.854 N:6961376.325	3.868 E:502677.056 N:6961354.359	3.845 E:502687.426 N:6961342.426
SETOUT COORDINATES					
CHAINAGE	0.000	0.500	15.661	36.834	52.995

LINE

1



Rev	Revision Description	By	App	Date
P01	ISSUED FOR INFORMATION	LQ	IM	08.12.22

Rev	Revision Description	By	App	Date

Scale 11 12 13 14 15 16 17 18

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ACN 010 580 248

Client

QUEENSLAND INVESTMENT CORPORATION

Title
STORMWATER LONGITUDINAL SECTION

Project
ALBERT STREET COMMERCIAL TOWER

Date
DEC 2022

Scale of A1
1:200

Drawn
L.QUIJANO

Designer
-

Design Checker
C.BARENSE

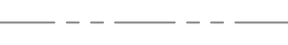

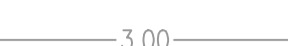
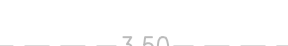






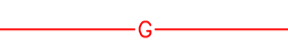



Approved
I.McCUBBIN

NOT FOR CONSTRUCTION

Drawing Number
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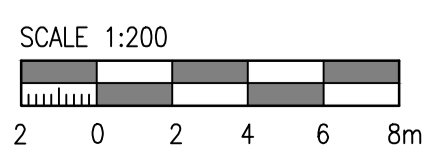
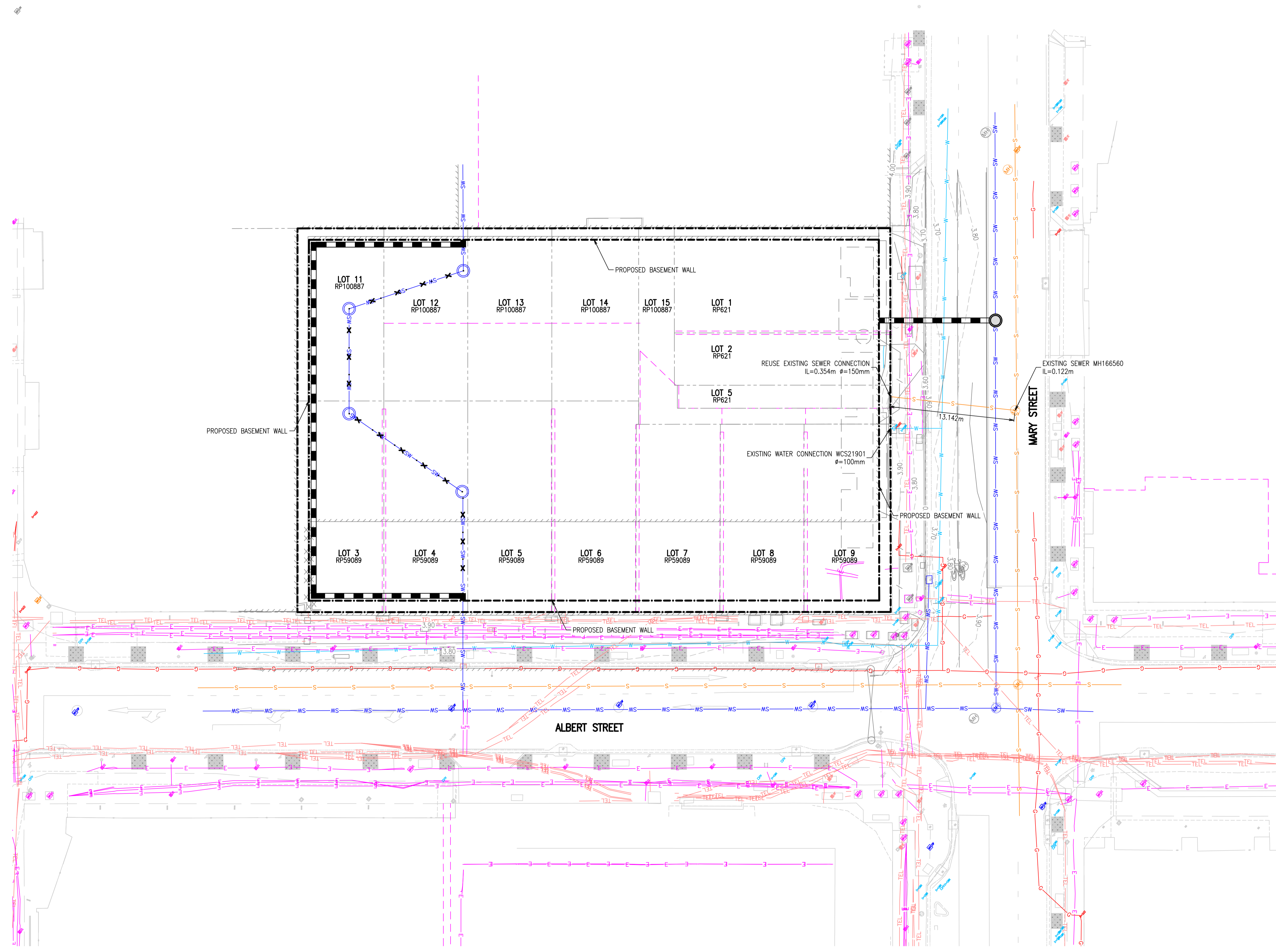
Revision
P01

