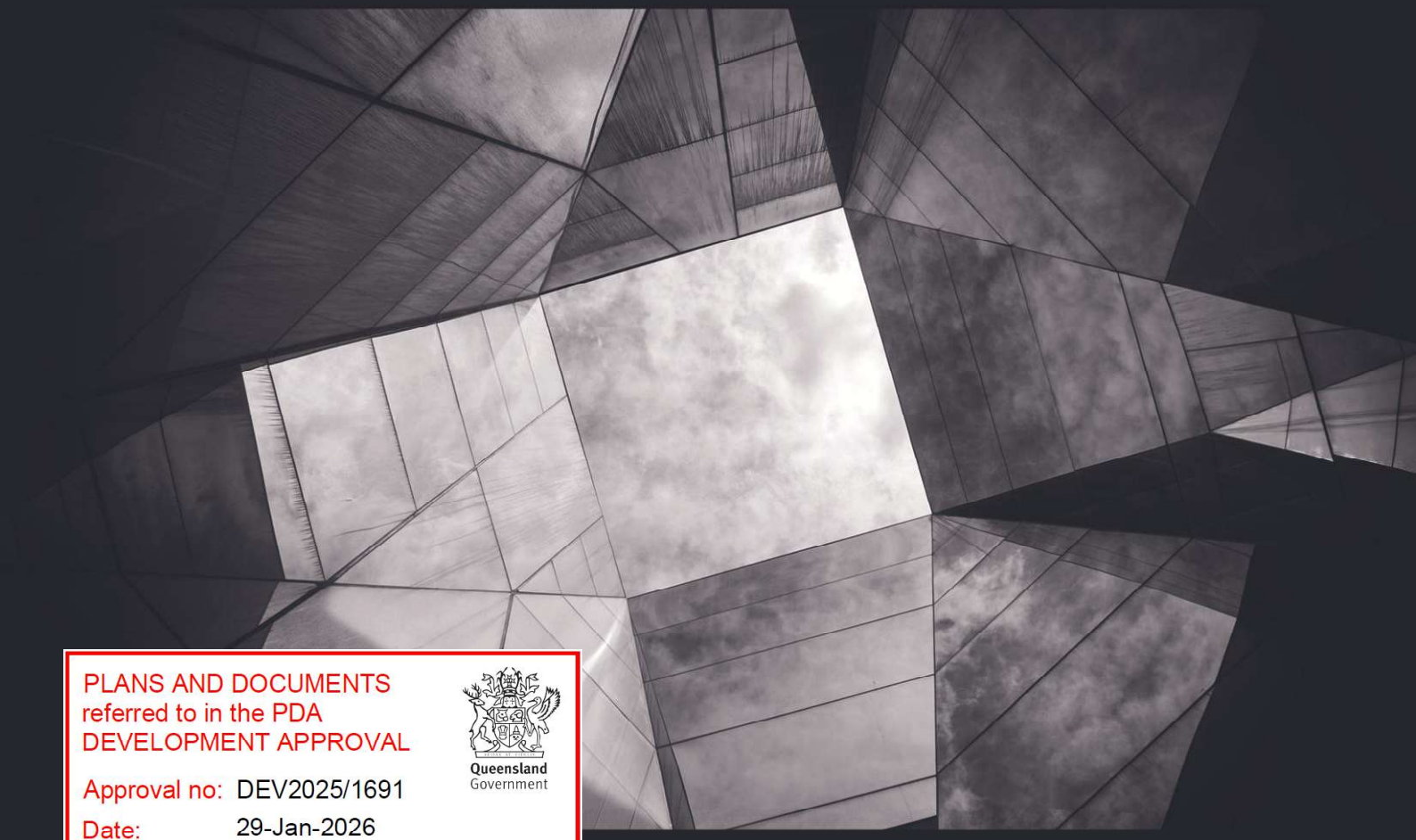
NAXOS
ENGINEERS

SITE BASED STORMWATER MANAGEMENT QUANTITY & QUALITY



PLANS AND DOCUMENTS
referred to in the PDA
DEVELOPMENT APPROVAL

Approval no: DEV2025/1691

Date: 29-Jan-2026

Queensland Government

Proposed Broadway Hotel & Residential Development
93 Logan Road, Woolloongabba
Carbone Developments Pty Ltd

REPORT NUMBER: 23-198 SBSMP Quantity & Quality V3
DATE PREPARED: 28th August 2025
APPLICATION No: TBC

NAXOS ENGINEERS PTY LTD
ABN 65 613 555 687
PO Box 224, Spring Hill QLD 4004
1300 598 544
info@naxosengineers.com.au

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1.0 INTRODUCTION

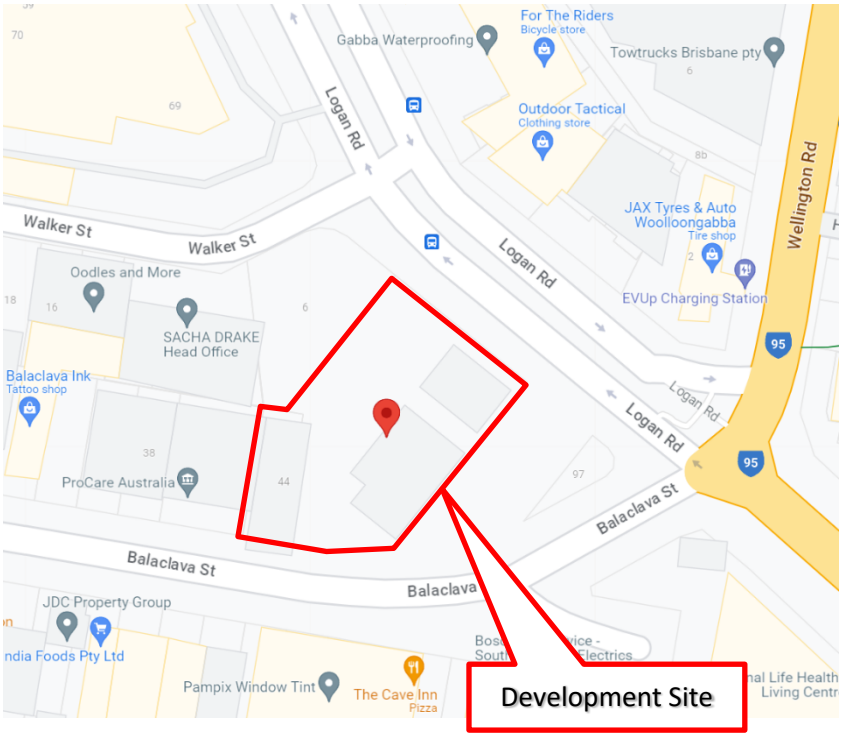
Naxos Engineers Pty Ltd has been engaged by our client Carbone Developments Pty Ltd to prepare a Site-Based Stormwater Management Report the proposed development at 93 Logan Road and 44 Balaclava Street, Woolloongabba.

1.1. AVAILABLE INFORMATION

- Detail Survey Plan: Ref No: 2643DT issue A prepared by WM Surveys Pty Ltd (Appendix A)
- Council eBiMAP2 Search Documentation (Appendix B)
- Brisbane City Council Floodwise Report (Appendix C)
- Brisbane City Council Interactive Mapping (Appendix D)
- Architectural Plans: Prepared by Reddoor, Drawing Reference 210178 (Appendix E)

1.2. LOCALITY PLAN

Figure 1-1 SITE LOCATION



2.0 SCOPE OF REPORT

This Report will address the following stormwater issues:

- Identify the location of the lawful discharge points for the development,
- Prepare a stormwater concept plan for the proposed development,

STORMWATER QUANTITY

- Identify the increase in stormwater runoff that will be generated by the development (if any),
- If required identify management strategies to ensure that stormwater discharge from the development is maintained at pre-development flows for all storm events up to and including Q100, and
- Identify the location of the lawful discharge points for the development and demonstrate that the proposed stormwater discharge will not adversely affect the downstream properties and drainage systems.

STORMWATER QUALITY

- Identify the development sites classification (high or low risk) and the relevant planning policies and guidelines that the development must comply with,
- If applicable, identify Water Quality Objective Targets as determined by Local Authority Planning Schemes & Department of Environment & Resource Management.
- Identify a suitable “stormwater treatment train” aimed to comply with the set Water Quality Objectives if applicable.
- If applicable, demonstrate compliance to the determined Water Quality Objectives with the use of “Model for Urban Stormwater Improvement Conceptualisation” Software
- Prepare a conceptual stormwater layout highlighting all stormwater quality treatment devices proposed for this development.
- Provide details on monitoring and maintenance requirements for all stormwater treatment devices incorporated within this development.

EROSION AND SEDIMENT CONTROL

- Provide details of an Erosion and Sediment Control Management Plan which can be developed at the later stage during Operational Work.

3.0 SITE CHARACTERISTICS

3.1. LOCATION

The development site is located approximately 2.5km South-East of the Brisbane City CBD. The site address is 93 & 97 Logan Road and 44 Balaclava Street, Woolloongabba and is formally described as Lot 50 on RP217072 and Lot 76 on RP11846 respectively.

3.2. SITE DESCRIPTION

The development site in its current state slopes from the South-West to the North-East Boundary at Logan Road. Naxos understand that an approximate 2m Road widening along the Balaclava Street Frontage is proposed for the development site as indicated on the Architectural Plans. The total proposed development site area (excluding the proposed road widening) is approximately 2374m² and has an average grade of 4.29%.

Refer to Appendix A for Detailed Survey and Appendix E for Architectural Plans.

Figure 3-2 AERIAL PHOTOGRAPH

3.3. EXISTING LAND USE

44 Balaclava Street

The site in its current state consists of an existing block and brick building that is slab on ground. The existing building has a tin roof which extends boundary to boundary.

Site access is via Balaclava Street.

Figure 3-3 44 BALACLAVA STREET – EXISTING BUILDING

93 Logan Road

The site in its current state contains the heritage listen Broadway Hotel that is slab on ground. The Broadway Hotel is heritage-listed and contains a tin roof.

The remainder of the site consists of non-heritage listed building extensions with tin roofing, hardstand carparking and minor landscaping.

Site access is via Balaclava Street and Logan Road.

Figure 3-4 93 LOGAN ROAD – BALACLAVA STREET - CARPARK ENTRANCE

Figure 3-5 93 LOGAN ROAD – SHORT STREET – EXISTING

Figure 3-6 93 LOGAN ROAD – SHORT STREET – LOGAN ROAD - EXISTING

3.4. EXISTING STORMWATER DISCHARGE

Based on available information from Councils eBiMAP2, via Google Maps/Street View and detailed survey undertaken of the proposed development site, it appears that the existing structures stormwater runoff is collected by a series of gutters and discharged to the kerb and channel located along the Balaclava Street, Short Street and Logan Road frontages. The stormwater is ultimately collected by a series of gully pits located north east of the development site towards the Logan Road frontage.

Refer to Appendix A for Detailed Survey and Appendix B for Brisbane City Council e-BiMap2.

It is noted that is site is affected by Brisbane River Flood Planning Area 5 (FPA5) and Creek/Waterway Flood Planning Area (FPA4 and FPA5). Refer to Appendix C for Floodwise Property Report and Appendix D for Brisbane City Council Interactive Mapping.

For the pre-development catchment properties refer to Table 3-1 below. For the purposes of this Report, the proposed road widening along Balaclava Street has been excluded from both the pre and post development catchments and the Post Development area of 2374m² will be utilised for both the Pre and Post Development scenarios for comparative measures.

Table 3-1 PRE-DEVELOPMENT AREAS

Post-Development Areas – Total Site Area (2374m²)		
Impervious Area	2333m²	98.3%
Pervious Area	41m²	1.7 %

4.0 BRISBANE CITY COUNCIL INTERACTIVE MAPPING

Brisbane City Council (BCC) interactive mapping has been undertaken for the proposed development site. It is noted that the subject site is affected by Brisbane River Flood Planning Area 5 and appears to be in the bottom third of the catchment. Refer to Appendix and the below Figures for the Council Defined flood extents.

It is noted that in accordance with the Brisbane City Council Flood Planning Provisions, the Brisbane River and Creek/Waterway Flood Planning Area 5 (FPA5) the proposed Development is compatible with the Flood Hazard subject to meeting all other relevant requirements.

For Creek/Waterway Flood Planning Area 4 the proposed Development will require a Flood Risk Assessment in accordance with the Flood Planning Scheme Policy to demonstrate the use is compatible with the Flood Hazard.

Figure 4-7 BCC INTERACTIVE MAPPING – BRISBANE RIVER

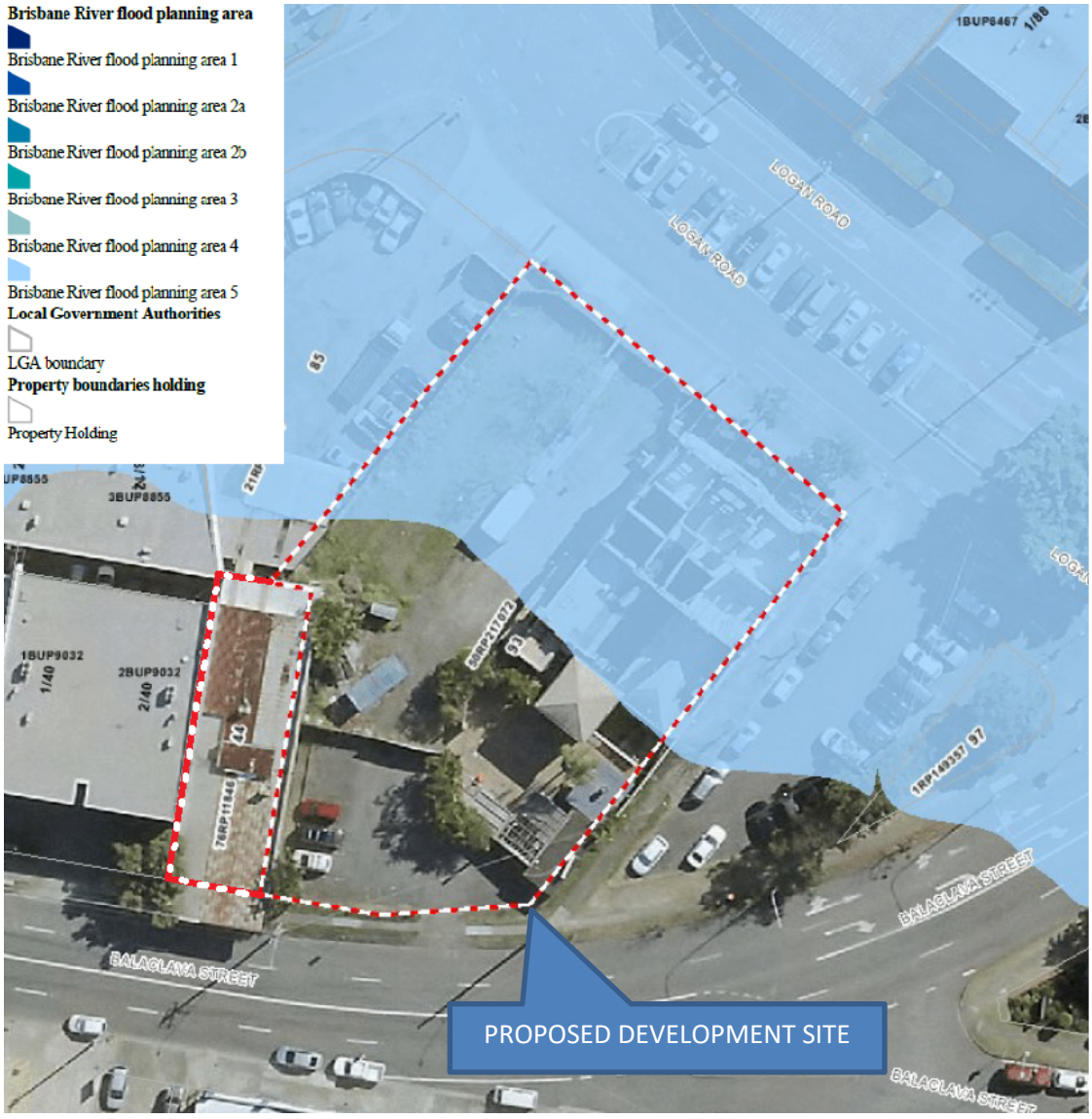


Figure 4-8 BCC INTERACTIVE MAPPING – CREEK/WATERWAY

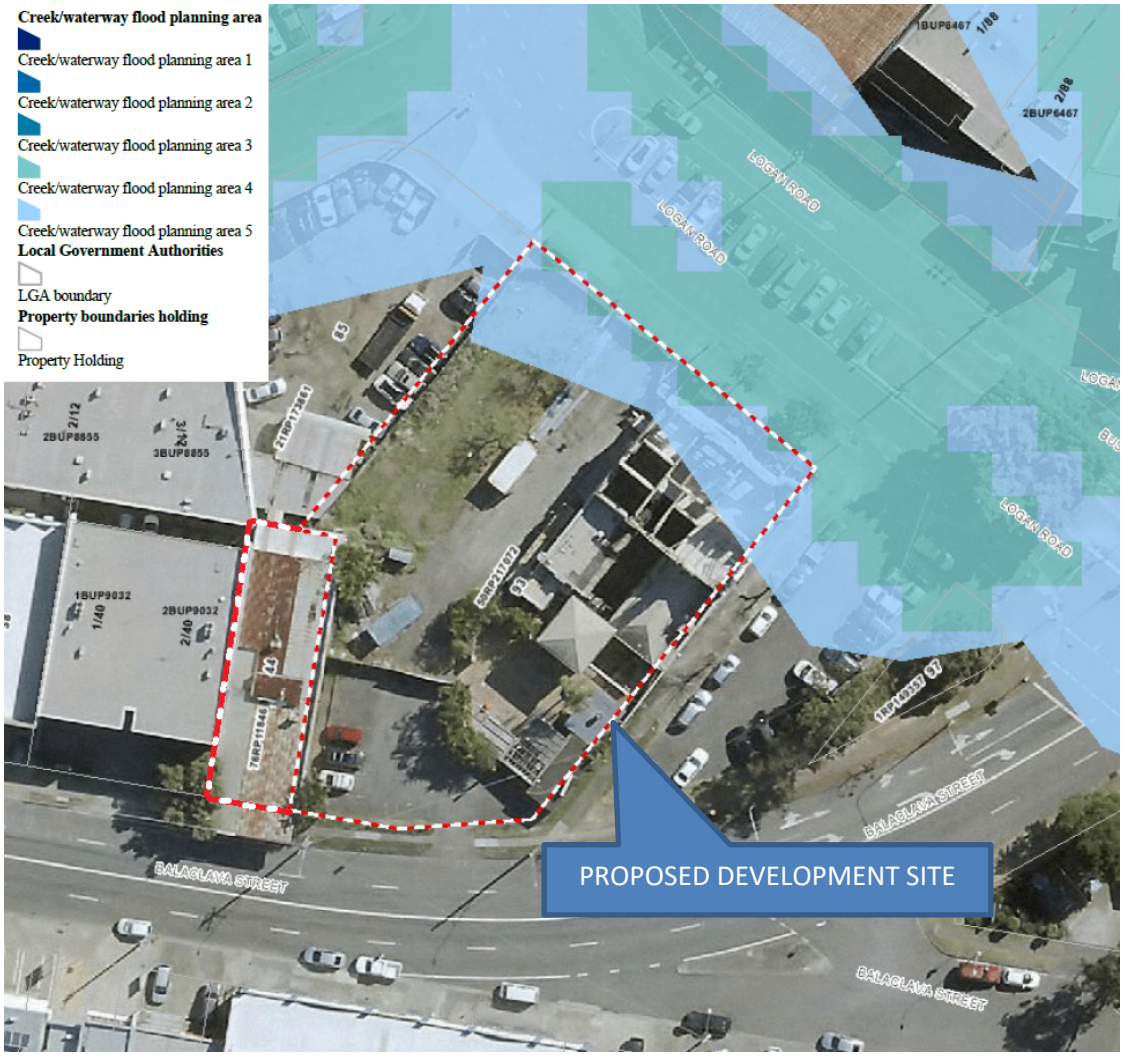


Figure 4-9 BCC INTERACTIVE MAPPING – OVERLAND FLOW

5.0 PROPOSED SITUATION

5.1. PROPOSED LAND USE

The proposal is to demolish the existing non-heritage structure/s and infrastructures whilst maintaining the original heritage listed structure located in the Eastern Corner of the development site as shown in the Figure Below.

Figure 5-10 AERIAL PHOTOGRAPH – HERITAGE BUILDING BEING MAINTAINED

Once the demolition is completed, it is proposed that a 34 storey apartment tower development will be constructed. Parking will be located throughout multiple levels of the development as listed below: Basement 4 to Basement 1, Level 2 Podium to Level 6 Podium (7 Storeys of parking in total). Vehicular access to the development will be from Balaclava Street at Level 1.

Level 7 and the Roof Top will be communal facilities with all levels in between this being residential apartments. Refer Appendix E for Architechtural Plans.

For the post development catchment properties refer to Table5-2 below.

Table 5-2 POST-DEVELOPMENT AREAS

Post-Development Areas – Total Site Area (2374m²)		
Impervious Area	2374m²	100%
Pervious Area	0	0%

5.2. DEVELOPED STORMWATER DISCHARGE

The proposed development has an impervious area of approximately 99.6% of the site and comprises roof and hardstand areas and makes up the entirety of the development site.

The roof area is to be collected by a series of gutters and down pipes that will ultimately be directed to the sites nominated lawful point of discharge being the existing Gully Pit (N16036012) located along the Logan Road frontage.