LEGEND

-  EXISTING SITE BOUNDARY
-  EXISTING BUILDING
-  EXISTING CONTOURS MAJOR
-  EXISTING CONTOURS MINOR
-  EXISTING ELECTRICITY LINE
-  EXISTING STORMWATER PIPE
-  EXISTING STORMWATER MAINTENANCE HOLE
-  EXISTING SEWER MAIN
-  EXISTING WATER MAIN
-  EXISTING GAS MAIN
-  EXISTING TELSTRA CABLE
-  PROPOSED BASEMENT EXTENT
-  PROPOSED STORMWATER PIPE
-  UNKNOWN

NOTES

1. LOCATION AND AMOUNT OF SERVICES ARE NOT EXACT AND REQUIRES DETAILED SURVEY PRIOR TO CONSTRUCTION.



Rev	Revision Description	By	App	Date
P01	ISSUED FOR INFORMATION	LC	IM	08.12.22
P02	ISSUED FOR INFORMATION	LQ	IM	14.04.23

Rev	Revision Description	By	App	Date

Scale 1:1 2:1 3:1 4:1 5:1 6:1 7:1 8:1 9:1 10:1 11:1 12:1 13:1 14:1 15:1 16:1 17:1 18:1

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Structural, Civil & Construction Engineering Consultant

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ACN 010 580 248

Client

QIC
QUEENSLAND INVESTMENT CORPORATION

Title
SERVICES PLAN

Project
ALBERT STREET COMMERCIAL TOWER

Date
DEC 2022

Scale of A1
1:200

Drawn
L.CHEN

Designer
-

Design Checker
C.BARENDSE

Approved
I.McCUBBIN

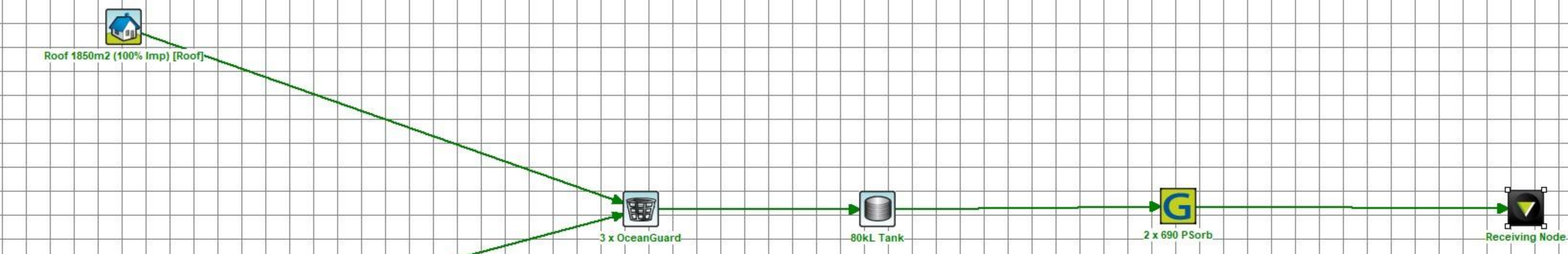
NOT FOR CONSTRUCTION

Drawing Number
22131-RBG-ZZ-XX-DR-SK-00007

Revision
P02

Appendix E MUSIC Modelling Results





Treatment Train Effectiveness - Receiving Node

	Sources	Residual Load	% Reduction
Flow (ML/yr)	2.65	1.59	40
Total Suspended Solids (kg/yr)	142	17	88
Total Phosphorus (kg/yr)	0.541	0.16	70.5
Total Nitrogen (kg/yr)	6.22	2.32	62.7
Gross Pollutants (kg/yr)	62.2	0	100

Appendix F Queensland Urban Utilities – Service Advice Notice

23 February 2023

Mr Colin Barendse
Robert Bird Group Pty Ltd
470 St Pauls Terrace
Fortitude Valley, QLD 4006

Urban Utilities
GPO Box 2765
BRISBANE QLD 4001
Phone: 07 3432 2200
www.urbanutilities.com.au/development

Via Email: colin.barendse@robertbird.com.au

Dear Sirs,

Urban Utilities Services Advice Notice

Urban Utilities application number:	22-SAN-63764
Applicant name:	Robert Bird Group Pty Ltd
Street address:	83-109 Albert Street, Brisbane City
Real Property Description:	3-9 RP59089; 1, 2 RP621; 11-14 RP10887

Proposed service connection/alteration/disconnection type:

Drinking water	<input checked="" type="checkbox"/>
Non-drinking water/recycled water	<input type="checkbox"/>
Wastewater	<input checked="" type="checkbox"/>

Urban Utilities provides this Services Advice Notice in response to the request received on 02.02.2023. In accordance with section 99BRAC(3) of the *South-East Queensland Water (Distribution and Retail Restructuring) Act 2009*, this Services Advice Notice provides advice about the proposed connection having regard to the connections policy in the Urban Utilities Water Netserv Plan, the charges and conditions that may apply to the connection and other relevant matters about the connection. All terms used in this Services Advice Notice are defined by reference to the Urban Utilities Water Netserv Plan.

Further, infrastructure information may not be verified, and Urban Utilities provides no warranty or assurance that this information is correct. Independent on-location site inspections are recommended to verify the location, condition and size of any infrastructure.

This Services Advice Notice does not constitute an application for connection, is not an approval to connect to the Urban Utilities network(s) and does not bind any future Urban Utilities' decision if the applicant applies for a connection.

Urban Utilities understands that the proposed development will consist of 50,451 m² of commercial space (source document). As per the request for a Service Advice Notice submitted, a material change of use will be applied for as part of this development.

Based on your proposal and discussion with Urban Utilities officers, the following advice is provided:

Urban Utilities Services Advice

Infrastructure and Design

The project site is within the Albert Street Priority Development Area (PDA). Development applications for priority development areas are assessed by Economic Development Queensland (EDQ).

The infrastructure funding framework within each PDA is also prescribed and managed by EDQ under an Infrastructure Charges Offset Plan (ICOP). The developer should review the current ICOP and development scheme to understand the broader infrastructure obligations specific to this site.

Water

Urban Utilities GIS mapping indicates that the properties (titles) comprising the proposed development site have existing connections into 180mm polyethylene water main in Mary Street and 150mm cast iron water main in Albert Street.