The un-roofed driveway/ground areas are to be captured by a series of Field Inlets fitted with SPEL StormSack (or approved equivalent) prior to discharging to the above mentioned lawful point of discharge.

All captured internal drainage is to be designed by the Hydraulic Consultant during the detailed design phase of the project.

To promote sustainability, it is recommended that rainwater re-use tanks be utilised to harvest collected water from the roof areas for re-use in landscaping however it shall be noted Brisbane City Council do not consider/approve the use of harvest tanks (rainwater tanks) for the use of on-site detention storage to manage and mitigate peak stormwater discharge from site as a result of development.

6.0 STORMWATER QUANTITY: RATIONAL METHOD

6.1. STORMWATER ANALYSIS

The 'Rational Method' was utilised to calculate the peak stormwater discharge for a series of storm events ranging from Q1 to Q100.

The following sections summarise the input values used within the 'Rational Method' and the corresponding peak discharge flows for both pre-development and post-development scenarios.

Supporting 'Rational Method' calculations can be found in Appendix G.

6.2. PRE-DEVELOPMENT

The Rational Method (in accordance with QUDM and Brisbane City Council City Plan) has been used to assess pre-development stormwater discharge.

The following parameters have been adopted:

Time of Concentration: 10 mins (based on QUDM Figure 4.4)

Run-off Co-efficient C10: 0.900 (based on QUDM Table 4.5.4)

Area (m^2): 2374

Impervious Area (m^2): 2364

Impervious Site Area (%): 99.6

Pervious Area (m^2): 10

Pervious Site Area (%): 0.4

Table 6-3 PRE-DEVELOPMENT DISCHARGE

ARI (yr)	C	I (mm/hr)	Pre-Development Discharge (m^3/s)
1	0.720	92	0.044
2	0.765	105	0.053
5	0.855	142	0.080
10	0.900	167	0.099
20	0.945	192	0.120
50	1.000	223	0.147
100	1.000	247	0.163

6.3. POST-DEVELOPMENT

The Rational Method (in accordance with QUDM and Brisbane City Council City Plan) has been used to assess pre-development stormwater discharge.

The following parameters have been adopted:

Time of Concentration: 5 mins (based on QUDM Figure 4.4)

Run-off Co-efficient C10: 0.900 (based on QUDM Table 4.5.4)

Area (m^2): 2374

Impervious Area (m^2): 2374

Impervious Site Area (%): 100

Pervious Area (m^2): 0

Pervious Site Area (%): 0

Table 6-4 POST-DEVELOPMENT DISCHARGE

ARI (yr)	C	I (mm/hr)	Post-Development Discharge (m^3/s)
1	0.720	112	0.053
2	0.765	127	0.064
5	0.855	174	0.098
10	0.900	205	0.122
20	0.945	236	0.147
50	1.000	276	0.182
100	1.000	307	0.202

6.4. PRE-DEVELOPMENT vs POST-DEVELOPMENT (UN-MITIGATED)

A comparison of pre-development and post-development discharge flow rates (un-mitigated) from the development site highlights the net change in post-development flows as noted below.

Table 6-5 PRE-DEVELOPMENT vs POST-DEVELOPMENT (UN-MITIGATED)

ARI Storm Event (yr)	Pre-Developed Conditions (m^3/s)	Post-Development Conditions (m^3/s)	Difference +/- (m^3/s)
1	0.044	0.053	+ 0.009
2	0.053	0.064	+ 0.011
5	0.080	0.098	+ 0.018
10	0.099	0.122	+ 0.023
20	0.120	0.147	+ 0.027
50	0.147	0.182	+ 0.035
100	0.163	0.202	+ 0.039

The above table indicates an increase in stormwater discharge from Pre to Post Development. During a 10yr ARI and a 100yr ARI there is an increase of 23L/s and 39L/s respectively.

As per Brisbane City Council City Plan 2014, SC6.16 Infrastructure Design Planning Scheme Policy / Chapter 7 Stormwater, Brisbane City Council provides advice on when to provide stormwater detention. Please find an Extract below in italics.

When to provide stormwater detention

1. *As a general rule, stormwater detention is less likely to be required at the bottom one-third of the catchment.*

2. *The majority of infill development should not require stormwater detention, although stormwater detention may be required under 3 specific conditions, being:*
   a. *when a development is likely to increase run-off to such an extent that the downstream drainage (both piped and overland) cannot cater for the additional capacity or adverse impacts are created;*
   b. *where there is no practical way to increase the downstream system capacity;*
   c. *if the increase in flows from the development would cause adverse flooding impacts to adjacent or downstream properties.*

3. *Stormwater detention requirements may be waived where:*
   a. *The development will not cause adverse impacts or actionable nuisance to surrounding properties;*
   b. *the site discharges directly into the Brisbane River or Moreton Bay where flooding is controlled by river flooding or storm tide;*
   c. *the site discharges directly into the lower catchments of creeks or major drains where it would generally be undesirable to have detention where it may allow peak flows from the site to coincide with the wider catchment flood peak;*
   d. *the proposal is for residential development where stormwater is disposed to Council's kerb and channel or piped stormwater system and major flows from the site would drain to Councils road reserve;*
   e. *for infill development only, the development site has an existing actual impervious fraction greater than 60%;*

f. the applicant can demonstrate to Council's satisfaction that, if the total catchment containing the site were developed to its full potential while maintaining the existing infrastructure, stormwater detention on the subject site would not be of benefit in reducing adverse flooding impacts on downstream roads, properties and open watercourses, which may be the case at the lower end of major catchments;

g. the downstream drainage system has been upgraded, or is proposed to be upgraded by the development to cater for fully developed peak flows from the catchment to the Council's standard of service;

h. the development site is located entirely within the 1% AEP floodplain (waterway/creek or river flooding sources).

In accordance with the above mentioned the proposed development site falls under item 3e, ie. the pre-development fraction impervious exceeds 60% of the site area.

Therefore no on-site detention is proposed.

7.0 STORMWATER QUALITY

7.1. SITE CLASSIFICATION

The implementation of a suitable stormwater management plan for the proposed development is determined from the following:

- Identify if compliance with the Department of Environment and Resource Management, State Planning Policy is required, or
- Identify if compliance with the local authorities Stormwater Quality is required, or
- Implement Best Management Practice Guidelines for low risk sites as per local authority development guidelines.

Either compliance objective will still be designed based on the following key principles:

- The use of Water Sensitive Urban Design (WSUD) principles are to be adopted throughout the site where possible,
- Water Quality controls are to be considered under two separate phases of the development, the construction phase and the operational phase,
- The construction phase requires the assessment of the site during the construction and maintenance period of the development.
- The operational phase requires assessment of the site over the total life of the site and its water quality control measures.

7.2. STATE PLANNING POLICY ASSESSMENT

To determine whether compliance with the Department of Environment and Resource Management (DERM) State Planning Policy 4/10 Healthy Waters is required, it is required to undertake the State Planning Policies Checklist. Below is an extract from section 2.7 in table format. If any of the trigger questions are answered Yes, then compliance is expected with the State Planning Policy. If all trigger questions are answered No, then stormwater quality best management practices will be adopted.

Table 7-6 STATE PLANNING POLICY CHECKLIST

Development Application Types			
Material Change in Use MCU	Yes / No?	Reconfiguration of Lots ROL	Yes / No?
A material change of use for an urban purpose that involves premises 2500m^2 or greater in size? **AND,** If yes:	NO	Reconfiguring a lot for an Urban purpose that involves premises 2500m2 or greater in size AND will result in six or more lots? OR	NO
Will result in six or more dwellings; OR	NO	Operational work for an urban purpose that involves disturbing a land area 2500m^2 or greater in size?	NO
Will result in an impervious area greater than 25% of the NET development area?	NO		

As demonstrated in the table above, none of the questions have answered 'Yes', therefore Naxos Engineers has identified that the development is deemed 'Low Risk' and will adopt a stormwater quality best practice approach as per Brisbane City Councils City Plan 2014.

7.3. POLLUTANT CONCERNS

The pollutants of concern are summarised below. These pollutants can have adverse environmental impacts within the downstream catchment. It is proposed to adopt Site-Based Water Sensitive Urban Design to provide capture and treatment to the below mentioned pollutants.

Table 7-7 TYPICAL POLLUTANTS

POLLUTANT	SOURCE
LITTER	PAPER, CONSTRUCTION PACKAGING, FOOD WASTE, CEMENT, OFF - CUTS
SEDIMENT	UNPROTECTED EXPOSED SOILS, STOCKPILES, EROSION
HYDROCARBONS	FUEL AND OIL SPILLS, LEAKS FROM MACHINERY
TOXIC MATERIALS	CEMENT SLURRY, ASHPALT PRIMER, SOLVENTS, CLEANING AGENTS
PH ALTERING SUBSTANCES	ACID SULPHATE SOILS, CEMENT SLURRY, WASH WATER
THERMAL POLLUTION	VEHICLES AND MACHINERY, INCREASED IMPERVIOUS AREAS

7.4. CONSTRUCTION PHASE

During the construction phase, the potential exists for significant increases in the amount of pollutants, particularly sediment, escaping from the site. During this period, an Erosion and Sediment Control Plan is required to be prepared as part of the overall Environmental Management Plan prepared for the construction phase.

An Erosion and Sediment Control Plan will be prepared during the detailed design phase of the development. This plan will be prepared in accordance with Local Authority Guidelines and with recognised industry standards. This plan may also be submitted to Brisbane City Council for Operational Works Approval.

7.5. OPERATIONAL PHASE

Table 7-6 State Planning Policy Checklist has identified the development as a 'low risk' site.

As this development has been identified as 'low risk', selection of appropriate Stormwater Quality Best Management Practices (SQBMP) is essential to improve stormwater quality through the prevention, minimisation and/or trapping of pollutants.

7.6. WATER QUALITY OBJECTIVES

Specific water quality objectives need not be identified for this Development as this Development has been identified as 'low risk' for water quality. Understanding the expected pollutants for this type of Development will assist in selection of which types of practices will be appropriately implemented for the pollutants of concern.

8.0 STORMWATER QUALITY BEST MANAGEMENT PRACTICES

8.1. SELECTION OF SQBMP's

There exist a number of publications describing the different types, functions, applications, and performance of many SQBMP's. Water Sensitive Urban Design should be used to look at the integration of SQBMP's within any Stormwater Quality Management Plan. Some of the more typical SQBMP's are listed in the below table for consideration.

Table 8-8 TYPICAL SQBMP'S

STORMWATER QUALITY BEST MANAGEMENT PRACTICES	
Treatment Device / Practice	Benefits
Site Maintenance	Reduce the amount of gross pollutants and sediment runoff generated by the development by maintaining vegetated areas and the removal of debris and litter.
Rubbish Bins	Reduce the amount of gross pollutants generated by the development by collecting and dumping litter and/or waste.
Filter Baskets (within inlet pits)	Reduction in gross pollutants and total suspended solids generated by the development by filtering water prior to entering the stormwater system which traps litter, debris and fine sediment.
Gross Pollutant Traps (GPT's)	Removal of gross pollutants generated by the development site. Some GPT's that are available on the market today can also remove hydrocarbons from runoff, thus reducing any oil and fuel pollutants generated by the development.
Rainwater Re-Use	Re-using generated site runoff for landscaping and irrigation purposes etc. will reduce pollutant loads generated by the development site.
Grass Swales	Directing site runoff to grass swales prior to discharging will have a reduction to the total pollutants generated by the development.
Sand Filters (Bio-Retention)	Directing site runoff to a bio-retention basin prior to discharging will have a reduction to the total pollutants generated by the development.

8.2. ADOPTED SQBMP's

When choosing to adopt selected SQBMP's, it is important to identify the expected pollutants that the proposed development will generate during its operational phase. A summary of the expected typical pollutants can be found within Table 6-4 of this Report.

Based on the expected pollutants and this development's expected residential activities, the following is a summary of the SQBMP's that are recommended to be adopted as a minimum.

- Site Maintenance
- Rubbish Bins
- Filter Baskets

Site Maintenance

As this Development is a Mixed Use Development, it is assumed that regular landscaping and general maintenance will occur including the removal of any rubbish or debris within the development by the Body Corporate thereby removing the gross pollutants on site.

Rubbish Bins

The Development is required to have rubbish bins for general waste to remove gross pollutants generated by the Development.

Filter Baskets

As part of the sites internal stormwater infrastructure, all inlet pits placed in hardstand and/or driveway areas are to be installed with Council-approved Filter Baskets to prevent debris and fine sediment entering the stormwater system. Filter Baskets are effective at removing gross pollutants and total suspended solids from stormwater runoff and are capable of operating under a high flow scenario (relative catchment).

Refer to Appendix H for Filter Basket Maintenance Documentation.

Figure 8-11 EXAMPLE FILTER BASKET 1

Figure 8-12 EXAMPLE FILTER BASKET 2

9.0 MONITORING AND MAINTENANCE

9.1. MAINTENANCE REQUIREMENTS

Routine maintenance of the proposed infrastructure is required to minimise the potential for untreated stormwater discharging from the site.

The stormwater treatment device(s) shall be maintained using the following documentation;

- Manufacturers specifications for proprietary stormwater management devices,
- Maintenance checklists and rectification works attached to this report.

9.2. MAINTENANCE FREQUENCY

More detailed performance information with regard to maintenance frequency and scheduled maintenance tasks for the site can be obtained by actively developing a maintenance log (refer below); however, it does not supersede maintenance requirements outlined in the manufacturers' specifications for proprietary elements of the SBSMP.

9.3. MAINTENANCE RECORD

A record of all maintenance checks for all stormwater controls on-site should be kept to evolve an appropriate maintenance routine to reflect the particular characteristics of the adopted treatment devices. It will also allow management of the site to refine the maintenance frequencies listed in this report, which were based on generic devices located in typical urban environments.

The record is to be used to create a chain of responsibility for maintenance and should include details of the following:

- The date of maintenance,
- The name of the persons performing the maintenance,
- What types of maintenance actions were performed for each water quality device,

The environmental state of the device including an estimate of the type and weight of litter removed and the amount of sediment captured where appropriate.

10.0 EROSION AND SEDIMENT MANAGEMENT

10.1. OBJECTIVES

The objective of Erosion and Sediment Management is to limit soil erosion and control sediment discharge from the proposed development by using suitable control devices during the four (4) primary phases; Existing, Earthworks, Construction and the Proposed Use.

Typical erosion and sediment control measures that will be incorporated into these development phases are highlighted in the following section.

10.2. EROSION & SEDIMENT MANAGEMENT DURING DEVELOPMENT PHASES

PHASE 1 - EXISTING

Prior to construction commencing, the following sediment and erosion control measures will be implemented to minimise disturbance and ensure water quality is maintained:

- Designation of transport routes to ensure minimal vegetation disturbance. Transport routes will have construction exits in accordance with IECA Aust Guidelines,
- Construction entry/exit to be installed and will comprise of a designed gravel pad or placement of hardwood logs in accordance with the IECA Aust Guidelines,
- Install sediment fences around the proposed site (along tow of batter alignment),
- Install check dams if required, and
- Install dust control fences adjacent to the proposed earthworks areas (along property boundary) if required.

PHASE 2 - EARTHWORKS AND PHASE 3 - CONSTRUCTION

The following measures will be undertaken to mitigate water quality impacts during construction phase:

- Sediment fences to be erected at the base of all batters and stockpiles to prevent sediment transportation off site,
- Turf filter strips to be placed along all road verges,
- Diversion swales to divert sediment laden water,
- Rock check dams are to be placed intermittently along diversion swales,
- Re-vegetation of all disturbed areas as soon as possible,

- All sediment control structures to be maintained in an effective manner and inspected after each stormwater event. No structure is to accumulate sediment above 40% of its capacity,
- Regular monitoring of water quality to determine the effectiveness of the sediment and erosion control measures.

PHASE 4 - PROPOSED DEVELOPMENT

Once construction is completed, the following strategies will be implemented to limit soil erosion and control sediment discharge leaving the site:

A monitoring program will be established for the stormwater treatment devices.

10.3. EROSION CONTROL MEASURES

The time of disturbance on-site should be kept to a minimum by ensuring that construction works immediately follow the earthworks phase. Consideration to staging works should be given to minimise the area of exposed works at any given time.

Areas that may be subject to concentrated flow and that have been cleared may require turfing to ensure gully erosion does not start.

Any overburden that is not to be taken off-site should be stockpiled nearby and covered to prevent the mobilization of any particles into the drainage system.

The remaining exposed areas of the site are to be damped down as deemed necessary by the site supervisor to prevent dust. All batters are to have mulch or erosion control mats installed immediately after achieving final level.

Dust fencing is to be installed around the perimeter of earthworks to prevent wind velocities at ground level over the site if required.

The site is to be landscaped and revegetated in accordance with the approved Landscape Plans immediately after completion of construction activities to minimise the risk of erosion from exposed earthworks.

10.4. SEDIMENT CONTROL MEASURES

With reference to the IECA Aust Guidelines and Current Best Practice methods, there are four fundamental sediment control principles that have been identified for use during construction for this development site and are as follows:

Construction Exit

A dedicated construction exit is to be located at the sites entry and exit point for vehicles. This exit will be established to facilitate the removal of soil, mud, dust and debris from the tyres of vehicles prior to leaving the construction site. The construction exit can comprise of a gravel pad designed or placement of hardwood logs, constructed and maintained in accordance with the IECA Aust Guideline. Alternatively, a vibratory grid system can be hired or constructed. The advantages of the grid system include ease of movement and they can be used for several years.

Sediment Fences

Sediment fencing is to be established down slope of any exposed earthworks where there is a risk of contaminated water leaving the site prior to clearing and site works commencing. Sediment fencing may be required at regular spacing down the disturbed grade to limit rutting caused by concentration of sheet flow. Sediment fences shall be used to protect any temporary stockpile areas on an as-needs basis. Sediment collected from sediment barriers is to be regularly removed and either taken off site as part of the earthworks phase of the proposed development or stockpiled for use during revegetation.

Sediment Barriers

Sediment barriers are to be constructed around all stormwater drainage inlet points where contaminated water may drain to. This will aid in ensuing sediments are settled out prior to flows entering the underground stormwater drainage system. Sediment barriers are to be gravel wrapped in geotextile ‘sausage’ or similar.

Turf Filter Strips

If required, turf filter strips approximately 600mm minimum wide can be placed on the upstream side of the proposed concreted footpath. These will act in conjunction with sediment fences to further treat any overland flow from the site. Turf filter strips are to be constructed and maintained in accordance with the IECA Aust Guidelines.

11.0 CONCLUSION

11.1. LAWFUL POINT OF DISCHARGE

The lawful point of discharge has been identified as the existing Gully Pit (N16036012) located North-East of the development site along the Logan Road Frontage.

11.2. STORMWATER QUANTITY

Due to the location of the Development Site, the Development will not cause adverse impacts or actionable nuisances to the surrounding properties.

As per Brisbane City Council City Plan 2014, SC6.16 Infrastructure Design Planning Scheme Policy / Chapter 7 Stormwater, Brisbane City Council provides advice on when to provide stormwater detention. Please find an Extract below in italics.

3e for infill development only, the development site has an existing actual impervious fraction greater than 60%;

In accordance with the above mentioned Extract the proposed development site falls under item 3e, ie. the pre-development fraction impervious exceeds 60% of the site area.

Therefore no on-site detention is proposed.

11.3. STORMWATER QUALITY

Stormwater quality improvement devices have been appropriately selected as to generally comply with Stormwater Quality Best Management Practices and incorporation of Water Sensitive Urban Design where possible.

The following is a summary of the minimum treatment devices and/or management practices required for the proposed development.

- Site Maintenance

As this development is a residential development, it is assumed that regular landscaping and general maintenance will occur including the removal of any rubbish or debris within the development by the Onsite Management thereby removing the gross pollutants on site.

- Rubbish Bins

The development is required to have rubbish bins for general waste as to remove gross pollutants generated by the development.