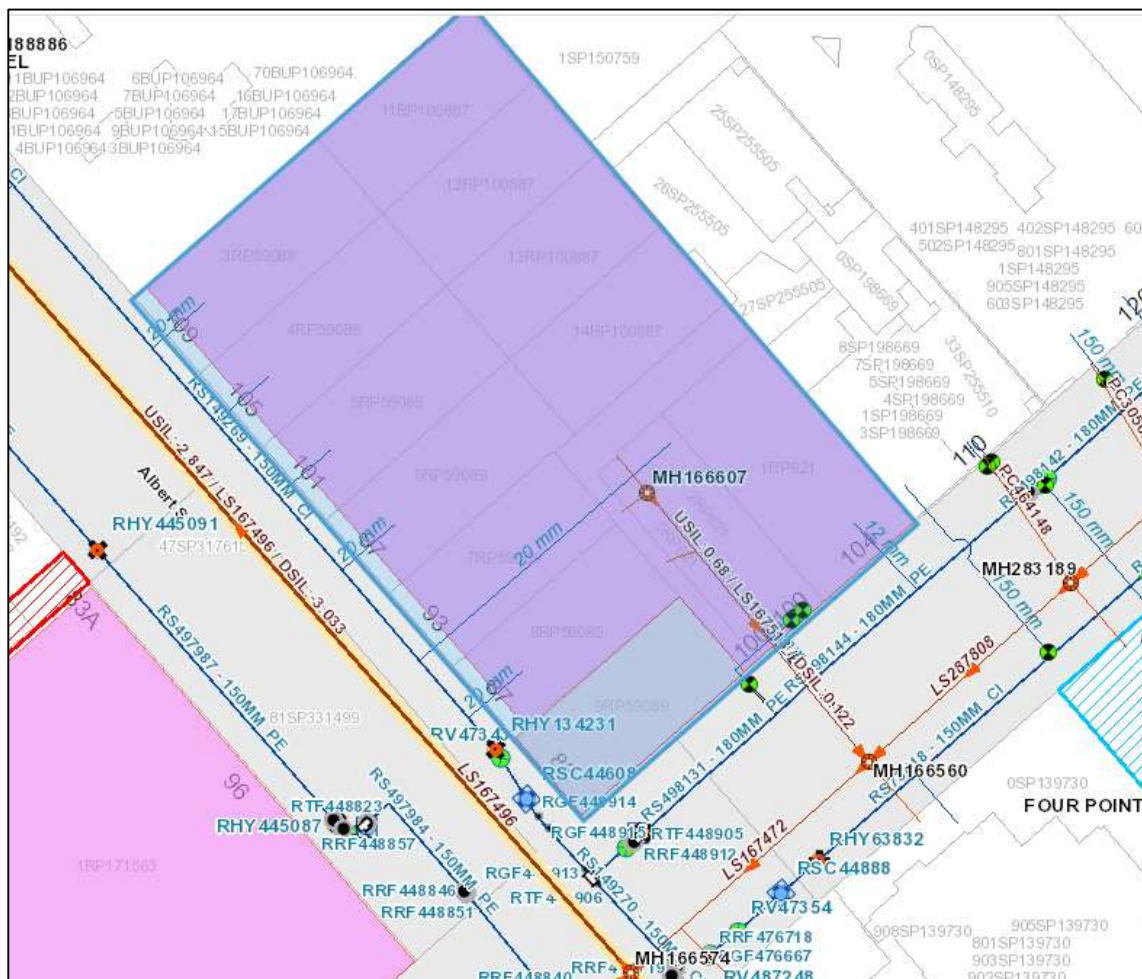


Figure 1: Existing infrastructure within the vicinity of the subject site

The applicant has advised that existing 100mm water service (WCS21901) is intended to be re-used to service the proposed development. Urban Utilities does not object to the proposed reuse, it is responsibility of the hydraulic consultant to confirm that this service is adequate to meet the requirements of the development. The water meter and sub-metering design and arrangements must meet URBAN UTILITIES’s contemporary requirements, and all redundant water services must be sealed at the main.

Please refer to **Urban Utilities Metering Guidelines** and **Standard Water Meter Arrangement Drawings** for detailed guidance.

Wastewater

Urban Utilities GIS mapping indicates presence of 150mm terracotta sewer main (LS167518) terminating with a manhole MH166607 within the subject site. It is understood that the temporary Cross River Rail depot has been constructed over this infrastructure.

The applicant has advised that this sewer line will be removed and a 225mm property connection draining into manhole MH166560 will be installed to service the future development. Urban Utilities does not object to the proposed wastewater service arrangement.

The proposed development is situated within a Sewer Advice Area, with sewer surcharging noted previously in the vicinity of the site. As per standard advice, Urban Utilities recommends that the minimum fitting levels within the development be 500mm above the surface level of the downstream manholes.

Note that the water/wastewater infrastructure required for the proposed development is to be provided in accordance with URBAN UTILITIES requirements, including but not limited to the *SEQ Water Supply and Sewerage Design and Construction Code* (SEQ WS&S D&C Code, 2013), or current equivalent.

Network Demand and Capacity

Water

An assessment of the water supply available at the site, including computational hydraulic modelling of the network under peak demand and fire flow conditions, has been completed.

The analysis assumes a Peak Hour Demand of 2.36 L/s (corresponding to 302 EP).

The assessment indicates that the existing water supply has sufficient capacity to service the proposed development in accordance with the *SEQ Water Supply and Sewerage Design and Construction Code, 2013 (SEQ WS&S D&C Code)*.

Indicative flow and pressure advice for the existing 180mm polyethylene water main in Mary Street is provided in Table 1, below.

Table 1: Indicative Flow and Pressure Advice

Assumed Connection Main	Estimated RL Connection (m AHD)	Hydraulic Grade Line (m AHD)			Pressure (kPa) ¹		
		0 L/s	10 L/s	20 L/s	0 L/s	10 L/s	20 L/s
180mm polyethylene constructed in 2018	3.8	82.8	82.8	81.8	775	775	765

Notes:

¹ Modelled pressure in supply main, relative to the estimated connection RL (m AHD).

² Designers are required to adjust the Hydraulic Grade Line/Pressure model results for site/building RL differences and calculate the extra hydraulic losses from point of connection with the main.

³ Field performance of cast iron spun (or cement) lined mains can be variable. Field testing to ascertain actual pressure drops may be advisable.

⁴ Indicative flow and pressure results assume a background demand of 2/3 Peak Hour has been applied throughout the network.

Disclaimer

Information provided by Urban Utilities is based on hydraulic modelling ("Hydraulic Modelling Information"). Model results are for the anticipated performance. **The Hydraulic Modelling Information has not been verified by field measurements and may be inaccurate due to field conditions. As such, users relying on Hydraulic Modelling Information do so at their own risk and should make their own independent investigations to verify model outputs.**

*The Hydraulic Modelling Information does not state nor imply a guaranteed level of service. Designers are referred to Urban Utilities' Customer Charter and Customer Service Standards for facility hydraulic service considerations. **Urban Utilities does not provide a service of minimum flows and pressures to private fire-fighting systems.***

Due to changing operational circumstances, pressure and flows delivered to a service may vary. Designers are advised to make adequate provisions within the fire system installation for the pressure, flow and reliability requirements, for the life of the system.