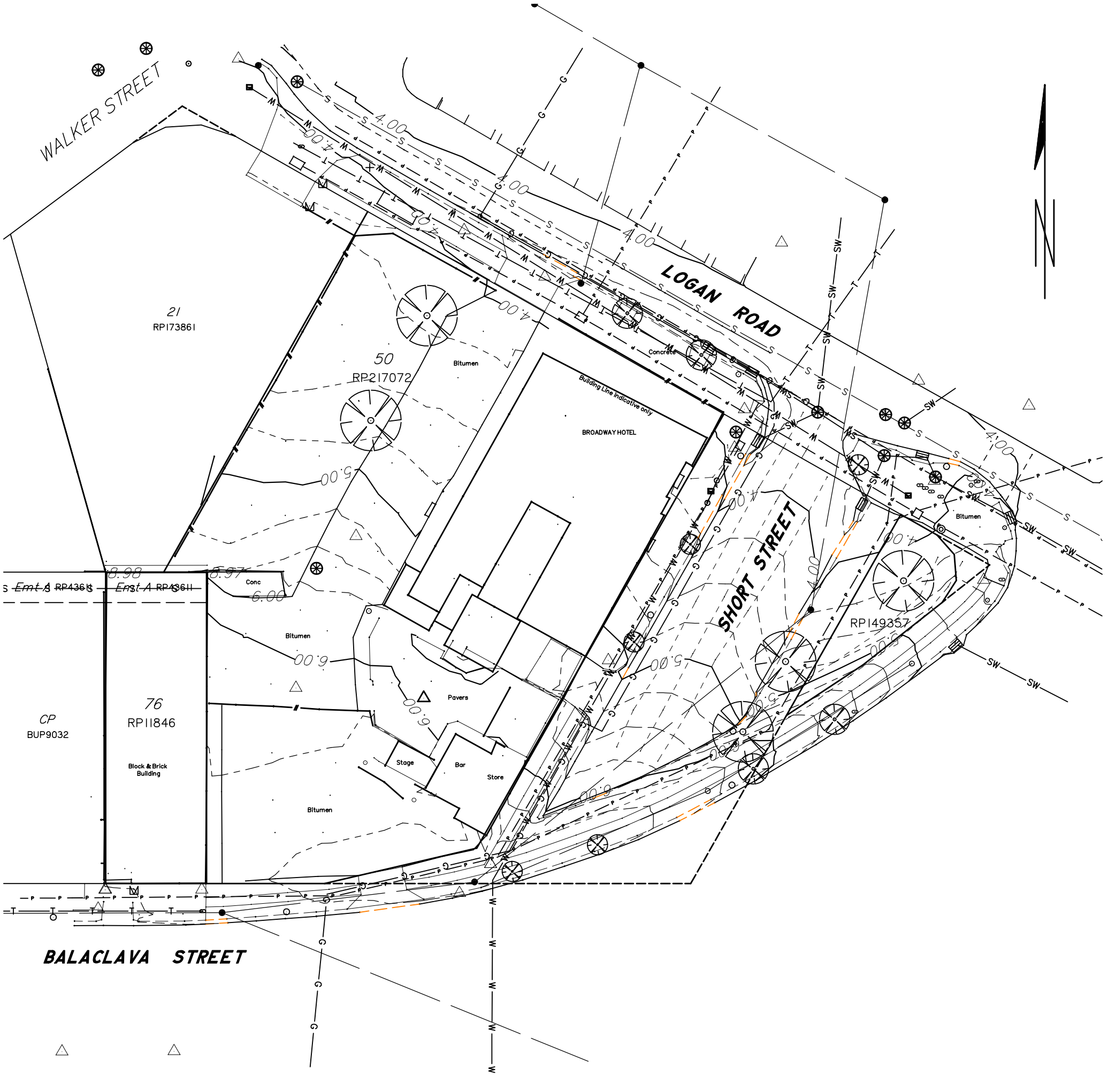
- Filter Baskets

Driveway inlets to be fitted with Filter Baskets to prevent debris and fine sediment entering the stormwater system. Filter Baskets are effective at removing gross pollutants and total suspended solids from stormwater runoff.

11.4. EROSION AND SEDIMENT CONTROL

An Erosion and Sediment Control (ESC) plan will be completed as part of the detailed design phase of this Development and shall incorporate the recommendations included within this Report. This Report and plan shall remain on site at all times, and it is the responsibility of the Contractor on-site to ensure the assembly and maintenance of all devices throughout the Development.

Appendix A – DETAILED SURVEY



TREE DESCRIPTIONS

Tree types noted are the interpretation of WM Surveys staff. Tree species should be confirmed by a qualified Arborist/Botanist.

MAXIUM BUILDING HEIGHT

As per Brisbane City Council City Plan 2014 the contours shown on this plan cannot be used to determine maxium building height. For further information contact WM SURVEYS

SERVICES BY RECORDS

WM SURVEYS take no responsibility for the location of non visible services. They are plotted from existing records. A Service Locator should be engaged to determine the exact location of underground services if required.

ALL SERVICES ARE BY RECORDS ONLY.

R – Roofline Level
G – Guttering Level

Scale 1: 400 – Lengths are in Metres.

5 0 5 10 15 20 25 30 35 40

— P — P — POWER
—T—T— U/G TELSTRA
—G—G— U/G GAS
—S—S— U/G SEWERAGE
—W—W— U/G WATERMAIN
—SW—SW— U/G STORMWATER

NOTE:
This plan has been prepared from a combination of field survey and existing records for the purpose of designing new constructions on the property, and should not be used for any other purpose. The property boundaries have not been marked at the time of survey and have been determined from a combination of field and plan measurements. Further survey work may need ot be undertaken to determine the exact boundary position.
All visible services and features have been located by field measurements. If unable to have been located, services have been plotted by records and noted accordingly.
Prior to any construction or to determine exact location, the relevant Authority should be contacted for detailed locations.
This note forms an integral part of this plan.

CONTOUR & DETAIL SURVEY

Description LAND at 93 & 97 LOGAN ROAD
WOOLLOONGABBA
LOT 50 on RP217072,
LOT 1 on RP149357
and LOT 76 on RP11846
Brisbane City Council

Datum

Datum for Levels ..... AHD
Levelled from PSM No.44566.....RL4.071m AHD

Scale in Metres 1: 400 at A3

WM SURVEYS PTY LTD

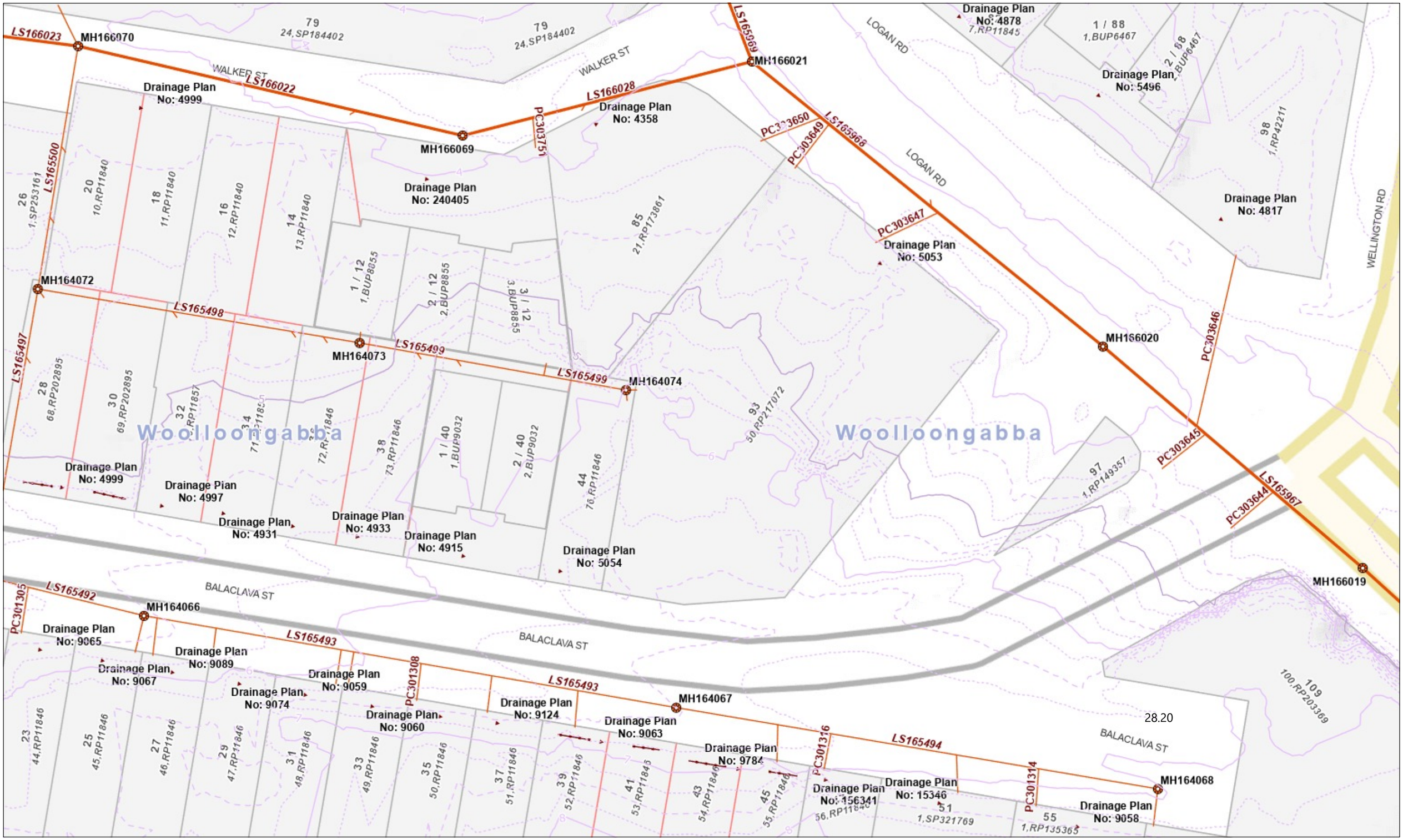
P.O.Box 7220
Brendale QLD. 4500
warwick@wmsurveys.com.au
Ph 0419 685 538 Fax 07 3882 5168
ACN 133 397 065 ABN 91 133 397 065

ISSUE:	DESCRIPTION	DATE	SIGNED
A	ORIGINAL ISSUE	30/8/21	wm

FILE REF. 2643DT–A.DWG ISSUE: A

Date 30/08/2021 Ref. 2643DT

Appendix B – COUNCIL eBiMAP2



Print Date:
16/06/2023 - 1:40 PM

Projection:
Web Mercator Auxiliary Sphere

Notes:

N

Dedicated to a better Brisbane

Sewer

25.0 0 12.0 18.8 25.0

Metres

Scale: 1:500

Legend

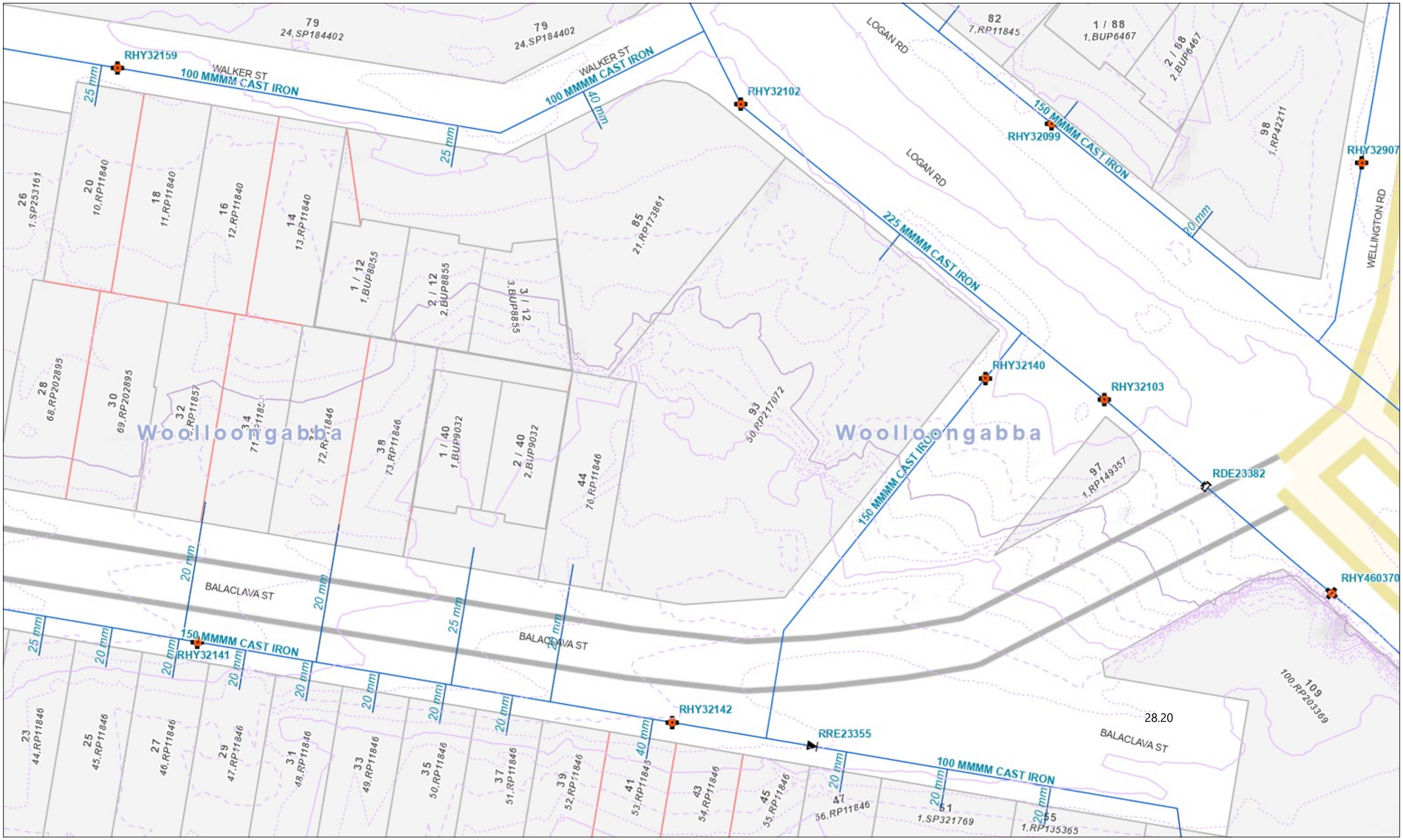
1m Contour (2019)
50cm Contour (2019)
Sewer Fitting - Main Fittings
Sewer Fitting - All Other Fittings
END CAP
GIBAULT JOINT
Sewer Structure - by Type
PIER
<all other values>
Sewer Control Valve - by Type
AIR - OFFLINE
SEWER DOOR
BUTTERFLY - OFFLINE
Sewer Network Structure - All Fe
WET WELL - OFFLINE
Sewer Network Structure Bounda
Service
TRUNK MAIN
DISCHARGE - OFFLINE
<all other values>
VACUUM MAIN
Sewer Drainage Plan
Parcel

50m Contour
25cm Contour (2019)
END FLUSHING POINT
JOINT
BEND
CROSS
CONCRETE STOP
Sewer Support Structure Bounda
Sewer Manhole -All Other Types
AIR
SCOUR - OFFLINE
GATE
<all other values>
STORAGE FACILITY
ODOUR CONTROL - OFFLINE
Sewer Vertical Gravity Main
<all other values>
RETICULATION MAIN
TRUNK MAIN - OFFLINE
Sewer Pressure Main - by Type
MODEL LINK - OFFLINE
Sewer Drainage Plan Joiner
Parcel - Outside Brisbane

10m Contour
Sewer Chamber
INLINE FLUSHING POINT
RODDING JOINT
WYE
INLET
PIPE BRIDGE
Sewer Manholes
End
SCOUR
VACCUM - OFFLINE
BUTTERFLY
Sewer Network Structure -Treatn
ODOUR CONTROL
Sewer Pump Station
Sewer Vertical Pressure Main
Sewer Gravity Main - by Type
OVERFLOW MAIN
RETICULATION MAIN - OFFLINE
MODEL LINK
LOW PRESSURE MAIN - OFFLINE
Sewer Drainage Plan Extension

5m Contour
CHAMBER
OUTLET
PROPERTY CONNECTION BOUNDA
TEE
OUTLET
ANCHOR BLOCK
MANHOLE
Flume Pit
VACCUM, AS CONSTRUCTED
REFLUX - OFFLINE
SEWER DOOR - OFFLINE
TREATMENT PLANT, AS CONSTRU(
WET WELL
PUMP STATION
Sewer Service
SYPHON
MODEL LINK
OVERFLOW MAIN - OFFLINE
LOW PRESSURE MAIN
RISING MAIN - OFFLINE
Property Holding

1m Contour
CHAMBER - OFFLINE
VACUUM LIFT
JUNCTION
REDUCER
<all other values>
HEAD WALL
MANHOLE - OFFLINE
Sewer Manhole Stub
REFLUX
Sewer System Valve - by Type
GATE - OFFLINE
TREATMENT PLANT - OFFLINE
STORAGE FACILITY - OFFLINE
PUMP STATION - OFFLINE
Model Link
DISCHARGE
SYPHON - OFFLINE
MODEL LINK - OFFLINE
RISING MAIN
VACUUM MAIN - OFFLINE
Sealed Plan



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16/06/2023 - 1:41 PM

Projection:
Web Mercator Auxiliary Sphere

Notes:

N

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Water

25.0 0 12.0 18.8 25.0

Metres

Scale: 1:500

Legend

1m Contour (2019)

50cm Contour (2019)

LEVEL SENSOR

Water Fitting

JOINT

WYE

CHEMICAL INJECTION POINT

PIPE BRIDGE

Water Chamber

Water Service Valve

SEQWATER

QUU - OFFLINE

QUU

PRIVATE - OFFLINE

BORE PUMP

Water Vertical Pressure Main

Trunk Main

COMMON SERVICE

50m Contour

25cm Contour (2019)

FLOW METER - OFFLINE

BEND

GIBAULT JOINT

TEE

SAMPLING STATION

CONCRETE STOP

Water Hydrant

Service Valve, CLOSED

PRIVATE

SEQ - OFFLINE

SEQWATER

<all other values>

LIFT PUMP

Water Pressure Main - by Type

Scour Main

Property Holding

10m Contour

Water Device - All Other Assets

PRESSURE GAUGE - OFFLINE

PIGGING POINT

TAPPING BAND

RESERVOIR INLET

<all other values>

HEADWALL

PILLAR HYDRANT

Service Valve, OPEN

QUU - NON POT

PRIV - OFFLINE

PRIVATE

Water Sampling Point

BOOSTER PUMP - OFFLINE

Water - Model Link

Water Service

Sealed Plan

5m Contour

FLOW METER

LEVEL SENSOR - OFFLINE

END CAP

TAPPING

RESERVOIR OUTLET

Water Structures

PIER

INGROUND HYDRANT

Water Network Structure - Reser

SEQ - NON POT

Water Network Structure Bounda

QUU - OFFLINE

Water Pumps

BORE PUMP - OFFLINE

Raw Water Main

SERVICE

Parcel

1m Contour

PRESSURE GAUGE

<all other values>

CROSS

REDUCER

SCOUR OUTLET

ANCHOR BLOCK

<all other values>

<all other values>

QUU

PRIVATE - NON POT

Water Pump Stations

SEQWATER - OFFLINE

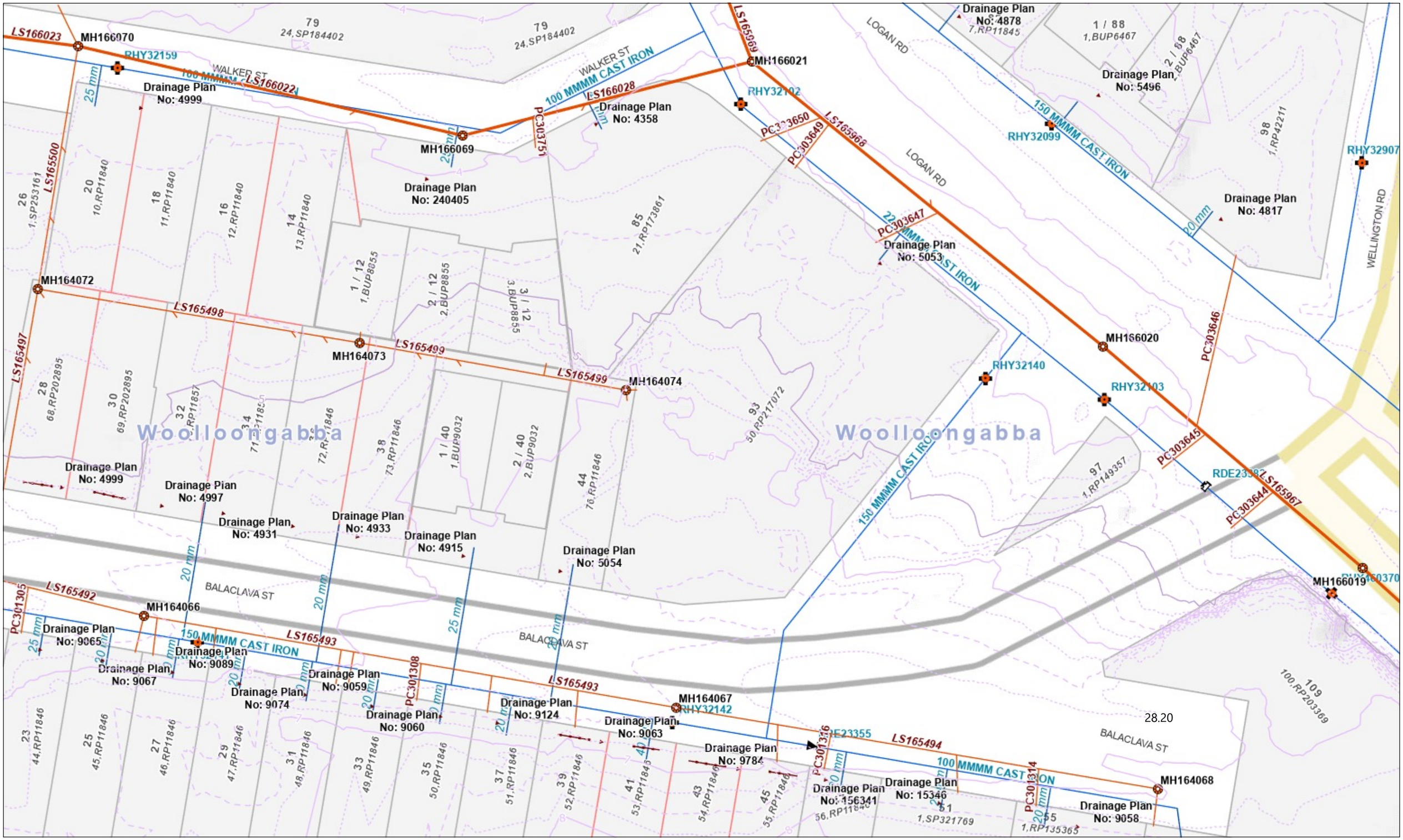
BOOSTER PUMP

LIFT PUMP - OFFLINE

Reticulation Main

MODEL LINK

Parcel - Outside Brisbane



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Projection:
Web Mercator Auxiliary Sphere

Notes:

N

BRISBANE CITY

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Sewer-Water

25.0 0 12.0 18.8 25.0

Metres

Scale: 1:500

Legend

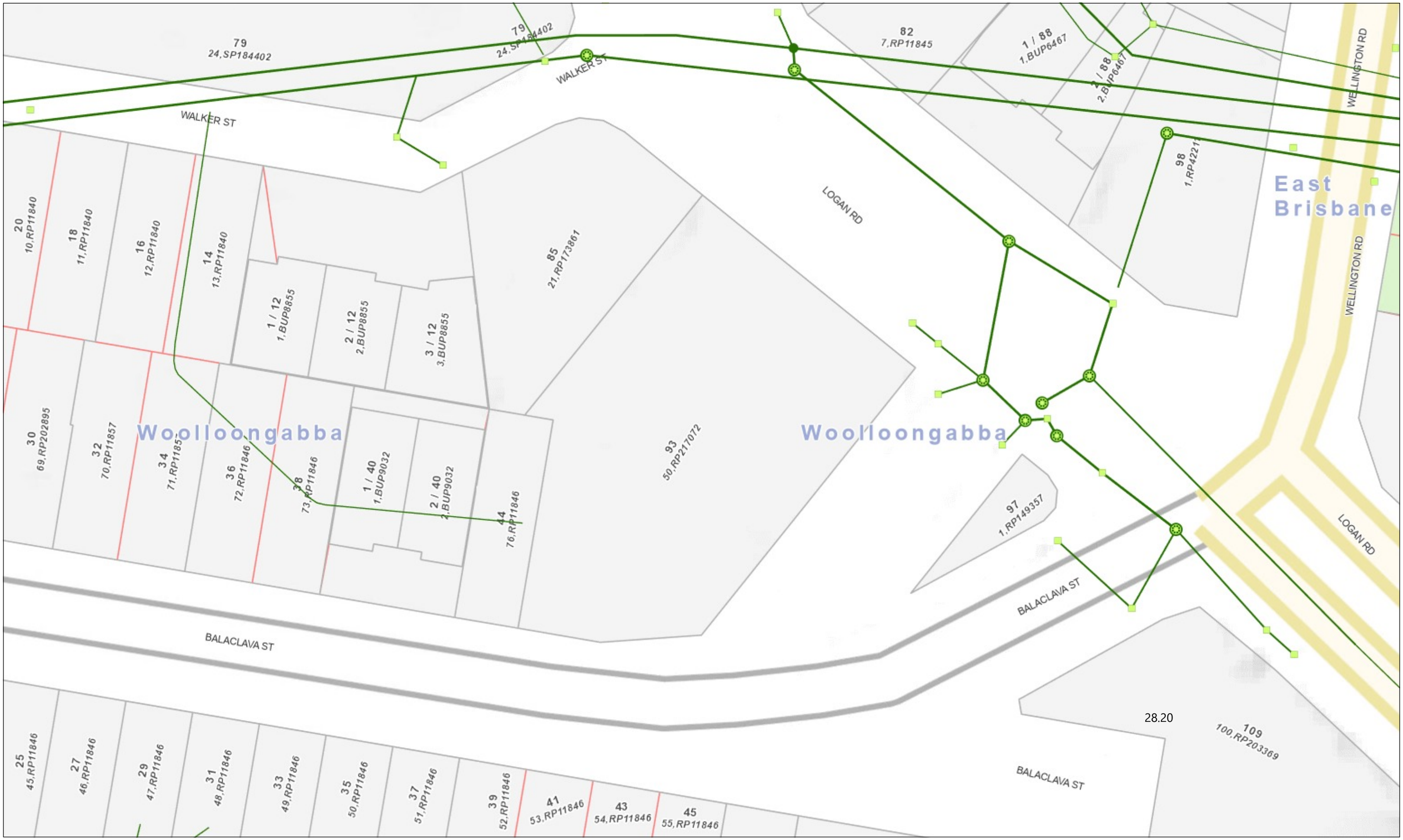
1m Contour (2019)
50cm Contour (2019)
Sewer Fitting - Main Fittings
Sewer Fitting - All Other Fittings
END CAP
GIBAULT JOINT
Sewer Structure - by Type
PIER
<all other values>
Sewer Control Valve - by Type
AIR - OFFLINE
SEWER DOOR
BUTTERFLY - OFFLINE
Sewer Network Structure - All Fe
WET WELL - OFFLINE
Sewer Network Structure Bounda
Service
TRUNK MAIN
DISCHARGE - OFFLINE
<all other values>
VACUUM MAIN
Sewer Drainage Plan
PRESSURE GAUGE
<all other values>
CROSS
REDUCER
SCOUR OUTLET
ANCHOR BLOCK
<all other values>
<all other values>
QUU
PRIVATE - NON POT
Water Pump Stations
SEQWATER - OFFLINE
BOOSTER PUMP
LIFT PUMP - OFFLINE
Reticulation Main
MODEL LINK
Parcel - Outside Brisbane

50m Contour
25cm Contour (2019)
END FLUSHING POINT
JOINT
BEND
CROSS
CONCRETE STOP
Sewer Support Structure Bounda
Sewer Manhole -All Other Types
AIR
SCOUR - OFFLINE
GATE
<all other values>
STORAGE FACILITY
ODOUR CONTROL - OFFLINE
Sewer Vertical Gravity Main
<all other values>
RETICULATION MAIN
TRUNK MAIN - OFFLINE
Sewer Pressure Main - by Type
MODEL LINK - OFFLINE
Sewer Drainage Plan Joiner
LEVEL SENSOR
Water Fitting
JOINT
WYE
CHEMICAL INJECTION POINT
PIPE BRIDGE
Water Chamber
Water Service Valve
SEQWATER
QUU - OFFLINE
QUU
PRIVATE - OFFLINE
BORE PUMP
Water Vertical Pressure Main
Trunk Main
COMMON SERVICE

10m Contour
Sewer Chamber
INLINE FLUSHING POINT
RODDING JOINT
WYE
INLET
PIPE BRIDGE
Sewer Manholes
End
SCOUR
VACCUM - OFFLINE
BUTTERFLY
Sewer Network Structure -Treatn
ODOUR CONTROL
Sewer Pump Station
Sewer Vertical Pressure Main
Sewer Gravity Main - by Type
OVERFLOW MAIN
RETICULATION MAIN - OFFLINE
MODEL LINK
LOW PRESSURE MAIN - OFFLINE
Sewer Drainage Plan Extension
FLOW METER - OFFLINE
BEND
GIBAULT JOINT
TEE
SAMPLING STATION
CONCRETE STOP
Water Hydrant
Service Valve, CLOSED
PRIVATE
SEQ - OFFLINE
SEQWATER
<all other values>
LIFT PUMP
Water Pressure Main - by Type
Scour Main
Property Holding

5m Contour
CHAMBER
OUTLET
PROPERTY CONNECTION BOUNDA
TEE
OUTLET
ANCHOR BLOCK
MANHOLE
Flume Pit
VACCUM, AS CONSTRUCTED
REFLUX - OFFLINE
SEWER DOOR - OFFLINE
TREATMENT PLANT, AS CONSTRUC
WET WELL
PUMP STATION
Sewer Service
SYPHON
MODEL LINK
OVERFLOW MAIN - OFFLINE
LOW PRESSURE MAIN
RISING MAIN - OFFLINE
Water Device - All Other Assets
PRESSURE GAUGE - OFFLINE
PIGGING POINT
TAPPING BAND
RESERVOIR INLET
<all other values>
HEADWALL
PILLAR HYDRANT
Service Valve, OPEN
QUU - NON POT
PRIV - OFFLINE
PRIVATE
Water Sampling Point
BOOSTER PUMP - OFFLINE
Water - Model Link
Water Service
Sealed Plan

1m Contour
CHAMBER - OFFLINE
VACUUM LIFT
JUNCTION
REDUCER
<all other values>
HEAD WALL
MANHOLE - OFFLINE
Sewer Manhole Stub
REFLUX
Sewer System Valve - by Type
GATE - OFFLINE
TREATMENT PLANT - OFFLINE
STORAGE FACILITY - OFFLINE
PUMP STATION - OFFLINE
Model Link
DISCHARGE
SYPHON - OFFLINE
MODEL LINK - OFFLINE
RISING MAIN
VACUUM MAIN - OFFLINE
FLOW METER
LEVEL SENSOR - OFFLINE
END CAP
TAPPING
RESERVOIR OUTLET
Water Structures
PIER
INGROUND HYDRANT
Water Network Structure - Reser
SEQ - NON POT
Water Network Structure Bounda
QUU - OFFLINE
Water Pumps
BORE PUMP - OFFLINE
Raw Water Main
SERVICE
Parcel



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Print Date:
19/06/2023 - 9:59 AM

Projection:
Web Mercator Auxiliary Sphere

Notes:

BRISBANE CITY

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Stormwater

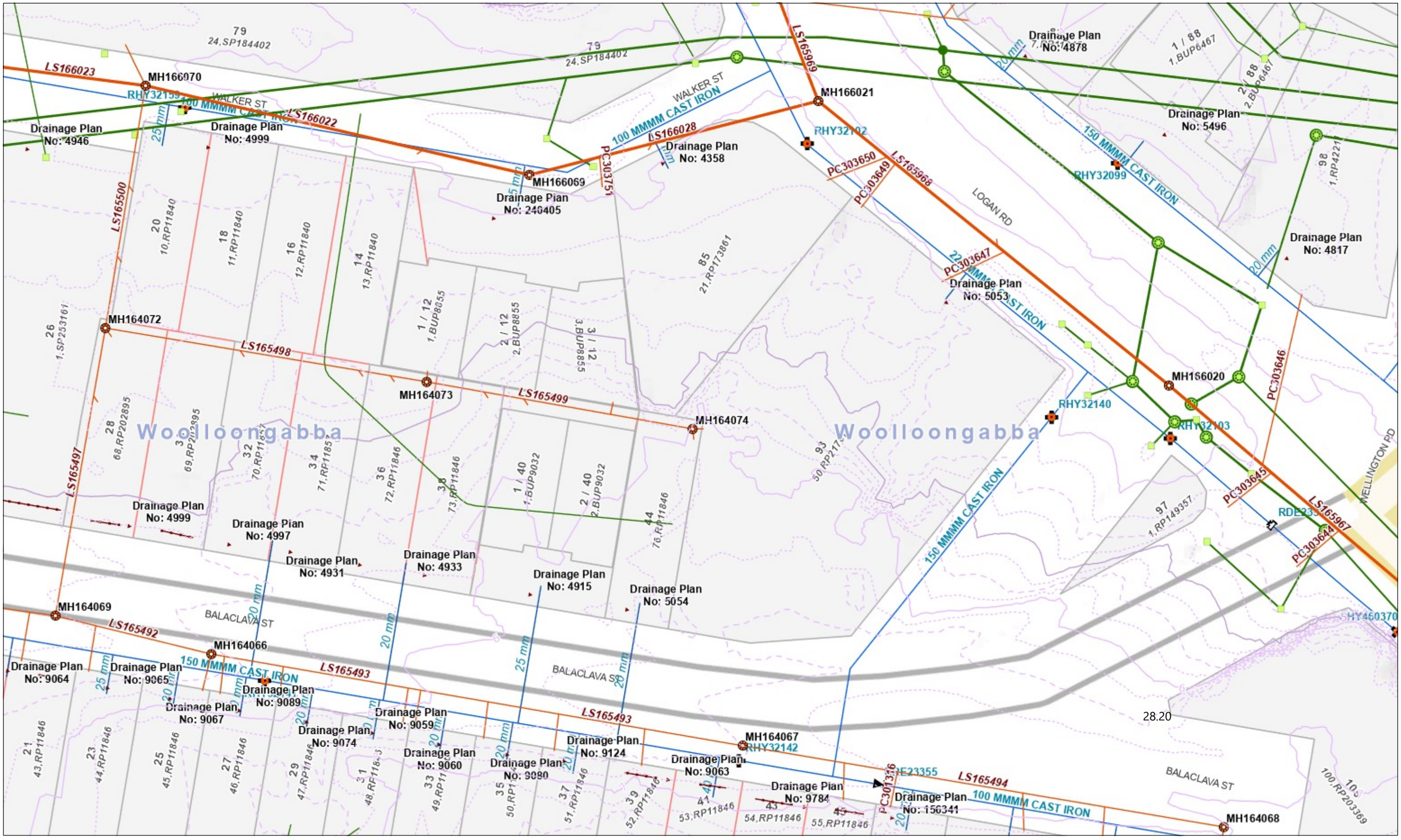
25.0 0 12.0 18.8 25.0

Metres

Scale: 1:500

Legend

- Culvert
- End Structure
- End cap
- Flood Gate
- Pipe End Outlet
- Gully
- Junction
- Manhole
- Drain
- Gully Connect
- Foul Water and Roof Water
- SQID
- Surface Drain
- Waterbody
- Artesian Well
- Detention Basin
- Lake
- Property Holding
- Sealed Plan
- Parcel
- Parcel - Outside Brisbane



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16/06/2023 - 1:36 PM

Projection:
Web Mercator Auxiliary Sphere

Notes:

N

Dedicated to a better Brisbane

Sewer-Water-Stormwater

25.0 0 12.0 18.8 25.0

Metres

Scale: 1:500

Legend

1m Contour (2019)
50cm Contour (2019)
Sewer Fitting - Main Fittings
Sewer Fitting - All Other Fittings
END CAP
GIBAULT JOINT
Sewer Structure - by Type
PIER
<all other values>
Sewer Control Valve - by Type
AIR - OFFLINE
SEWER DOOR
BUTTERFLY - OFFLINE
Sewer Network Structure - All Fe
WET WELL - OFFLINE
Sewer Network Structure Bounda
Service
TRUNK MAIN
DISCHARGE - OFFLINE
<all other values>
VACUUM MAIN
Sewer Drainage Plan
End cap
Manhole
Surface Drain
Water Device - All Other Assets
PRESSURE GAUGE - OFFLINE
PIGGING POINT
TAPPING BAND
RESERVOIR INLET
<all other values>
HEADWALL
PILLAR HYDRANT
Service Valve, OPEN
QUU - NON POT
PRIV - OFFLINE
PRIVATE
Water Sampling Point
BOOSTER PUMP - OFFLINE
Water - Model Link
Water Service
Sealed Plan

50m Contour
25cm Contour (2019)
END FLUSHING POINT
JOINT
BEND
CROSS
CONCRETE STOP
Sewer Support Structure Bounda
Sewer Manhole -All Other Types
AIR
SCOUR - OFFLINE
GATE
<all other values>
STORAGE FACILITY
ODOUR CONTROL - OFFLINE
Sewer Vertical Gravity Main
<all other values>
RETICULATION MAIN
TRUNK MAIN - OFFLINE
Sewer Pressure Main - by Type
MODEL LINK - OFFLINE
Sewer Drainage Plan Joiner
Flood Gate
Drain
Waterbody
FLOW METER
LEVEL SENSOR - OFFLINE
END CAP
TAPPING
RESERVOIR OUTLET
Water Structures
PIER
INGROUND HYDRANT
Water Network Structure - Reser
SEQ - NON POT
Water Network Structure Bounda
QUU - OFFLINE
Water Pumps
BORE PUMP - OFFLINE
Raw Water Main
SERVICE
Parcel

10m Contour
Sewer Chamber
INLINE FLUSHING POINT
RODDING JOINT
WYE
INLET
PIPE BRIDGE
Sewer Manholes
End
SCOUR
VACCUM - OFFLINE
BUTTERFLY
Sewer Network Structure -Treatn
ODOUR CONTROL
Sewer Pump Station
Sewer Vertical Pressure Main
Sewer Gravity Main - by Type
OVERFLOW MAIN
RETICULATION MAIN - OFFLINE
MODEL LINK
LOW PRESSURE MAIN - OFFLINE
Sewer Drainage Plan Extension
Pipe End Outlet
Gully Connect
Artesian Well
PRESSURE GAUGE
<all other values>
CROSS
REDUCER
SCOUR OUTLET
ANCHOR BLOCK
<all other values>
<all other values>
QUU
PRIVATE - NON POT
Water Pump Stations
SEQWATER - OFFLINE
BOOSTER PUMP
LIFT PUMP - OFFLINE
Reticulation Main
MODEL LINK
Parcel - Outside Brisbane

5m Contour
CHAMBER
OUTLET
PROPERTY CONNECTION BOUNDA
TEE
OUTLET
ANCHOR BLOCK
MANHOLE
Flume Pit
VACCUM, AS CONSTRUCTED
REFLUX - OFFLINE
SEWER DOOR - OFFLINE
TREATMENT PLANT, AS CONSTRUC
WET WELL
PUMP STATION
Sewer Service
SYPHON
MODEL LINK
OVERFLOW MAIN - OFFLINE
LOW PRESSURE MAIN
RISING MAIN - OFFLINE
Culvert
Gully
Foul Water and Roof Water
Detention Basin
LEVEL SENSOR
Water Fitting
JOINT
WYE
CHEMICAL INJECTION POINT
PIPE BRIDGE
Water Chamber
Water Service Valve
SEQWATER
QUU - OFFLINE
QUU
PRIVATE - OFFLINE
BORE PUMP
Water Vertical Pressure Main
Trunk Main
COMMON SERVICE

1m Contour
CHAMBER - OFFLINE
VACUUM LIFT
JUNCTION
REDUCER
<all other values>
HEAD WALL
MANHOLE - OFFLINE
Sewer Manhole Stub
REFLUX
Sewer System Valve - by Type
GATE - OFFLINE
TREATMENT PLANT - OFFLINE
STORAGE FACILITY - OFFLINE
PUMP STATION - OFFLINE
Model Link
DISCHARGE
SYPHON - OFFLINE
MODEL LINK - OFFLINE
RISING MAIN
VACUUM MAIN - OFFLINE
End Structure
Junction
SQID
Lake
FLOW METER - OFFLINE
BEND
GIBAULT JOINT
TEE
SAMPLING STATION
CONCRETE STOP
Water Hydrant
Service Valve, CLOSED
PRIVATE
SEQ - OFFLINE
SEQWATER
<all other values>
LIFT PUMP
Water Pressure Main - by Type
Scour Main
Property Holding

Appendix C – BRISBANE CITY COUNCIL (BCC) FLOOD WISE PROPERTY REPORT

FloodWise Property Report

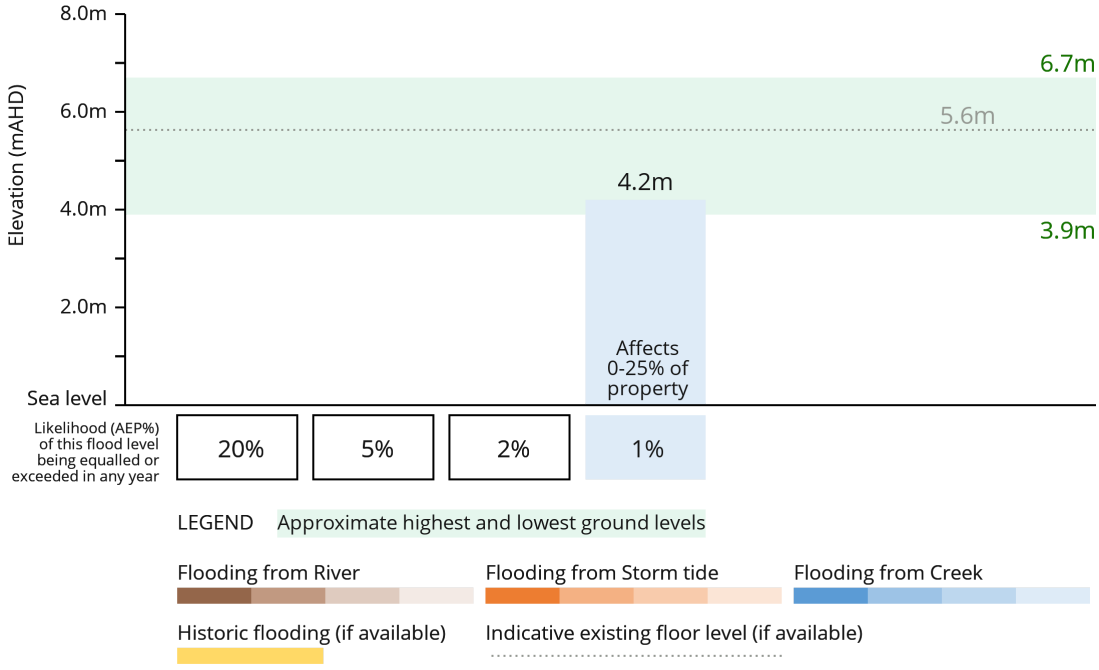
93 LOGAN RD, WOOLLOONGABBA 4102
Lot 50 on RP217072

Dedicated to a better Brisbane

THE PURPOSE OF THIS REPORT IS FOR BUILDING AND DEVELOPMENT

Brisbane City Council's FloodWise Property Report **provides technical flood planning information** including estimated flood levels, habitable floor level requirements and more. **This report uses the adopted flood planning information in CityPlan**, that guides how land in Brisbane is used and developed for the future. Find out more about planning and building. To understand how to be **resilient and prepare for floods**, visit Council's Be Prepared webpage. Find more information about how to read a FloodWise Property Report.