Designs incorporating flows above 50 L/s must be supported by evidentiary field tests, and Urban Utilities may require a supporting hydraulic analysis to demonstrate how the reticulated network will be protected from the impacts of water hammer associated with any new property service.

Wastewater

A hydraulic assessment of the sewerage network servicing the site under peak wet weather flow conditions has been completed.

The analysis assumes a Peak Wet Weather Flow from the development of 3.68 L/s (corresponding to 302 EP).

The assessment indicates that the existing wastewater network has sufficient capacity to service the proposed development in accordance with the *SEQ Water Supply and Sewerage Design and Construction Code, 2013 (SEQ WS&S D&C Code)*.

Land and Easements

Sewer Main in Private Properties

Please refer to following link for easement requirements at:

<https://urbanutilities.com.au/development/our-services/easements>

Water Main in Private Properties

Please refer to table 5.2 and clause 5.4.4 of *SEQ WS&S D&C Code* for easement requirements.

Infrastructure Charges (as at 1 July 2022)

Infrastructure Charges will be levied in accordance with the Urban Utilities' Water Netserv Plan (Part A) Charges Schedule applicable at the time the water approval application is lodged.

Further information is available at:

www.urbanutilities.com.au/development/help-and-advice/water-netserv-plan

Trade Waste

A Trade Waste Approval is not required for the proposed development based on the information supplied by the applicant.

Further information is available at the following website:

www.urbanutilities.com.au/business/business-services/trade-waste

Connection Application Process

A formal assessment as to whether your application qualifies as a Standard Connection, Minor Works Approval, or Major Works Approval will be resolved on application for a Water Approval. For the purposes of preliminary advice, and based on the information provided, it is expected that the following applications will be required to assess the ability to connect to Urban Utilities networks:

Minor Works (Water)

1. Network and/or Property Service Connection – Non-Standard Connection (Minor Works)

The Water Approval will require connection works to be undertaken. These works are expected to be available under the Endorsed Consultant Certification Scheme for Non-Standard Connection (Minor Works). You will be able to choose a Urban Utilities Endorsed Consultant and a contractor to appoint to design and construct the works, including live works in most cases (Network Access Permit -NAP required)) and then maintain the works for a specified period (usually 12 months) in accordance with the conditions stated in your Water Approval (including compliance with the *SEQ WS&S D&C Code*). Further information regarding the Endorsed Consultant Certification Scheme for Minor Works is available at: www.urbanutilities.com.au/development

Major Works (Wastewater)

2. Network and/or Property Service Connection – Non-Standard Connection (Major Works)

The Water Approval will require connection works to be undertaken. You will be able to choose which consultants and contractors to appoint to design and construct the works, including live works (in most cases) and then maintain the works for a specified period (usually 12 months) in accordance with the conditions stated in your Water Approval.

Please note that the information provided within this section is subject to the specific aspects of the development and water application.

Fees and Charges

Urban Utilities fees and charges are stated in the Urban Utilities' Water Netserv Plan (Part A) Charges Schedule. The fees and charges that are likely to be associated with these applications are outlined below:

1. Application Phase – per service

Base Application Fee – Network (1 to 10 lots)

2. Design, Construction and Maintenance Phases

Non-Standard Connection (Minor Works) – per service

Audit and Compliance Fee – Minor Works

Non-Standard Connection (Major Works)- per service

Audit and Compliance Fee – Major Works

Non-Standard Connection (Design Approval Fee) – Reticulation per service

Network Connection (1 to 10 lots)

Re-checking Amended Plans Fee

Re-checking Amended Plans Fee (per plan page, technical report or other document)

Non-Standard Connection (Inspection)

Works Inspection Fee – Reticulation per inspection

Works Inspection Fee - Reticulation

Works Re-inspection Fee - Reticulation

Notes:

1. The customer may incur additional fees and charges during the approval and works phase, including but not limited to, fees levied by the RPEQ and construction contractor, fees associated with the provision of maintenance/uncompleted works bond(s), re-checking amended plans fees, re-inspection of works fees and infrastructure agreement preparation fees;

2. Reticulation comprises infrastructure with a diameter of 300mm and below and complex assets comprise treatment, storage, pump facilities and infrastructure with a diameter greater than 300mm.
3. The above estimates are indicative only and are subject to review of the detailed application upon lodgement; and
4. Please refer to the Urban Utilities Water Netserv Plan and Developer Customer Price List at www.urbanutilities.com.au/development

Time Frames for Assessment

Non-Standard Connection Assessments (for applications other than Standard Connection)

To be completed within 20 business days of receipt of a properly made application (including payment of the relevant assessment fee), or within a further 20 business days of receipt of requested information (unless extended by agreement).