Graph showing only the highest source/type of flooding for 1%, 2%, 5% and 20% likelihoods. Also shows historic flood levels. Other flood types and levels may be present and will be listed in the Flood Planning Information table below. This graph does not include overland flow flooding. If applicable, overland flow information is shown in the Planning and Development Information section below. **NOTE:** See Useful Definitions section to explain terminology.



Combined 1% AEP for river, creek and storm tide flood extent (if applicable). Aerial map shows river and creek flooding extent from the adopted CityPlan. Read more about CityPlan.

Are you resilient and ready for flood?

- Sign up to the Brisbane Severe Weather Alert at **brisbane.qld.gov.au/beprepared**
- Visit bom.gov.au for the latest weather updates.
- Have an evacuation plan, emergency kit and important phone numbers ready.
- Observe where water flows from and to during heavy rain.
- Consider how flood-resilient building techniques will have you home faster and with less damage.

Life threatening emergencies
000 Police/fire/ambulance
(mobiles **000** and **112**)

State Emergency Service (SES) **132 500**
Energex **13 19 62**
Brisbane City Council **3403 8888**

Technical Summary

This section of the FloodWise Property Report contains more detailed flood information for this property so **surveyors, builders, certifiers, architects, and engineers can plan and build** in accordance with Council's planning scheme.

Find more information about planning and building in Brisbane or talk to a Development Services Planning Information Officer via Council's Contact Centre on (07) 3403 8888.

Property Information Summary

The following table provides a summary of flood information for this property. More detailed flood level information is provided in the following sections of this report.

Property Summary	Level (mAHD) / Comment	Data Quality Code
Minimum ground level	3.9	C
Maximum ground level	6.7	C
Indicative existing floor level	5.6	C
Source of highest flooding	Creek/Waterway	

Flood Planning Information

The table below displays the peak estimated flood levels by probability for this property. Estimated flood level data should be used in conjunction with applicable planning scheme requirements - Refer to Flood Planning and Development Information section below for further information.

Note this table does not include overland flow. If overland flow is applicable to this property, refer to the Flood Planning and Development section below for further information.

Likelihood / Description	Level (mAHD)	Source
20%	N/A*	
5%	N/A*	
2%	N/A*	
1%	3.5	River (Brisbane River)
1%	4.2	Creek/Waterway (NORMAN CREEK)
0.2%	5.1	River (Brisbane River)
0.2%	4.1	Creek/Waterway (NORMAN CREEK)
Defined Flood Level (DFL)	3.2	Brisbane River and Creek/Waterway
Residential Flood Level (RFL)	3.5	Brisbane River and Creek/Waterway
Minimum Habitable Floor Level (dwelling house)	N/A*	

* Council does not have this data available. Customers are recommended to engage a Registered Professional Engineer of QLD for further advice.

Flood Planning and Development Information

This section of the FloodWise Property Report contains information about Council's planning scheme overlays. Overlays identify areas within the planning scheme that reflect distinct themes that may include constrained land and/or areas sensitive to the effects of development.

Flood overlay code

The Flood overlay code of Council's planning scheme uses the following information to provide guidelines when developing properties. The table below summarises the flood planning areas (FPAs) that apply to this property. Development guidelines for the FPAs are explained in Council's planning scheme.

Flood planning areas (FPA)		
River	**Creek / waterway**	**Overland flow**
FPA5	FPA4	Not Applicable
	FPA5	

To find more information about Council's flood planning areas (FPAs) for Brisbane River and Creek/waterway flooding to guide future building and development in flood prone areas, please review Council's Flood Planning Provisions.

Coastal hazard overlay code

The Coastal hazard overlay code of Council's planning scheme uses the following information to provide guidelines when conducting new developments. The table below summarises the coastal hazard categories that apply to this property. Development guidelines for the following Coastal hazard overlay sub-categories are explained in Council's planning scheme.

Coastal hazard overlay sub-categories
There are currently no Coastal hazard overlay sub-categories that apply to this property.

Note: Where land is identified within one for more flood planning areas on the Flood overlay or is identified within one of the Storm tide inundation area sub-categories on the Coastal hazard overlay, the assessment criteria that provides the highest level of protection from any source of flooding applies.

Property development flags
Large allotment - This property is either a Large Allotment of over 1000 square metres or is located within a Large Allotment. Flood levels may vary significantly across allotments of this size. Further investigations may be warranted in determining the variation in flood levels and the minimum habitable floor level across the site. For more information or advice, please consult a Registered Professional Engineer of Queensland (RPEQ).

Useful Flood Information Definitions

Australian Height Datum (AHD) - The reference level for defining ground levels in Australia. The level of 0.0m AHD is approximately mean sea level.

Annual Exceedance Probability (AEP) - The probability of a flood event of a given size occurring in any one year, usually expressed as a percentage annual chance.

- **0.2% AEP** - A flood event of this size is considered rare but may still occur. A flood of size or larger has a 1 in 500 chance or a 0.2% probability of occurring in any year.
- **1% AEP** - A flood of this size or larger has a 1 in 100 chance or a 1% probability of occurring in any year.
- **2% AEP** - A flood of this size or larger has a 1 in 50 chance or a 2% probability of occurring in any year.
- **5% AEP** - A flood of this size or larger has a 1 in 20 chance or a 5% probability of occurring in any year.
- **20% AEP** - A flood of this size or larger has a 1 in 5 chance or a 20% probability of occurring in any year.

Data quality

- **Data Quality Code A** - Level data based on recent surveyor report or approved as-constructed drawings.
- **Data Quality Code B** - Level data based on ground-based mobile survey or similar.
- **Data Quality Code C** - Level data derived from Airborne Laser Scanning or LiDAR information.

Defined Flood Level (DFL) - The DFL is used for commercial and industrial development. The Defined flood level (DFL) for Brisbane River flooding is a level of 3.7m AHD at the Brisbane City Gauge based on a flow of 6,800 m /s. DFL is only applicable for non-residential uses affected by Brisbane River flooding.

Flood planning area (FPA) - Council has developed five Flood planning areas (FPAs) as part of City Plan Flood overlay mapping for Brisbane River, Creek/waterway flooding and Overland flow to guide future building and development in flood prone areas. Storm tide flooding is mapped separately. The FPAs are designed to recognise the flood hazard for different flooding types. Flood hazard is a combination of frequency of flooding, the flood depth, and the speed at which the water is travelling. Find more information here.

Maximum and minimum ground level - Highest and lowest ground levels on the property based on available ground level information. A Registered Surveyor can confirm exact ground levels.

Minimum habitable floor level (dwelling house) - The minimum level in metres AHD at which habitable areas of development (generally including bedrooms, living rooms, kitchen, study, family, and rumpus rooms) must be constructed as required by the Brisbane City Plan.

Indicative existing floor level - The approximate level in metres AHD of the lowest habitable floor in the existing building. This data is sourced from a range of sources with varying accuracy levels.

Property - A property will contain 1 or more lots. The multiple lot warning is shown if you have selected a property that contains multiple lots.

Residential flood level (RFL) - This flood level for the Brisbane River equates to the 1% annual exceedance probability (AEP) flood level.

To learn more, visit Brisbane City Council's Flood Information Hub

Brisbane City Council's Online Flood Tools

Council provides several online flood tools:

- to guide planning and development
- to help residents and businesses understand their flood risk and prepare for flooding.

Council's online flood tools for planning and development purposes include:

- **FloodWise Property Report**
- **Flood Overlay Code**

For more information on Council's planning scheme and online flood tools for planning and development:

- phone (07) 3403 8888 and ask to talk to a Development Services Planning Information Officer

- visit brisbane.qld.gov.au/planning-building

Council's Planning Scheme - The City Plan (planning scheme) has been prepared in accordance with the Sustainable Planning Act as a framework for managing development in a way that advances the purpose of the Act. In seeking to achieve this purpose, the planning scheme sets out the Council's intention for future development in the planning scheme area, over the next 20 years.

Disclaimer

1. Defined flood levels and residential flood levels, minimum habitable floor levels and indicative existing floor levels are determined from the best available information to Council at the date of issue. These levels, for a particular property, may change if more detailed information becomes available or changes are made in the method of calculating levels.
2. Council makes no warranty or representation regarding the accuracy or completeness of a FloodWise Property Report. Council disclaims any responsibility or liability in relation to the use or reliance by any person on a FloodWise Property Report.

Planning to build or renovate?

For information, guidelines, tools and resources to help you track, plan or apply for your development visit brisbane.qld.gov.au/planning-building

You can also find the Brisbane City Plan 2014 and Neighbourhood Plans as well as other information and training videos to help, with your building and development plans.

Appendix D – BCC CITY PLAN – INTERACTIVE MAPPING

Brisbane River flood planning area

Brisbane River flood planning area 1

Brisbane River flood planning area 2a

Brisbane River flood planning area 2b

Brisbane River flood planning area 3

Brisbane River flood planning area 4

Brisbane River flood planning area 5

Local Government Authorities

LGA boundary

Property boundaries holding

Property Holding

Creek/waterway flood planning area

Creek/waterway flood planning area 1

Creek/waterway flood planning area 2

Creek/waterway flood planning area 3

Creek/waterway flood planning area 4

Creek/waterway flood planning area 5

Local Government Authorities

LGA boundary

Property boundaries holding

Property Holding

Overland flow flood planning area

Overland flow flood planning area

Local Government Authorities

LGA boundary

Property boundaries holding

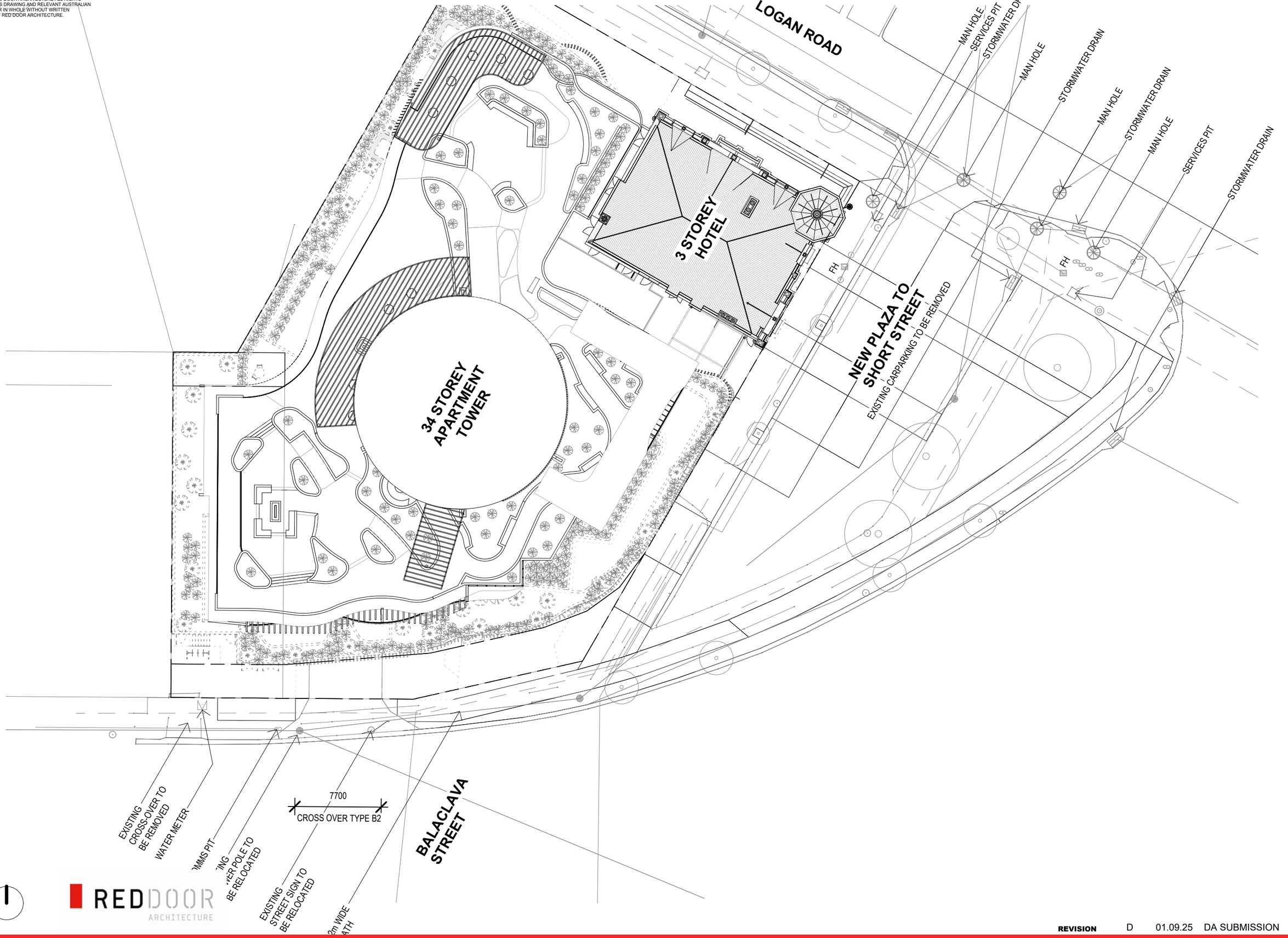
Property Holding

Appendix E – ARCHITECTURAL PLANS

BROADWAY HOTEL
HERITAGE WORKS

REDDOOR ARCHITECTURE

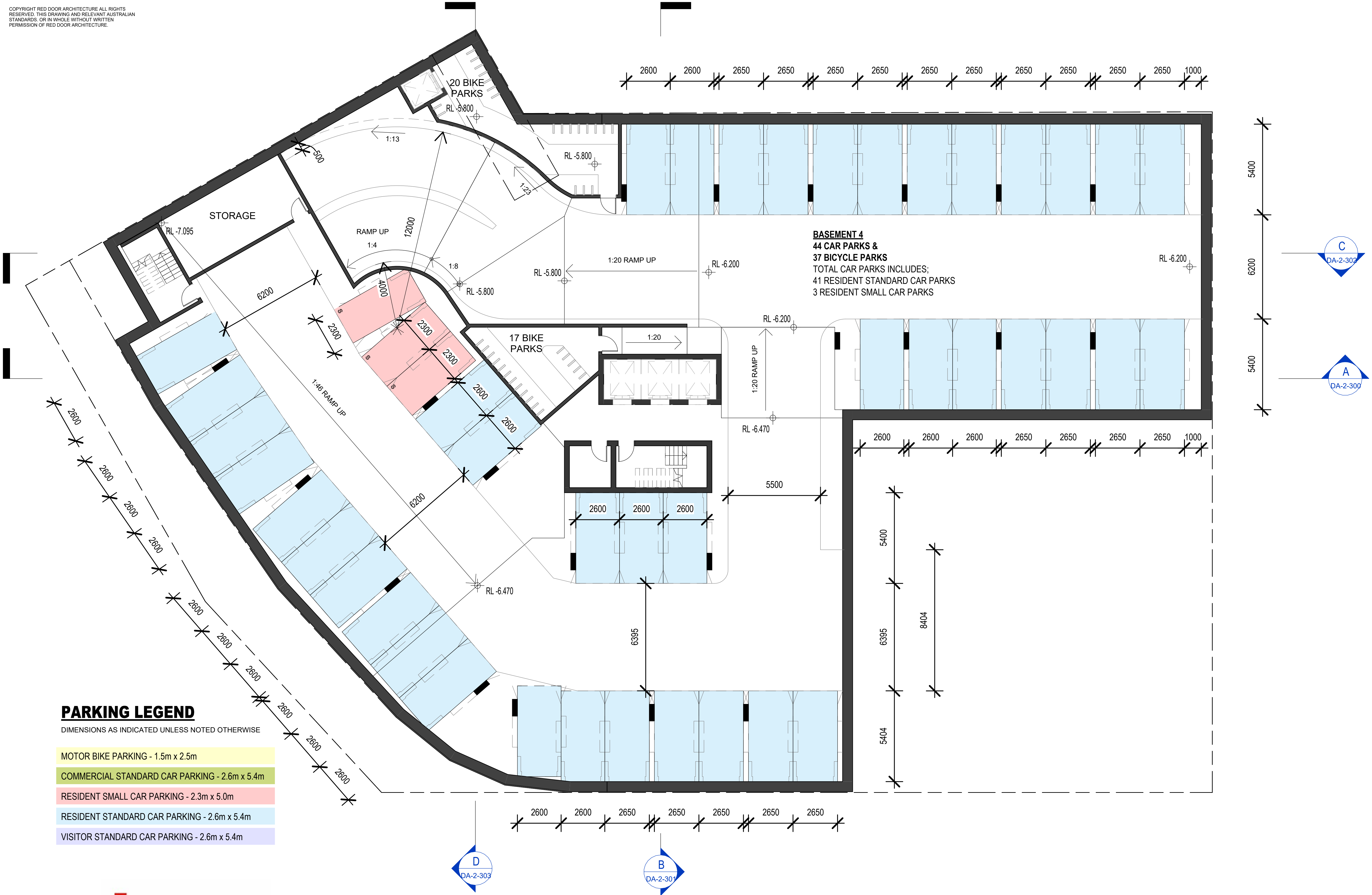
REVISION	E	01.09.25	DA SUBMISSION				
WWW.RDARCH.COM.AU	210078	SCALE	01.09.25	93 LOGAN RD, WOOLOONGABBA, QLD. 4102	MIXED USE DEVELOPMENT	DA-1-000	COVER SHEET



REDDOOR ARCHITECTURE

REVISION D 01.09.25 DA SUBMISSION

WWW.RDARCH.COM.AU | 210078 | SCALE 1 : 300 | 01.09.25 | 93 LOGAN ROAD, WOOLOONGABBA, QLD. 4102 | MIXED USE DEVELOPMENT | DA-2-010 | SITE PLAN



PARKING LEGEND

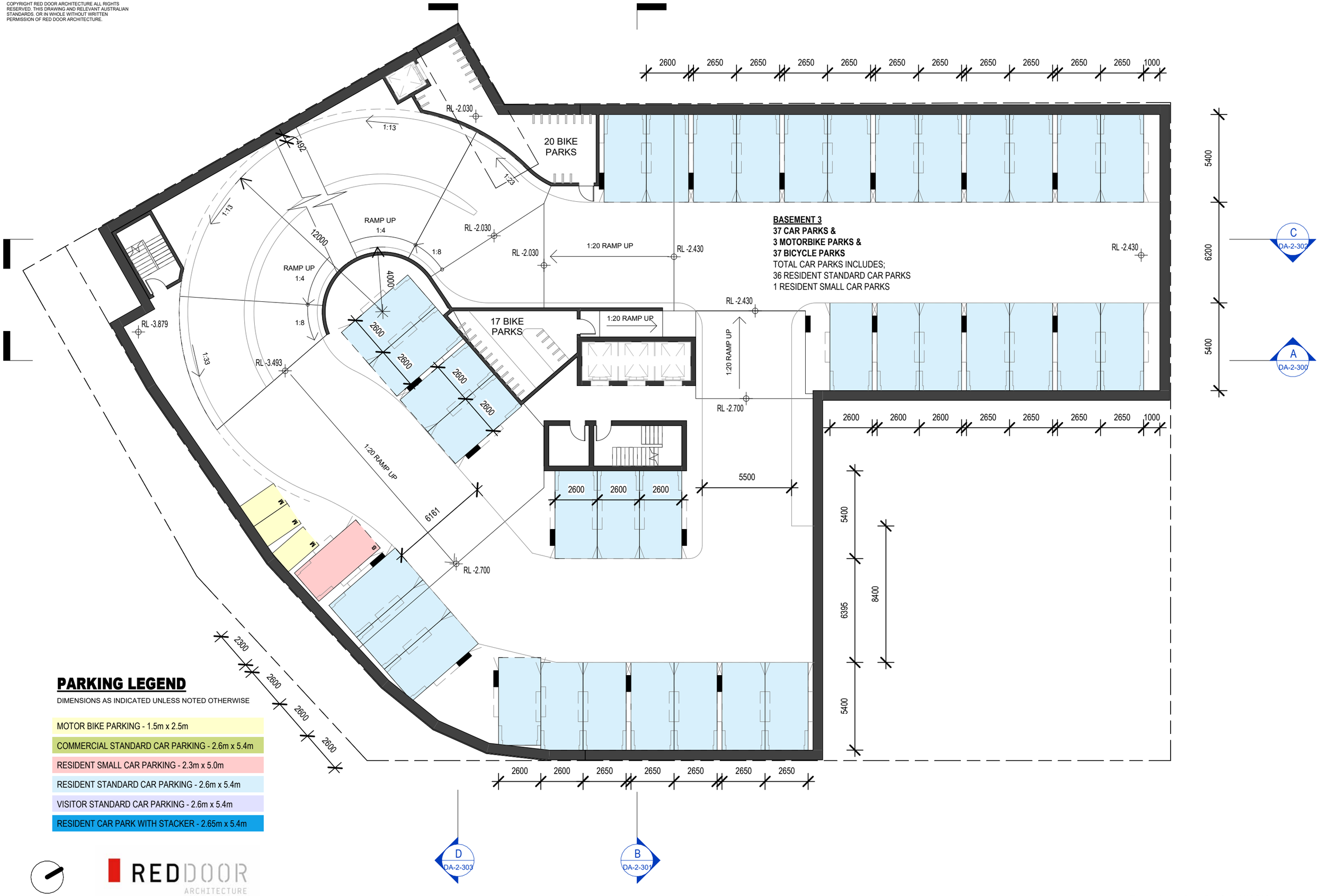
DIMENSIONS AS INDICATED UNLESS NOTED OTHERWISE

- MOTOR BIKE PARKING - 1.5m x 2.5m
- COMMERCIAL STANDARD CAR PARKING - 2.6m x 5.4m
- RESIDENT SMALL CAR PARKING - 2.3m x 5.0m
- RESIDENT STANDARD CAR PARKING - 2.6m x 5.4m
- VISITOR STANDARD CAR PARKING - 2.6m x 5.4m