Design Phase

For Minor Works

Typically, for an application which is classified as **minor works**, no assessment of the design phase is expected to be required from Urban Utilities.

However, Urban Utilities may audit a selection of certified designs based on its assessment of the risk of non-compliance

For Major Works

Typically for an application classified as **major works**, the assessment of the design phase is to be completed within 20 business days of receipt of all designs.

Other Guidance

Urban Utilities network is protected by the Development Code MP1.4 Building Over or Near Infrastructure (QDC MP1.4). Please confirm with your Building Certifier whether a Build Over Asset application (BOA) is required.

This Services Advice Notice is current for a period of twelve (12) months from the date of issue. Should you wish to proceed with applying for a service connection please lodge your application via Urban Utilities Developer Applications Portal at www.urbanutilities.com.au/development. Please include your Services Advice Notice reference number in your application.

If you have any questions in relation to this Services Advice Notice, please do not hesitate to contact your account manager, Gleb Spivak on 07 3855 6211 or gleb.spivak@urbanutilities.com.au.

Alternatively, please email DevelopmentEnquiries@urbanutilities.com.au.

Yours sincerely



Nghiep Nguyen
Senior Engineer
Urban Utilities

Appendix G Hydraulic Consultant Advice Notice



Consultant Advice Notice

From	Wesley Too, Harrison Ralph	Advice No.	CAN ESD-15
Project	101 Albert St	Project No.	BNE0776
Date	21 March 2023	Pages	5
Subject	Credit 39 Waterway Protection	Revision:	01

Distribution to:

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Water Sensitive Urban Design Strategy

Purpose

The purpose of this Consultant Advise Notice (CAN) is to conduct a Water Sensitive Urban Design assessment taking into consideration the application of a rainwater harvesting system to supply the building's non-potable cold water requirements, minimise stormwater run-off and improve the quality of the stormwater discharging to the local network. This is being undertaken in conjunction with RBG Civil Group in accordance with QIC ESG Design Brief target deliverable for Schematic Design.

Green Star Requirements

On Site Retention Volume

In accordance with Green Star Credit 39 Waterway Protection the project must demonstrate a reduction in average annual stormwater discharge (ML/yr) of 40% across the whole site compared to pre-development levels.

Pollution Reduction Targets (% of the post development annual average load)

All rainwater discharged from the site shall meet specified pollution targets listed below:

- > Total Suspended Solids (TSS) 85%
- > Gross Pollutants 90%

- > Total Nitrogen (TN) 45%
- > Total Phosphorus (TP) 65%

Compliance Strategy

Rainwater Harvesting System Overview

A rainwater harvesting system is proposed to reduce the dependence on town-main cold water and serve as the building’s non-potable cold-water supply. Rainwater shall be collected from trafficable and non-trafficable areas and be treated/stored for irrigation purpose only. Based on information from RBG Group, we understand a 200kL rainwater harvesting system will satisfy Green Star requirements.

The system shall comprise of:

- > Storage tanks:
 - 80kL rainwater storage tank & 20kL non-potable cold water (NPCW) storage tank in Basement Level 01
 - 50kL NPCW storage tank in Level 10
 - 50kL NPCW storage tank in Roof Level
 - > Total effective capacity of 200kL
 - 3x. Ocean guard filters
 - 2x Ocean filters
 - Irrigation Filtration equipment (pre-treatment)
 - Non-potable cold water booster pumps

Figure 1 Basement Level 01 Rainwater and Non-potable Cold Water Storage Tank Location