RED DOOR ARCHITECTURE

REVISION E 03.09.25 DA SUBMISSION

WWW.RDARCH.COM.AU 210078 SCALE 1 : 200 03.09.25 93 LOGAN ROAD, WOOLOONGABBA, QLD. 4102 MIXED USE DEVELOPMENT DA-2-096 BASEMENT 4



PARKING LEGEND

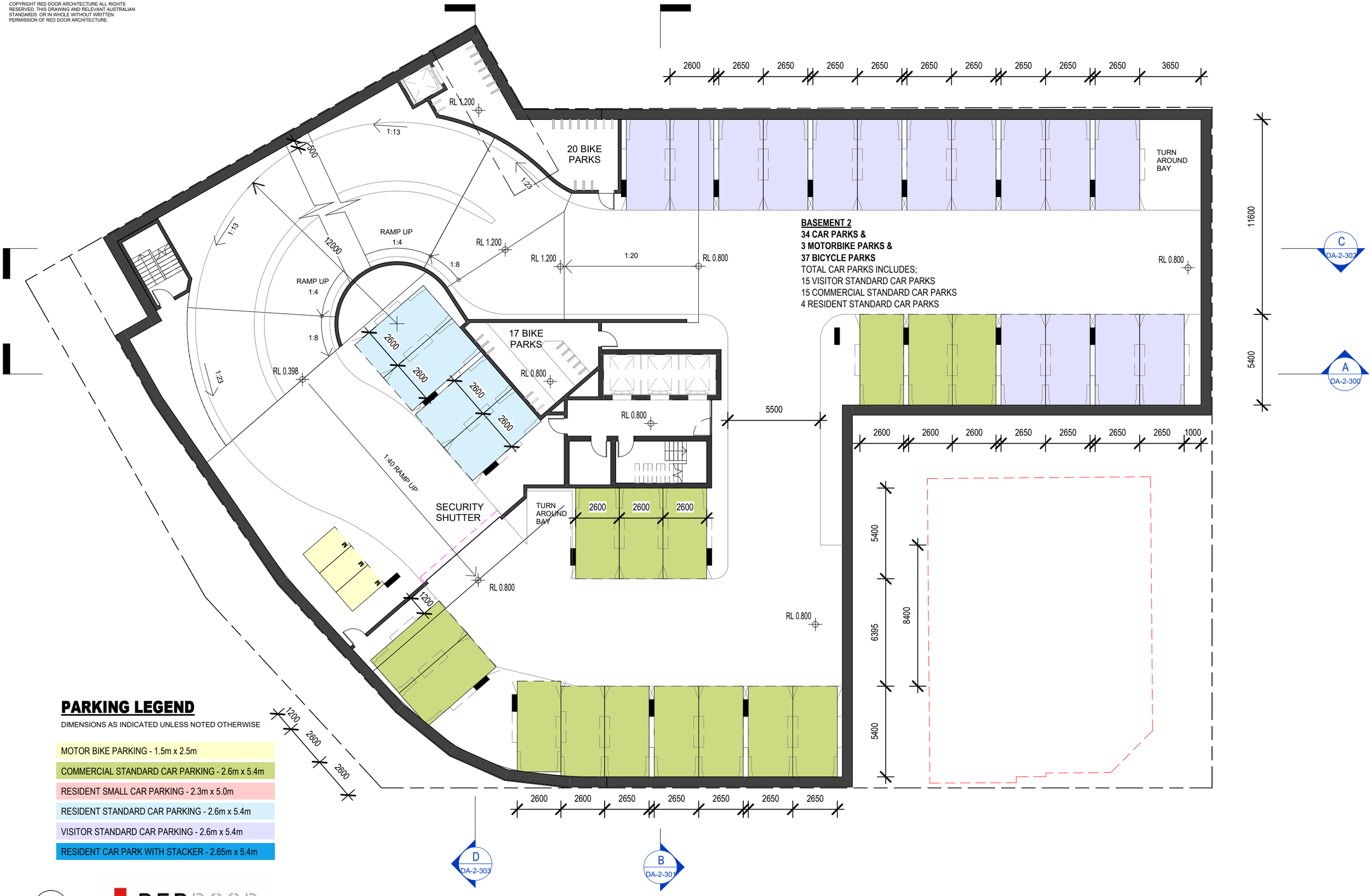
DIMENSIONS AS INDICATED UNLESS NOTED OTHERWISE

- MOTOR BIKE PARKING - 1.5m x 2.5m
- COMMERCIAL STANDARD CAR PARKING - 2.6m x 5.4m
- RESIDENT SMALL CAR PARKING - 2.3m x 5.0m
- RESIDENT STANDARD CAR PARKING - 2.6m x 5.4m
- VISITOR STANDARD CAR PARKING - 2.6m x 5.4m
- RESIDENT CAR PARK WITH STACKER - 2.65m x 5.4m

REDDOOR ARCHITECTURE

REVISION E 01.09.25 DA SUBMISSION

WWW.RDARCH.COM.AU | 210078 | SCALE 1 : 200 | 01.09.25 | 93 LOGAN ROAD, WOOLOONGABBA, QLD. 4102 | MIXED USE DEVELOPMENT | DA-2-097 | BASEMENT 3



BASEMENT 2
34 CAR PARKS &
3 MOTORBIKE PARKS &
37 BICYCLE PARKS
TOTAL CAR PARKS INCLUDES;
15 VISITOR STANDARD CAR PARKS
15 COMMERCIAL STANDARD CAR PARKS
4 RESIDENT STANDARD CAR PARKS

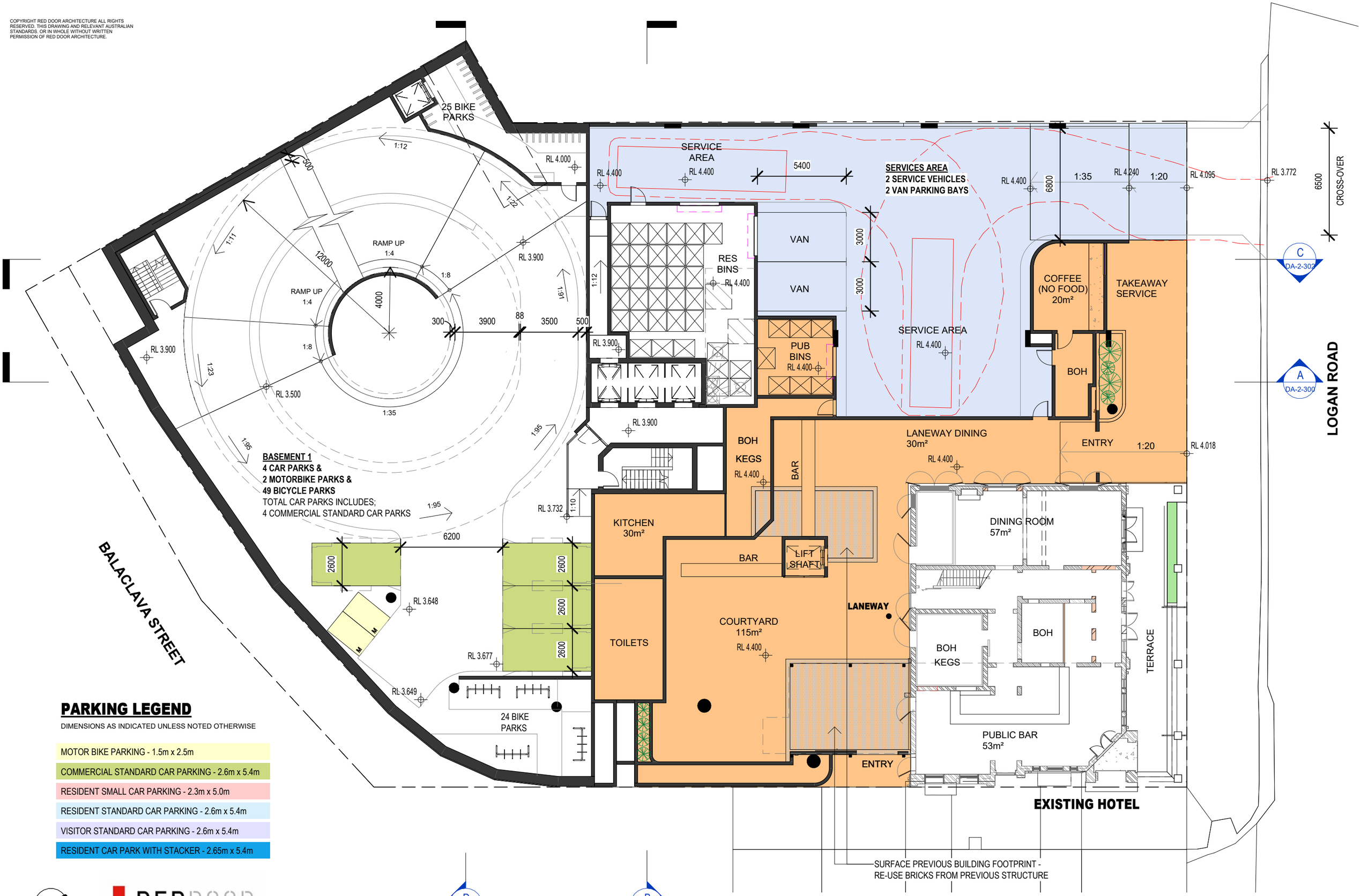
PARKING LEGEND

DIMENSIONS AS INDICATED UNLESS NOTED OTHERWISE

- MOTOR BIKE PARKING - 1.5m x 2.5m
- COMMERCIAL STANDARD CAR PARKING - 2.6m x 5.4m
- RESIDENT SMALL CAR PARKING - 2.3m x 5.0m
- RESIDENT STANDARD CAR PARKING - 2.6m x 5.4m
- VISITOR STANDARD CAR PARKING - 2.6m x 5.4m
- RESIDENT CAR PARK WITH STACKER - 2.65m x 5.4m

REDDOOR ARCHITECTURE

REVISION E 01.09.25 DA SUBMISSION



PARKING LEGEND

DIMENSIONS AS INDICATED UNLESS NOTED OTHERWISE

- MOTOR BIKE PARKING - 1.5m x 2.5m
- COMMERCIAL STANDARD CAR PARKING - 2.6m x 5.4m
- RESIDENT SMALL CAR PARKING - 2.3m x 5.0m
- RESIDENT STANDARD CAR PARKING - 2.6m x 5.4m
- VISITOR STANDARD CAR PARKING - 2.6m x 5.4m
- RESIDENT CAR PARK WITH STACKER - 2.65m x 5.4m

REDDOOR ARCHITECTURE

REVISION G 01.09.25 DA SUBMISSION

WWW.RDARCH.COM.AU | 210078 | SCALE 1 : 200 | 01.09.25 | 93 LOGAN ROAD, WOOLOONGABBA, QLD. 4102 | MIXED USE DEVELOPMENT | DA-2-099 | BASEMENT 1

LEVEL 1
96 BICYCLE PARKS

EGRESS FROM PODIUM
EGRESS FROM BASEMENT
6 BIKE PARKS
BOOSTER
RL 6.250
RL 6.368
ALL VISITORS DOWN TO B1 & B2
1:23
1:8
RL 6.398
RAMP UP 1:4
12000
12000
RAMP UP 1:4
SERVICES
4000
2690
300
1:20
5700
300
RL 6.400
1:11
1:23
EMERGENCY EGRESS ONLY
1:8
RL 6.800
RESIDENTS ONLY
[No Slope]
RL 6.800
EMERGENCY EGRESS ONLY
105 BIKE PARKS
RL 6.800
BIN CHUTE VOID
PUB BINS
RL 6.800
SERVICE AREA BELOW
RL 4.400
RL 4.400
1:35
RL 4.240
1:20
RL 4.095
CAFE
TAKEAWAY CAFE SERVICE
LINE OF BUILDING OVER
C DA-2-302
A DA-2-300
RL 4.400
1:20
RL 4.018
PUMP ROOM
FIRE CONTROL CENTRE
SEAT
ST.PRESS
1:21
SERVICES
RL 6.990
LIFT SHAFT
LEFT TURN IN AND LEFT TURN OUT ONLY
RL 6.250
SUBSTATION
RL 6.400
EGRESS FROM PODIUM & TOWER
GRAND FOYER
RL 6.800
RL 6.552
RL 6.671
ENTRANCE
1:47
MAIL
EGRESS FROM PODIUM & TOWER
EGRESS FROM BASEMENT
EXISTING HOTEL
3 BIKE PARKS
RL 6.700
RL 6.730
RL 6.637
RL 5.900
ENTRY
RL 5.870
RL 5.700
RL 5.870
BALACLAVA STREET
LOGAN ROAD
D DA-2-303
B DA-2-301

REDDOOR ARCHITECTURE

REVISION	F	01.09.25	DA SUBMISSION

19 BIKE PARKS
RL 9.800
860
1:11
1:23
RAMP UP
1:4
12000
1:8
RL 9.800
RL 9.800
RAMP UP
1:4
RL 9.800
4000
[No Slope]
1:8
RL 9.400
RL 9.400
1:23
RL 9.800
12000
1:20
1:58
BOL
1:59
1:59
500
34 BIKE PARKS
VOID
VOID
VOID
VOID
BALACLAVA STREET

2600 2600 2600 2600 2600 2600 2600 2600 2600 2600 2600 2600
RL 9.800
LEVEL 2 PODIUM
20 CAR PARKS &
3 MOTORBIKE PARKS &
53 BICYCLE PARKS
TOTAL CAR PARKS INCLUDES;
20 RESIDENT STANDARD CAR PARKS
2600 2600 300 2600 2600 2600 300 2600 2600 2600
RL 9.800
BOL
CHUTE
RL 9.800
ST.PRESS
TOILETS
OUTDOOR
BAR SEATING
70m²
RL 8.535
VOID
LIFT
SHAFT
CONNECTION TO EXISTING HOTEL
VOID
VOID
BAR SEATING
50m²
EXISTING HOTEL
BOH
BALCONY
GAMING
ROOM
33m²
GAMING
ROOM
34m²
BALCONY
BALC
LOGAN ROAD

2420
993
3720
5400
6200
5400

C
DA-2-302
A
DA-2-300

BATTEN FACADE - CHANGES IN HEIGHT
STEEL SKELETON OF PREVIOUS STRUCTURE INTEGRATED INTO DESIGN OF LANEWAY ENTRANCE

D
DA-2-303
B
DA-2-301

PARKING LEGEND

DIMENSIONS AS INDICATED UNLESS NOTED OTHERWISE

- MOTOR BIKE PARKING - 1.5m x 2.5m
- COMMERCIAL STANDARD CAR PARKING - 2.6m x 5.4m
- RESIDENT SMALL CAR PARKING - 2.3m x 5.0m
- RESIDENT STANDARD CAR PARKING - 2.6m x 5.4m
- VISITOR STANDARD CAR PARKING - 2.6m x 5.4m
- RESIDENT CAR PARK WITH STACKER - 2.65m x 5.4m

REDDOOR ARCHITECTURE

REVISION			
	D	01.09.25	DA SUBMISSION

WWW.RDARCH.COM.AU	210078	SCALE 1 : 200	01.09.25	93 LOGAN ROAD, WOOLOONGABBA, QLD. 4102	MIXED USE DEVELOPMENT	DA-2-111 LEVEL 2 - PODIUM PARKING

19 BIKE PARKS
RL 12.800
1:11
1:23
RAMP UP 1:4
1:8
12000
RL 12.800
RL 12.400
RL 12.800
1:20
[No Slope]
1:60
RL 12.711
RL 12.627
RL 12.718
6200
RL 12.664
RL 12.752
1100
6260
RL 12.718
BOL
CHUTE
ST.PRESS
TOILETS
VOID
LIFT SHAFT
OUTDOOR PRIVATE FUNCTIONS 70m²
RL 12.335
PRIVATE ROOM FUNCTIONS 43m²
EXISTING HOTEL
BOH
BALCONY
HOTEL OFFICE 14m²
HOTEL OFFICE 19m²
HOTEL OFFICE 32m²
CONNECTION TO EXISTING HOTEL
LINE OF BUILDING OVER
BATTEN FACADE - CHANGES IN HEIGHT
2600 2600 2600 300 2600 2600 2600 300 2600 2600 2600 300 2600 2600 2600
2600 2600 2600 300 2600 2600 2600 300 2600 2600
2600 2600 2600 1400
2600 2600 2600
2600 2600 2600
1120
3720
5400
6200
5400
6200

LEVEL 3 PODIUM
31 CAR PARKS &
9 MOTORBIKE PARKS &
19 BICYCLE PARKS
TOTAL CAR PARKS INCLUDES;
31 RESIDENT STANDARD CAR PARKS

C DA-2-302
A DA-2-300
D DA-2-303
B DA-2-301

BALACLAVA STREET
LOGAN ROAD

PARKING LEGEND

DIMENSIONS AS INDICATED UNLESS NOTED OTHERWISE

- MOTOR BIKE PARKING - 1.5m x 2.5m
- COMMERCIAL STANDARD CAR PARKING - 2.6m x 5.4m
- RESIDENT SMALL CAR PARKING - 2.3m x 5.0m
- RESIDENT STANDARD CAR PARKING - 2.6m x 5.4m
- VISITOR STANDARD CAR PARKING - 2.6m x 5.4m
- RESIDENT CAR PARK WITH STACKER - 2.65m x 5.4m

REDDOOR ARCHITECTURE

REVISION E 01.09.25 DA SUBMISSION

WWW.RDARCH.COM.AU | 210078 | SCALE 1 : 200 | 01.09.25 | 93 LOGAN ROAD, WOOLOONGABBA, QLD. 4102 | MIXED USE DEVELOPMENT | DA-2-112 | LEVEL 3 - PODIUM PARKING

19 BIKE RARKS

RAMP UP 1:4

RAMP UP 1:4

[No Slope]

LEVEL 4 PODIUM
35 CAR PARKS &
9 MOTORBIKE PARKS &
19 BICYCLE PARKS
TOTAL CAR PARKS INCLUDES;
34 RESIDENT STANDARD CAR PARKS
1 RESIDENT TANDEM CAR PARK

BATTEN FACADE - CHANGES IN HEIGHT

CHUTE

ST.PRESS

LIFT SHAFT

EXISTING HOTEL

BALACLAVA STREET

LOGAN ROAD

PARKING LEGEND

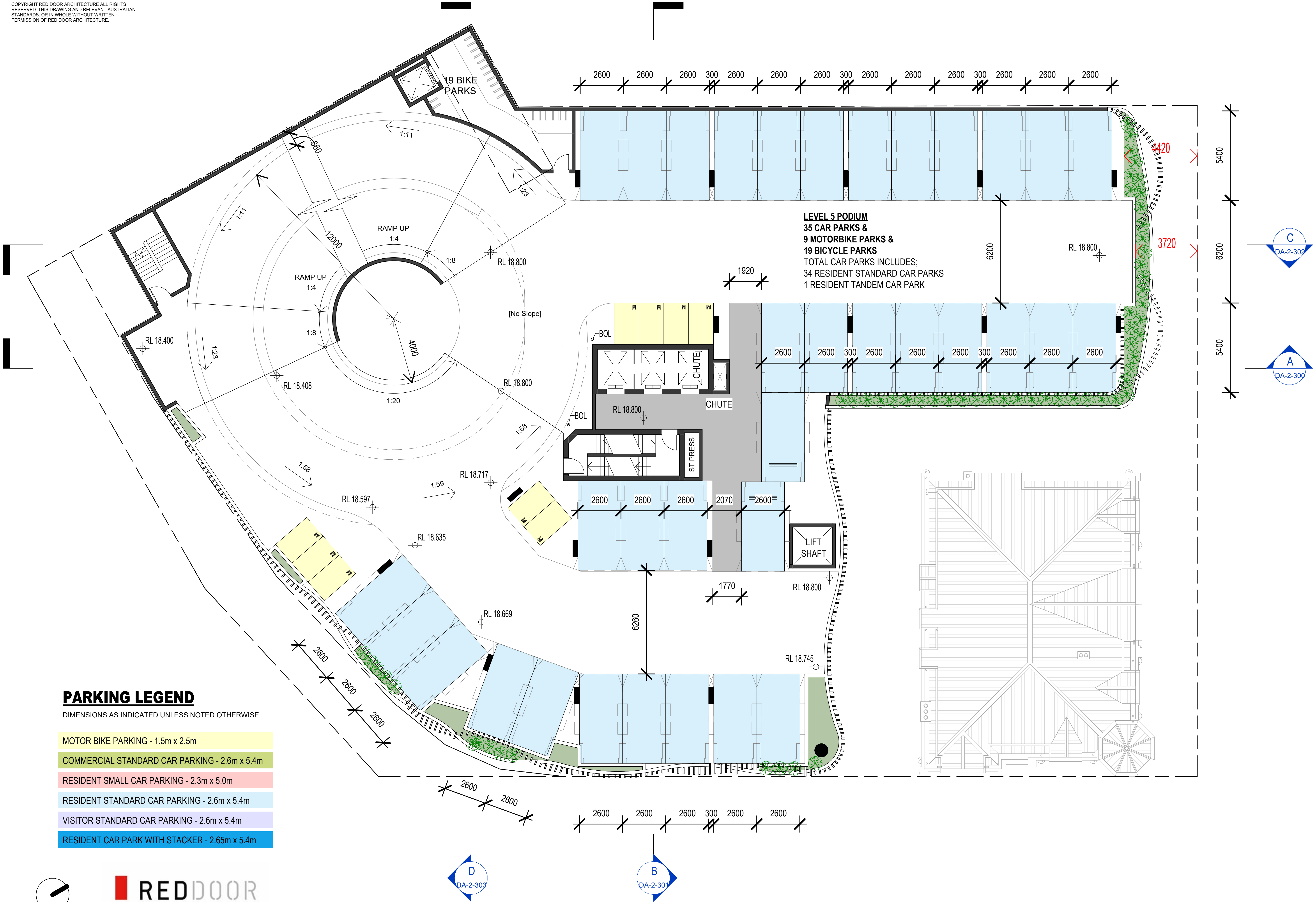
DIMENSIONS AS INDICATED UNLESS NOTED OTHERWISE

- MOTOR BIKE PARKING - 1.5m x 2.5m
- COMMERCIAL STANDARD CAR PARKING - 2.6m x 5.4m
- RESIDENT SMALL CAR PARKING - 2.3m x 5.0m
- RESIDENT STANDARD CAR PARKING - 2.6m x 5.4m
- VISITOR STANDARD CAR PARKING - 2.6m x 5.4m
- RESIDENT CAR PARK WITH STACKER - 2.65m x 5.4m