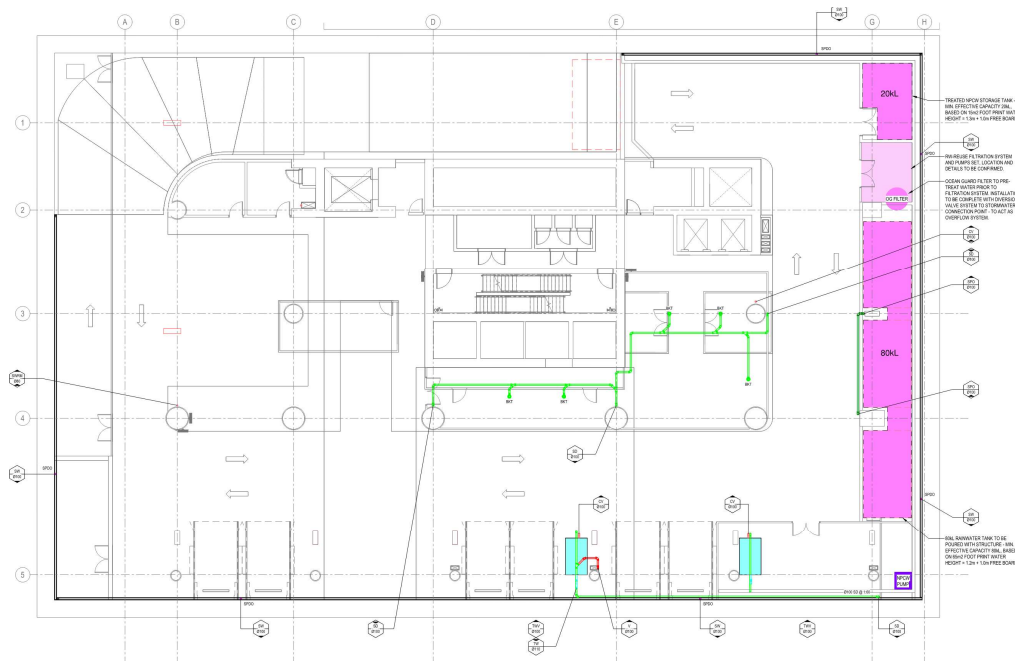
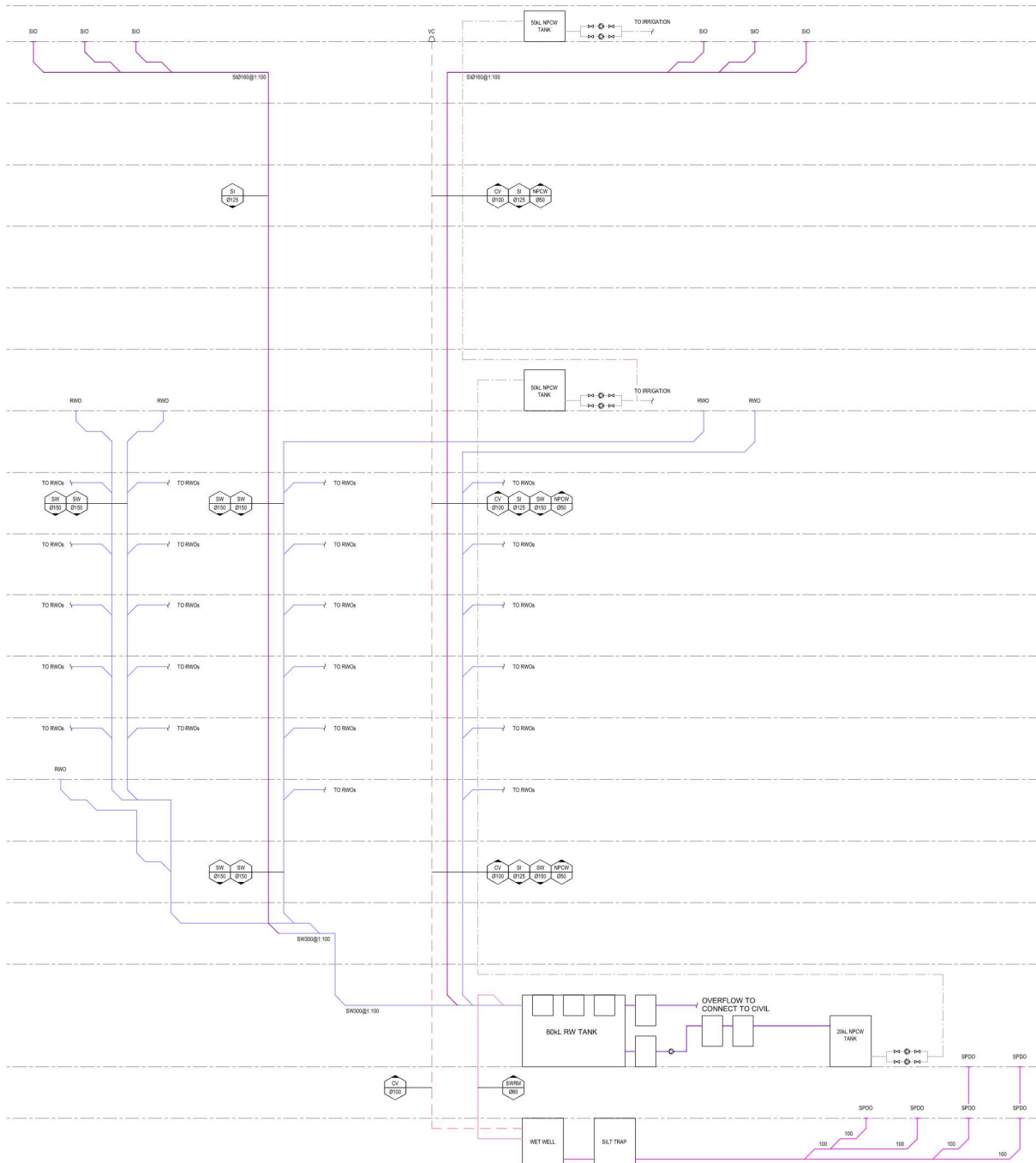


Figure 2 Rainwater Harvesting System Schematic



- > The collected water shall be pre-treated with the ocean guard filters located within the 80kL rainwater storage tank prior to non-potable cold-water filtration system.
- > Rainwater tank high flow overflow shall discharge to civil stormwater boundary pit; low flow shall be pumped through rainwater filtration equipment and connect to the 20kL non-potable cold water storage tank.

- > In normal circumstances, treated non-potable cold water shall be transferred up the building via non-potable cold water relay pumps and stored in 2x. 50kL non-potable cold-water tanks each located in the plant rooms at Level 10 and Roof level (Level 38).
- > Non-potable cold water shall be conveyed to respective irrigation systems, via gravity/pressure boosters (for upper levels where gravity cannot be utilised).
- > This proposed system shall minimise rainwater storage within Basement 01 tanks (80kL and 20kL tanks), to maximise catchment/retention capacity and reduce outflow to local infrastructure.

Water Quality

All harvested rainwater shall be pre-treated in accordance with the Water Quality Objective (WQO) requirements via:

- > Primary System – 3x. Ocean guard systems (Upstream of 80kL rainwater storage tank)
- > Secondary System – 2x. 690mm Psorb Cartridges (Downstream of 80kL rainwater storage tank)

Table 1 Primary & Secondary Pre-treatment System Detailed by Robert Bird Group (Civil Consultants)

22131 - Albert Street Treatment Train						
Pre-Treatment/Efficiencies		Rainwater Reuse Tank	Cartridge System/Efficiencies	WQO's Achieved		
3 x Oceanguard at inlet of tank (for pedestrian areas) Treatable flow = 20L/s (per basket)	TSS 71.6%	Single 80kL tank 3.5kL per day reuse	2 x Stormfilter 690mm Psorb Cartridges (Downstream of rainwater reuse tanks) Treatable flow = 1.8L/s; 0.9L/s per cartridge device	TSS 86.8%	Flow Reduction (%)	40
	TP 30%			TP 77.6%	TP (%)	71.4
	TN 21%			TN 51.2%	TN (%)	62.8
				Gross Pollutants (%)	100	

The pre-treated rainwater shall be further treated with tertiary filtration equipment prior to non-potable cold-water supply and storage.

Onsite Retention Capacity

The rainwater harvesting system onsite retention effective capacity is proposed to be 200kL in accordance with a 1-month irrigation supply requirement to the building. This proposed capacity shall comply with BBC's planning scheme as detailed below:

Figure 3 Albert Street Cross River Rail – Irrigation DA Submission Brief – Section 12 by Urbis Landscape

Peak watering for the expected climatic conditions of Brisbane according to BOM data is September for any given typical seasonal year. Providing a storage capacity for the 4 weeks of September is an ideal target to aim for.

As indicated in the data tables, peak water usage for the month of September is 263,239L

To comply with the requirements of BBC's planning scheme with 75% of all watering needs from a harvested source, the tank size can be rationalised down to 75% of this figure equating to a manageable volume of 197,429L.

Therefore a recommended dedicated irrigation holding tank size would be **200KL**

Summary

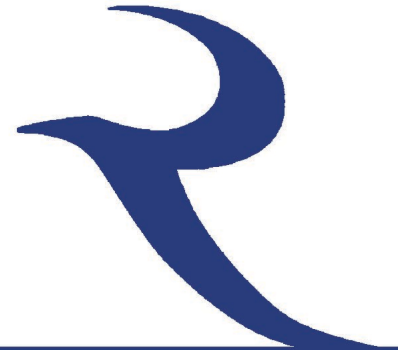
Based on the above building services/building design principles, we believe that the proposed rainwater harvesting system fulfils appropriate Water Sensitive Urban Design (WSUD) requirements.

The proposed WSUD Strategy address all three criteria of the Green Star Buildings requirements for Credit 39 Water Way Protection. The design strategy pertains to the three stages outlined being as follows:

- > Runoff volume
- > Water quality
- > Environmental Management

The volume reduction targets an overall 40% flow reduction of stormwater which the WSUD design strategy achieves. The installation of three ocean guard filters and extended filtration systems allows the quality of the water to be discharged from both trafficable and non-trafficable areas and prevents a series of pollutants from being discharged into waterways and marine environments. The retention strategies also reduce the use of potable water throughout the building reducing dependency on potable water for irrigation purposes.

Wesley Too, Harrison Ralph
Graduate Hydraulic Engineer
ADP Consulting Pty Ltd



Robert
Bird
Group

Brisbane Office

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