REDDOOR ARCHITECTURE

REVISION			
	E	01.09.25	DA SUBMISSION

WWW.RDARCH.COM.AU	210078	SCALE 1 : 200	01.09.25	93 LOGAN ROAD, WOOLOONGABBA, QLD. 4102	MIXED USE DEVELOPMENT	DA-2-113	LEVEL 4 - PODIUM PARKING



PARKING LEGEND

DIMENSIONS AS INDICATED UNLESS NOTED OTHERWISE

- MOTOR BIKE PARKING - 1.5m x 2.5m
- COMMERCIAL STANDARD CAR PARKING - 2.6m x 5.4m
- RESIDENT SMALL CAR PARKING - 2.3m x 5.0m
- RESIDENT STANDARD CAR PARKING - 2.6m x 5.4m
- VISITOR STANDARD CAR PARKING - 2.6m x 5.4m
- RESIDENT CAR PARK WITH STACKER - 2.65m x 5.4m

REDDOOR ARCHITECTURE

REVISION D 01.09.25 DA SUBMISSION

19 BIKE PARKS

860

1:11

RAMP UP

1:4

12000

RL 21.800

4000

1:8

1:20

[No Slope]

RL 21.400

1:23

RL 21.407

RL 21.800

RL 21.400

1:59

1:59

1:59

RL 21.720

RL 21.602

RL 21.668

LEVEL 6 PODIUM
35 CAR PARKS &
13 MOTORBIKE PARKS &
19 BICYCLE PARKS
TOTAL CAR PARKS INCLUDES;
34 RESIDENT STANDARD CAR PARKS
1 RESIDENT TANDEM CAR PARKS

RL 21.800

BOL

BOL

RL 21.800

CHUTE

ST.PRESS

BATTEN FACADE - CHANGES IN HEIGHT

2070

LIFT SHAFT

1770

RL 21.800

6260

RL 21.743

HOTEL BELOW SHOWN DASHED

2600 2600 2600 300 2600 2600 2600 300 2600 2600 2600 300 2600 2600 2600

2600 2600 300 2600 2600 2600 300 2600 2600 2600

2600 2600 2600 2070 2600

2600 2600 2600 300 2600 2600

2600 2600 2600

2600 2600 2600

5400

6200

5400

C
DA-2-302

A
DA-2-300

D
DA-2-303

B
DA-2-301

BALACLAVA STREET

LOGAN ROAD

PARKING LEGEND

DIMENSIONS AS INDICATED UNLESS NOTED OTHERWISE

- MOTOR BIKE PARKING - 1.5m x 2.5m
- COMMERCIAL STANDARD CAR PARKING - 2.6m x 5.4m
- RESIDENT SMALL CAR PARKING - 2.3m x 5.0m
- RESIDENT STANDARD CAR PARKING - 2.6m x 5.4m
- VISITOR STANDARD CAR PARKING - 2.6m x 5.4m
- RESIDENT CAR PARK WITH STACKER - 2.65m x 5.4m

REDDOOR ARCHITECTURE

REVISION D 01.09.25 DA SUBMISSION

WWW.RDARCH.COM.AU | 210078 | SCALE 1 : 200 | 01.09.25 | 93 LOGAN ROAD, WOOLOONGABBA, QLD. 4102 | MIXED USE DEVELOPMENT | DA-2-115 | LEVEL 6 - PODIUM PARKING

REDDOOR ARCHITECTURE

REVISION E 01.09.25 DA SUBMISSION

WWW.RDARCH.COM.AU 210078 SCALE 1 : 200 01.09.25 93 LOGAN ROAD, WOOLOONGABBA, QLD. 4102 MIXED USE DEVELOPMENT DA-2-116 LEVEL 7 - PODIUM COMMUNAL

POTENTIAL FUTURE DEVELOPMENT

DASHED LINE INDICATES LEVEL ABOVE

BALACLAVA STREET

LOGAN ROAD

UNIT TYPE E (2B)
98 m²

BALCONY [E]
16 m²

BALCONY [D]
41 m²

UNIT TYPE D (2B)
100 m²

PLANT EQUIP

UNIT TYPE F (1B)
53 m²

BALCONY [F]
15 m²

UNIT TYPE G (1B)
53 m²

BALCONY [G]
17 m²

UNIT TYPE H (1B)
57 m²

BALCONY [H]
14 m²

UNIT TYPE I (1B)
71 m²

BALCONY [I]
16 m²

UNIT TYPE J (2B)
111 m²

BALCONY [J]
21 m²

FOYER RL 29.100

CHUTE

ST.PRESS

COMMUNAL SPACE BELOW SHOWN DASHED

HOTEL BELOW SHOWN DASHED

7000
3500
3000
2910
3410
4720
3810
4000
3220
4380
3595
4040
1955
2885
5000
3000

C DA-2-302

A DA-2-300

D DA-2-303

B DA-2-301

REDDOOR ARCHITECTURE

REVISION E 01.09.25 DA SUBMISSION

WWW.RDARCH.COM.AU | 210078 | SCALE 1 : 200 | 01.09.25 | 93 LOGAN ROAD, WOOLOONGABBA, QLD. 4102 | MIXED USE DEVELOPMENT | DA-2-117 LEVEL 8 FLOOR PLAN

POTENTIAL FUTURE DEVELOPMENT

BALACLAVA STREET

LOGAN ROAD

UNIT TYPE E (2B) 98 m²
UNIT TYPE F (1B) 53 m²
UNIT TYPE G (1B) 53 m²
UNIT TYPE H (1B) 57 m²
UNIT TYPE I (1B+) 71 m²
UNIT TYPE D (2B) 100 m²
UNIT TYPE C (2B) 83 m²
UNIT TYPE B (2B) 87 m²
UNIT TYPE A (3B) 132 m²
UNIT TYPE J (2B) 111 m²
UNIT TYPE K (2B) 93 m²

BALCONY [E] 16 m²
BALCONY [F] 15 m²
BALCONY [G] 18 m²
BALCONY [H] 17 m²
BALCONY [I] 17 m²
BALCONY [D] 25 m²
BALCONY [C] 19 m²
BALCONY [B] 16 m²
BALCONY [A] 57 m²
BALCONY [J] 22 m²
BALCONY [K] 15 m²

PLANT EQUIP
PLANT EQUIP
SERVICES
LIFT
LIFT
LIFT
CHUTE
FOYER
RL 32.100
ST PRESS

3000
3410
3500
3500
7000
5475
7300
4000
7385
3905
6295
3900
3095
2275
9530
4000
5555
4000
7110
6720
4040
3760
3990
5335
4240
5000
8100
4300
4900
4300

DASHED LINE INDICATES BALCONY ABOVE AND BELOW. REFER TO FLOOR PLAN TYPE 2

DASHED LINE INDICATES BALCONY ABOVE AND BELOW. REFER TO FLOOR PLAN TYPE 2

C DA-2-302

A DA-2-300

D DA-2-303

B DA-2-301

TYPE 1 - FLOOR PLAN LOCATED ON:

LEVEL 9	LEVEL 23
LEVEL 13	LEVEL 25
LEVEL 15	LEVEL 27
LEVEL 17	LEVEL 29
LEVEL 19	LEVEL 33

REDDOOR ARCHITECTURE

REVISION E 01.09.25 DA SUBMISSION

WWW.RDARCH.COM.AU | 210078 | SCALE 1 : 200 | 01.09.25 | 93 LOGAN ROAD, WOOLOONGABBA, QLD. 4102 | MIXED USE DEVELOPMENT | DA-2-118 | TYPICAL FLOOR PLAN - TYPE 1

POTENTIAL FUTURE DEVELOPMENT

BALACLAVA STREET

LOGAN ROAD

BALCONY [E] 16 m²
BALCONY [D] 27 m²
BALCONY [C] 19 m²
BALCONY [B] 16 m²
BALCONY [A1] 34 m²
BALCONY [A2] 15 m²
BALCONY [F] 15 m²
BALCONY [G] 17 m²
BALCONY [H] 14 m²
BALCONY [I] 17 m²
BALCONY [J] 22 m²
BALCONY [K] 15 m²

UNIT TYPE E (2B) 98 m²
UNIT TYPE D (2B) 100 m²
UNIT TYPE C (2B) 83 m²
UNIT TYPE B (2B) 87 m²
UNIT TYPE A (3B) 132 m²
UNIT TYPE F (1B) 53 m²
UNIT TYPE G (1B) 53 m²
UNIT TYPE H (1B) 57 m²
UNIT TYPE I (1B) 71 m²
UNIT TYPE J (2B) 111 m²
UNIT TYPE K (2B) 93 m²

PLANT EQUIP
PLANT EQUIP
SERVICES
LIFT
LIFT
LIFT
CHUTE
FOYER
RL 35.100
ST.PRESS

7000
3500
3500
3000
3410
5175
7300
4000
7385
3905
6295
3095
2275
9530
4070
5555
4000
3810
3220
6740
4265
4040
3625
5985
5000
5000
4300

C DA-2-302
A DA-2-300
D DA-2-303
B DA-2-301

DASHED LINE INDICATES BALCONY ABOVE AND BELOW. REFER TO FLOOR PLAN TYPE 1

DASHED LINE INDICATES BALCONY ABOVE AND BELOW. REFER TO FLOOR PLAN TYPE 1

TYPE 2 - FLOOR PLAN LOCATED ON:

LEVEL 10
LEVEL 14
LEVEL 16
LEVEL 18
LEVEL 20
LEVEL 24
LEVEL 26
LEVEL 28
LEVEL 30

REDDOOR ARCHITECTURE

REVISION E 01.09.25 DA SUBMISSION

WWW.RDARCH.COM.AU | 210078 | SCALE 1 : 200 | 01.09.25 | 93 LOGAN ROAD, WOOLOONGABBA, QLD. 4102 | MIXED USE DEVELOPMENT | DA-2-119 | TYPICAL FLOOR PLAN - TYPE 2

POTENTIAL FUTURE DEVELOPMENT

UNIT TYPE E (2B) 98 m²
UNIT TYPE F (1B) 53 m²
UNIT TYPE G (1B) 53 m²
UNIT TYPE H (1B) 57 m²
UNIT TYPE I (1B) 71 m²
UNIT TYPE D (2B) 100 m²
UNIT TYPE C (2B) 83 m²
UNIT TYPE B (2B) 87 m²
UNIT TYPE A (3B) 132 m²
UNIT TYPE J (2B) 111 m²
UNIT TYPE K (2B) 93 m²

BALCONY [E] 16 m²
BALCONY [F] 15 m²
BALCONY [G] 18 m²
BALCONY [H] 18 m²
BALCONY [I] 17 m²
BALCONY [D] 27 m²
BALCONY [C] 19 m²
BALCONY [B] 16 m²
BALCONY [A] 57 m²
BALCONY [J] 23 m²
BALCONY [K] 19 m²

PLANT EQUIP
PLANT EQUIP
SERVICES
LIFT
LIFT
LIFT
CHUTE
FOYER RL 38.100
ST.PRESS

7000
3500
3500
3000
3410
4000
3810
4265
4040
3815
5985
5175
7300
4000
7385
3905
6295
3095
2275
9530
4070
5555
5000
5000
4300

DASHED LINE INDICATES BALCONY ABOVE AND BELOW. REFER TO FLOOR PLAN TYPE 2

DASHED LINE INDICATES BALCONY ABOVE AND BELOW. REFER TO FLOOR PLAN TYPE 2

C DA-2-302

A DA-2-300

D DA-2-303

B DA-2-301

TYPE 3 - FLOOR PLAN LOCATED ON:

LEVEL 11
LEVEL 21
LEVEL 31

REDDOOR ARCHITECTURE

REVISION	E	01.09.25	DA SUBMISSION

WWW.RDARCH.COM.AU	210078	SCALE 1 : 200	01.09.25	93 LOGAN ROAD, WOOLOONGABBA, QLD. 4102	MIXED USE DEVELOPMENT	DA-2-120	TYPICAL FLOOR PLAN - TYPE 3

POTENTIAL FUTURE DEVELOPMENT

UNIT TYPE E (2B) 98 m²
UNIT TYPE F (1B) 53 m²
UNIT TYPE G (1B) 53 m²
UNIT TYPE H (1B) 57 m²
UNIT TYPE I (1B) 71 m²
UNIT TYPE D (2B) 100 m²
UNIT TYPE C (2B) 83 m²
UNIT TYPE B (2B) 87 m²
UNIT TYPE A (3B) 132 m²
UNIT TYPE J (2B) 110 m²
UNIT TYPE K (2B) 93 m²

BALCONY [E] 16 m²
BALCONY [F] 15 m²
BALCONY [G] 17 m²
BALCONY [H] 14 m²
BALCONY [I] 17 m²
BALCONY [D] 27 m²
BALCONY [C] 19 m²
BALCONY [B] 16 m²
BALCONY [A1] 34 m²
BALCONY [A2] 15 m²
BALCONY [J] 23 m²
BALCONY [K] 19 m²

PLANT EQUIP
PLANT EQUIP
SERVICES
LIFT
LIFT
LIFT
FOYER
RL 41.100
CHUTE
ST.PRESS

7000
3500
3500
3000
3410
5175
7300
4000
7385
3905
6295
3095
2275
9530
4070
5555
4000
3810
4265
4040
3625
5985
5000
5000
4300

C DA-2-302

A DA-2-300

DASHED LINE INDICATES BALCONY ABOVE AND BELOW. REFER TO FLOOR PLAN TYPE 1

DASHED LINE INDICATES BALCONY ABOVE AND BELOW. REFER TO FLOOR PLAN TYPE 1

D DA-2-303

B DA-2-301

TYPE 4 - FLOOR PLAN LOCATED ON:

LEVEL 12
LEVEL 22
LEVEL 32

REDDOOR ARCHITECTURE

REVISION			
D	01.09.25	DA SUBMISSION	

WWW.RDARCH.COM.AU	210078	SCALE 1 : 200	01.09.25	93 LOGAN ROAD, WOOLOONGABBA, QLD. 4102	MIXED USE DEVELOPMENT	DA-2-121	TYPICAL FLOOR PLAN - TYPE 4

ARBOUR

BALACLAVA STREET

LOGAN ROAD

RL 107.000

DECK
RL 107.700

FIRE PIT
RL 107.400

DECK
RL 107.400

1:12

1:12

TURF
RL 107.110

BBQ AREA
RL 107.110

LIFT LIFT LIFT

FOYER RL 107.110

PWD

PLANT EQUIP

RL 107.000

TURF
RL 107.110

1:13

DECK
RL 107.400

TURF

1:24

1:10

RL 107.000

RL 107.110

RL 107.000

RL 109.900

SHELTERED RECREATION

3900

2800

3300

3810

2910

3810

2275

5380

4300

4900

C
DA-2-302

A
DA-2-300

D
DA-2-303

B
DA-2-301

REDDOOR ARCHITECTURE

WWW.RDARCH.COM.AU	210078	SCALE 1 : 200	01.09.25	93 LOGAN ROAD, WOOLOONGABBA, QLD. 4102	MIXED USE DEVELOPMENT	DA-2-122	ROOFTOP FLOOR PLAN

REVISION C 01.09.25 DA SUBMISSION

LOGAN ROAD

MATERIAL & FINISHES LEGEND

CODE	DESCRIPTION	COLOUR
AR1 -	ARBOUR STRUCTURE - ALUMINIUM POWDERCOAT	ANODIC BRONZE
AR2 -	ARBOUR STRUCTURE - ALUMINIUM POWDERCOAT	WHITE
BAL1 -	FRAMELESS GLASS BALUSTRADE	CLEAR
BAL2 -	AFS TYPE - CONCRETE UPSTAND BALUSTRADE - PAINTED	WHITE
COL1 -	CIRCULAR CONCRETE COLUMN - PAINTED	WHITE
COL2 -	RECTANGULAR CONCRETE COLUMN - PAINTED	WHITE
CR1 -	CONCRETE ROOF - PAINTED	WHITE
DR1 -	METAL DOME ROOF - COLORBOND	SHALE GREY
GS1 -	TINTED GLAZING, AL. WINDOW SYSTEM - POWDER COATED	MONUMENT
GS2 -	CURTAIN WALL WINDOW SYSTEM - POWDER COATED	MONUMENT
GS3 -	SHOPFRONT WINDOW SYSTEM - POWDER COATED	MONUMENT
SC1 -	VERTICAL AL. BATTEN SCREENING - POWDER COATED	ANODIC BRONZE
SC2 -	VERTICAL AL. BATTEN SCREENING - POWDER COATED	WHITE
WA1 -	RENDER - PAINTED FINISH	WHITE
WA2 -	RENDER - PAINTED FINISH	MONUMENT
WA3 -	AL. TIMBER LOOK CLADDING	JARRAH
WA4 -	PRE-CAST PANELS - HORIZONTAL LINES	FLOODED GUM
WA5 -	BRICK FINISH	WHITE

REDDOOR ARCHITECTURE

REVISION E 01.09.25 DA SUBMISSION

WWW.RDARCH.COM.AU | 210078 | SCALE 1 : 500 | 01.09.25 | 93 LOGAN ROAD, WOOLOONGABBA, QLD. 4102 | MIXED USE DEVELOPMENT | DA-2-200 | ELEVATION - NORTH

ROOF TERRACE 107100
LEVEL 33 104100
LEVEL 32 101100
LEVEL 31 98100
LEVEL 30 95100
LEVEL 29 92100
LEVEL 28 89100
LEVEL 27 86100
LEVEL 26 83100
LEVEL 25 80100
LEVEL 24 77100
LEVEL 23 74100
LEVEL 22 71100
LEVEL 21 68100
LEVEL 20 65100
LEVEL 19 62100
LEVEL 18 59100
LEVEL 17 56100
LEVEL 16 53100
LEVEL 15 50100
LEVEL 14 47100
LEVEL 13 44100
LEVEL 12 41100
LEVEL 11 38100
LEVEL 10 35100
LEVEL 9 32100
LEVEL 8 29100
LEVEL 7 25600
LEVEL 6 21800
LEVEL 5 18800
LEVEL 4 15800
LEVEL 3 12800
LEVEL 2 9800
LEVEL 1 (GF) 6800
BASEMENT 1 3500

MATERIAL & FINISHES LEGEND

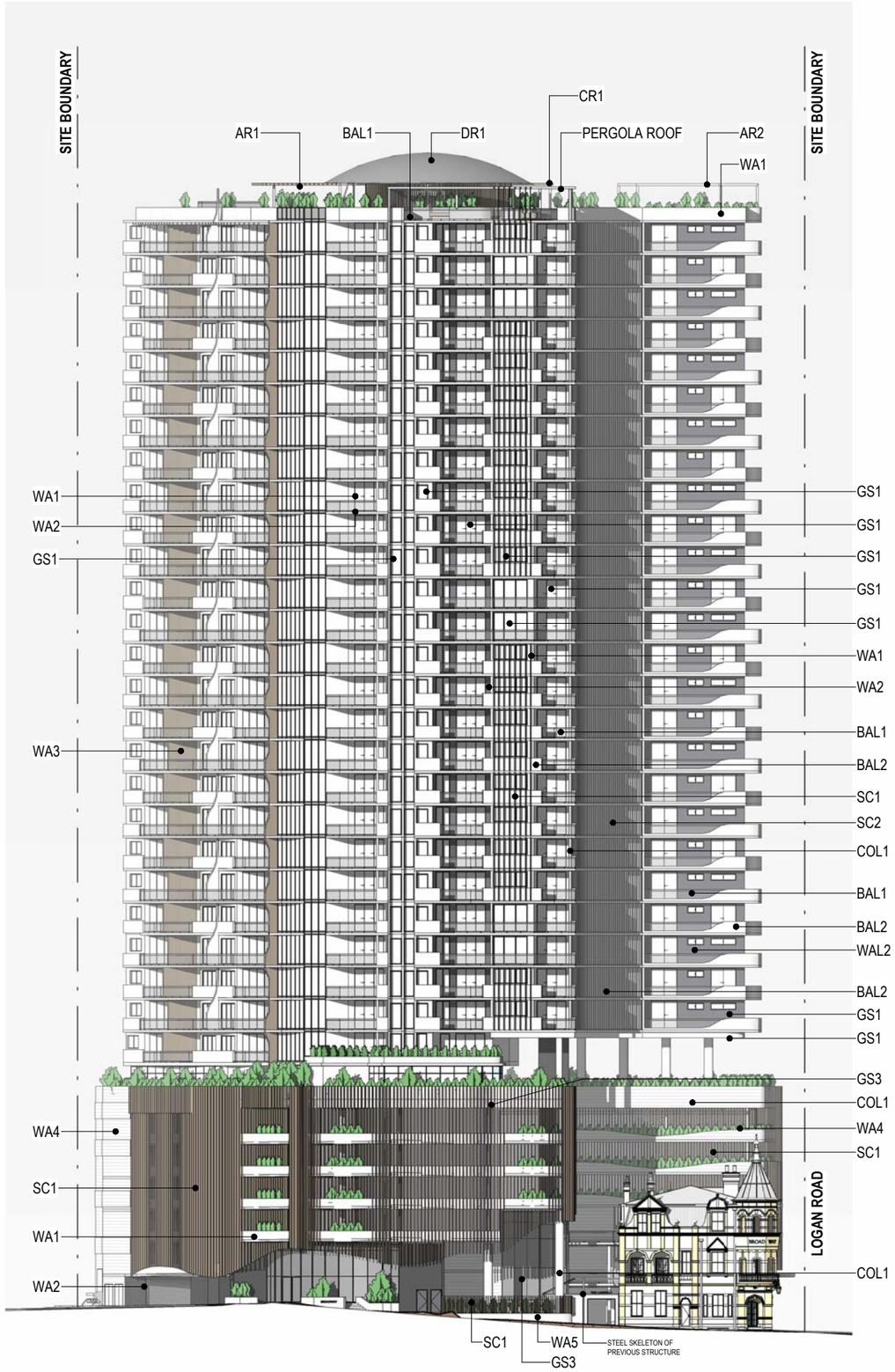
CODE	DESCRIPTION	COLOUR
AR1 -	ARBOUR STRUCTURE - ALUMINIUM POWDERCOAT	ANODIC BRONZE
AR2 -	ARBOUR STRUCTURE - ALUMINIUM POWDERCOAT	WHITE
BAL1 -	FRAMELESS GLASS BALUSTRADE	CLEAR
BAL2 -	AFS TYPE - CONCRETE UPSTAND BALUSTRADE - PAINTED	WHITE
COL1 -	CIRCULAR CONCRETE COLUMN - PAINTED	WHITE
COL2 -	RECTANGULAR CONCRETE COLUMN - PAINTED	WHITE
CR1 -	CONCRETE ROOF - PAINTED	WHITE
DR1 -	METAL DOME ROOF - COLORBOND	SHALE GREY
GS1 -	TINTED GLAZING, AL. WINDOW SYSTEM - POWDER COATED	MONUMENT
GS2 -	CURTAIN WALL WINDOW SYSTEM - POWDER COATED	MONUMENT
GS3 -	SHOPFRONT WINDOW SYSTEM - POWDER COATED	MONUMENT
SC1 -	VERTICAL AL. BATTEN SCREENING - POWDER COATED	ANODIC BRONZE
SC2 -	VERTICAL AL. BATTEN SCREENING - POWDER COATED	WHITE
WA1 -	RENDER - PAINTED FINISH	WHITE
WA2 -	RENDER - PAINTED FINISH	MONUMENT
WA3 -	AL. TIMBER LOOK CLADDING	JARRAH
WA4 -	PRE-CAST PANELS - HORIZONTAL LINES	FLOODED GUM
WA5 -	BRICK FINISH	WHITE

REDDOOR ARCHITECTURE

REVISION E 01.09.25 DA SUBMISSION

WWW.RDARCH.COM.AU | 210078 | SCALE 1 : 500 | 01.09.25 | 93 LOGAN ROAD, WOOLOONGABBA, QLD. 4102 | MIXED USE DEVELOPMENT | DA-2-201 | ELEVATION - NORTH WEST

ROOF TERRACE 107100
LEVEL 33 104100
LEVEL 32 101100
LEVEL 31 98100
LEVEL 30 95100
LEVEL 29 92100
LEVEL 28 89100
LEVEL 27 86100
LEVEL 26 83100
LEVEL 25 80100
LEVEL 24 77100
LEVEL 23 74100
LEVEL 22 71100
LEVEL 21 68100
LEVEL 20 65100
LEVEL 19 62100
LEVEL 18 59100
LEVEL 17 56100
LEVEL 16 53100
LEVEL 15 50100
LEVEL 14 47100
LEVEL 13 44100
LEVEL 12 41100
LEVEL 11 38100
LEVEL 10 35100
LEVEL 9 32100
LEVEL 8 29100
LEVEL 7 25600
LEVEL 6 21800
LEVEL 5 18800
LEVEL 4 15800
LEVEL 3 12800
LEVEL 2 9800
LEVEL 1 (GF) 6800
BASEMENT 1 3500



MATERIAL & FINISHES LEGEND

CODE	DESCRIPTION	COLOUR
AR1 -	ARBOUR STRUCTURE - ALUMINIUM POWDERCOAT	ANODIC BRONZE
AR2 -	ARBOUR STRUCTURE - ALUMINIUM POWDERCOAT	WHITE
BAL1 -	FRAMELESS GLASS BALUSTRADE	CLEAR
BAL2 -	AFS TYPE - CONCRETE UPSTAND BALUSTRADE - PAINTED	WHITE
COL1 -	CIRCULAR CONCRETE COLUMN - PAINTED	WHITE
COL2 -	RECTANGULAR CONCRETE COLUMN - PAINTED	WHITE
CR1 -	CONCRETE ROOF - PAINTED	WHITE
DR1 -	METAL DOME ROOF - COLORBOND	SHALE GREY
GS1 -	TINTED GLAZING, AL. WINDOW SYSTEM - POWDER COATED	MONUMENT
GS2 -	CURTAIN WALL WINDOW SYSTEM - POWDER COATED	MONUMENT
GS3 -	SHOPFRONT WINDOW SYSTEM - POWDER COATED	MONUMENT
SC1 -	VERTICAL AL. BATTEN SCREENING - POWDER COATED	ANODIC BRONZE
SC2 -	VERTICAL AL. BATTEN SCREENING - POWDER COATED	WHITE
WA1 -	RENDER - PAINTED FINISH	WHITE
WA2 -	RENDER - PAINTED FINISH	MONUMENT
WA3 -	AL. TIMBER LOOK CLADDING	JARRAH
WA4 -	PRE-CAST PANELS - HORIZONTAL LINES	FLOODED GUM
WA5 -	BRICK FINISH	WHITE

REDDOOR ARCHITECTURE

REVISION D 01.09.25 DA SUBMISSION

WWW.RDARCH.COM.AU | 210078 | SCALE 1 : 500 | 01.09.25 | 93 LOGAN ROAD, WOOLOONGABBA, QLD. 4102 | MIXED USE DEVELOPMENT | DA-2-202 | ELEVATION - SOUTH EAST

ROOF TERRACE 107100
LEVEL 33 104100
LEVEL 32 101100
LEVEL 31 98100
LEVEL 30 95100
LEVEL 29 92100
LEVEL 28 89100
LEVEL 27 86100
LEVEL 26 83100
LEVEL 25 80100
LEVEL 24 77100
LEVEL 23 74100
LEVEL 22 71100
LEVEL 21 68100
LEVEL 20 65100
LEVEL 19 62100
LEVEL 18 59100
LEVEL 17 56100
LEVEL 16 53100
LEVEL 15 50100
LEVEL 14 47100
LEVEL 13 44100
LEVEL 12 41100
LEVEL 11 38100
LEVEL 10 35100
LEVEL 9 32100
LEVEL 8 29100
LEVEL 7 25600
LEVEL 6 21800
LEVEL 5 18800
LEVEL 4 15800
LEVEL 3 12800
LEVEL 2 9800
LEVEL 1 (GF) 6800
BASEMENT 1 3500

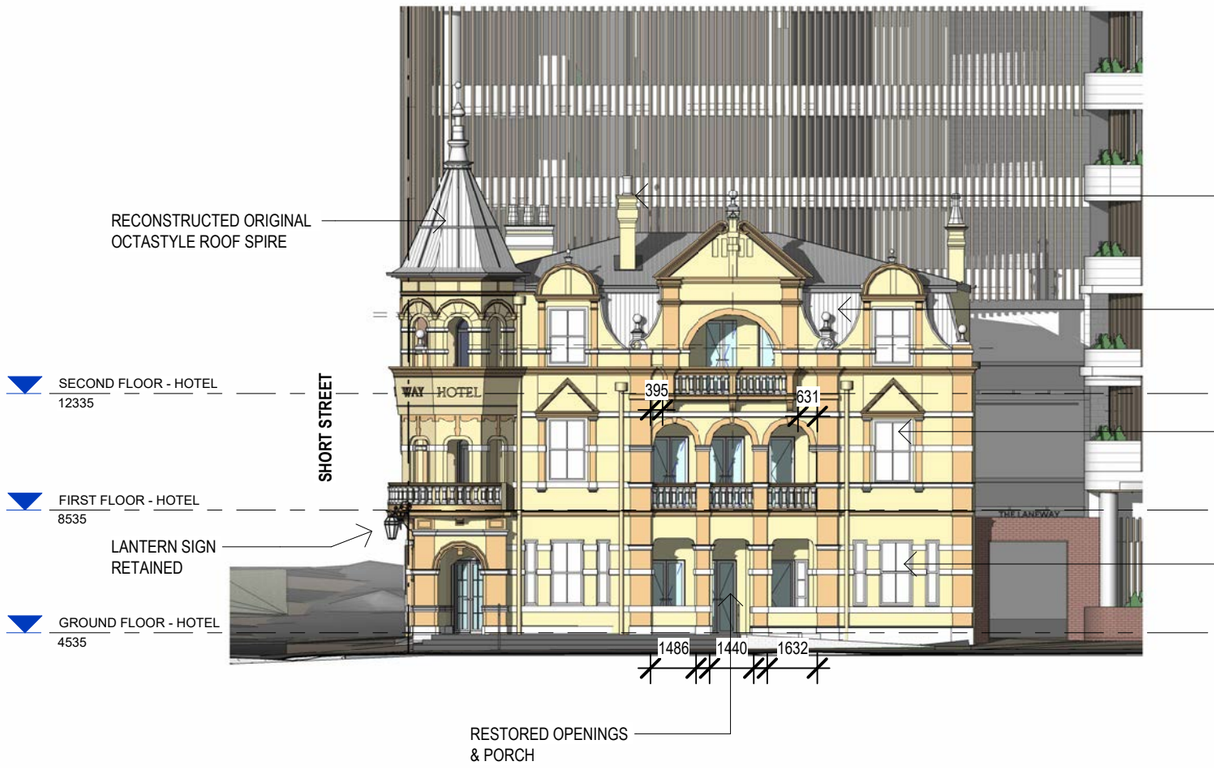
MATERIAL & FINISHES LEGEND

CODE	DESCRIPTION	COLOUR
AR1 -	ARBOUR STRUCTURE - ALUMINIUM POWDERCOAT	ANODIC BRONZE
AR2 -	ARBOUR STRUCTURE - ALUMINIUM POWDERCOAT	WHITE
BAL1 -	FRAMELESS GLASS BALUSTRADE	CLEAR
BAL2 -	AFS TYPE - CONCRETE UPSTAND BALUSTRADE - PAINTED	WHITE
COL1 -	CIRCULAR CONCRETE COLUMN - PAINTED	WHITE
COL2 -	RECTANGULAR CONCRETE COLUMN - PAINTED	WHITE
CR1 -	CONCRETE ROOF - PAINTED	WHITE
DR1 -	METAL DOME ROOF - COLORBOND	SHALE GREY
GS1 -	TINTED GLAZING, AL. WINDOW SYSTEM - POWDER COATED	MONUMENT
GS2 -	CURTAIN WALL WINDOW SYSTEM - POWDER COATED	MONUMENT
GS3 -	SHOPFRONT WINDOW SYSTEM - POWDER COATED	MONUMENT
SC1 -	VERTICAL AL. BATTEN SCREENING - POWDER COATED	ANODIC BRONZE
SC2 -	VERTICAL AL. BATTEN SCREENING - POWDER COATED	WHITE
WA1 -	RENDER - PAINTED FINISH	WHITE
WA2 -	RENDER - PAINTED FINISH	MONUMENT
WA3 -	AL. TIMBER LOOK CLADDING	JARRAH
WA4 -	PRE-CAST PANELS - HORIZONTAL LINES	FLOODED GUM
WA5 -	BRICK FINISH	WHITE

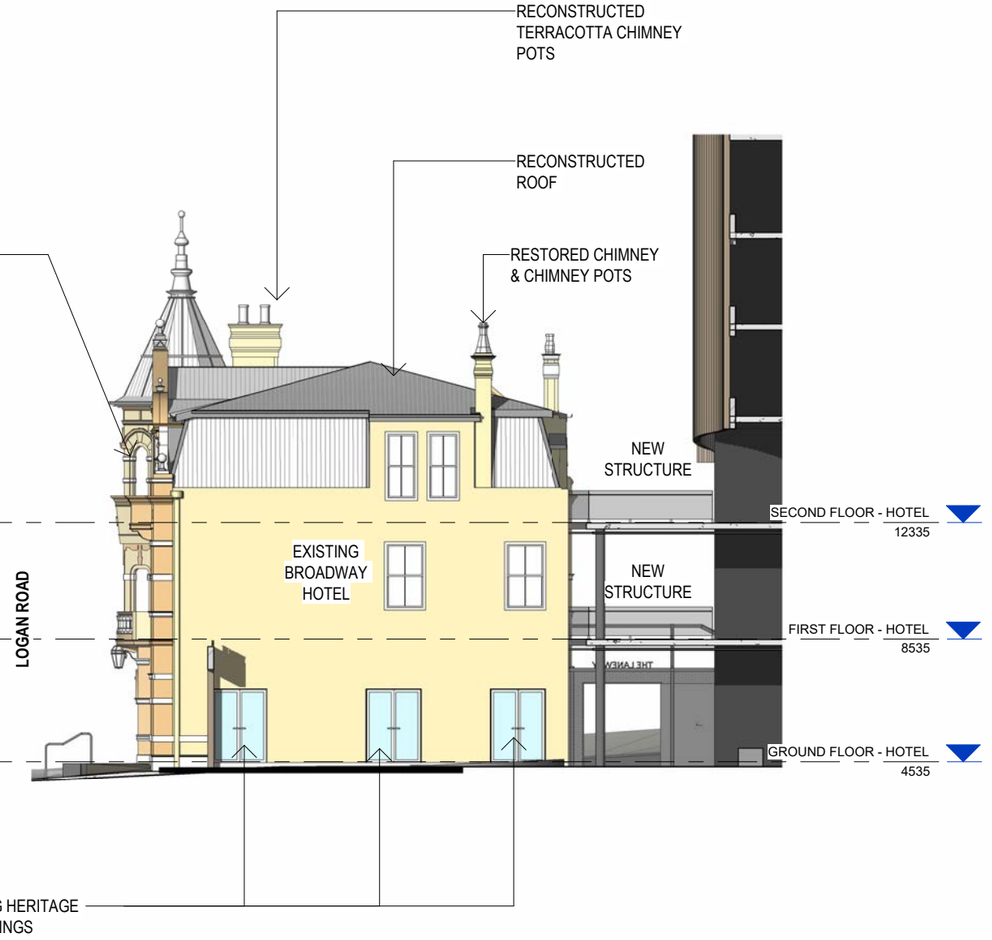
REDDOOR ARCHITECTURE

REVISION D 01.09.25 DA SUBMISSION

WWW.RDARCH.COM.AU | 210078 | SCALE 1 : 500 | 01.09.25 | 93 LOGAN ROAD, WOOLOONGABBA, QLD. 4102 | MIXED USE DEVELOPMENT | DA-2-203 | ELEVATION - SOUTH



1 - HOTEL - NORTH EAST ELEVATION
1 : 200@A3

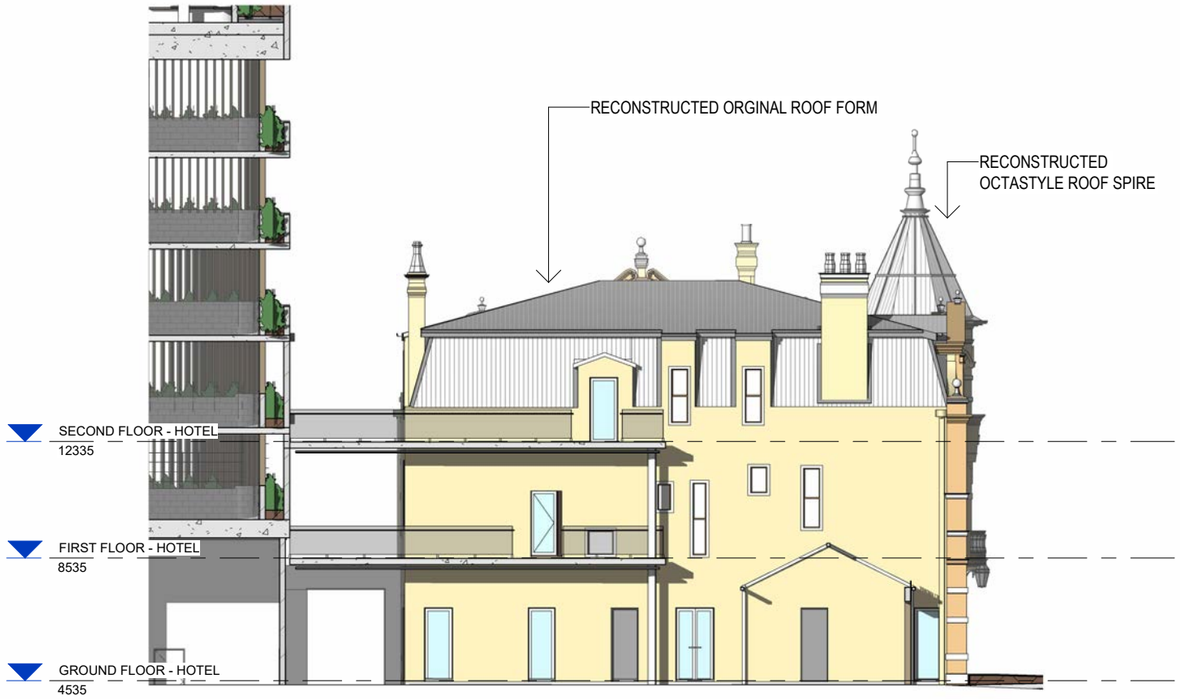


2 - HOTEL - NORTH WEST ELEVATION
1 : 200@A3

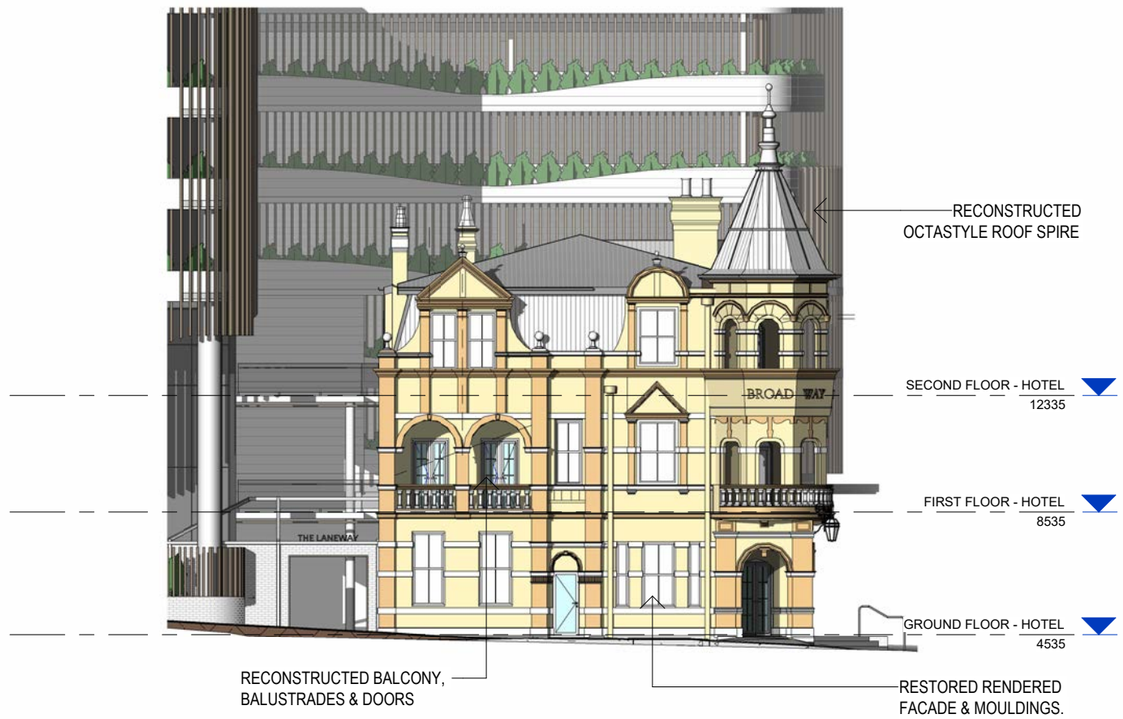
REDDOOR ARCHITECTURE

REVISION	F	01.09.25	DA SUBMISSION

WWW.RDARCH.COM.AU | 210078 | SCALE 1 : 200 | 01.09.25 | 93 LOGAN ROAD, WOOLOONGABBA, QLD. 4102 | MIXED USE DEVELOPMENT | DA-2-205 | HOTEL ELEVATIONS - NORTH



1 / - HOTEL - SOUTH-WEST ELEVATION
1 : 200@A3

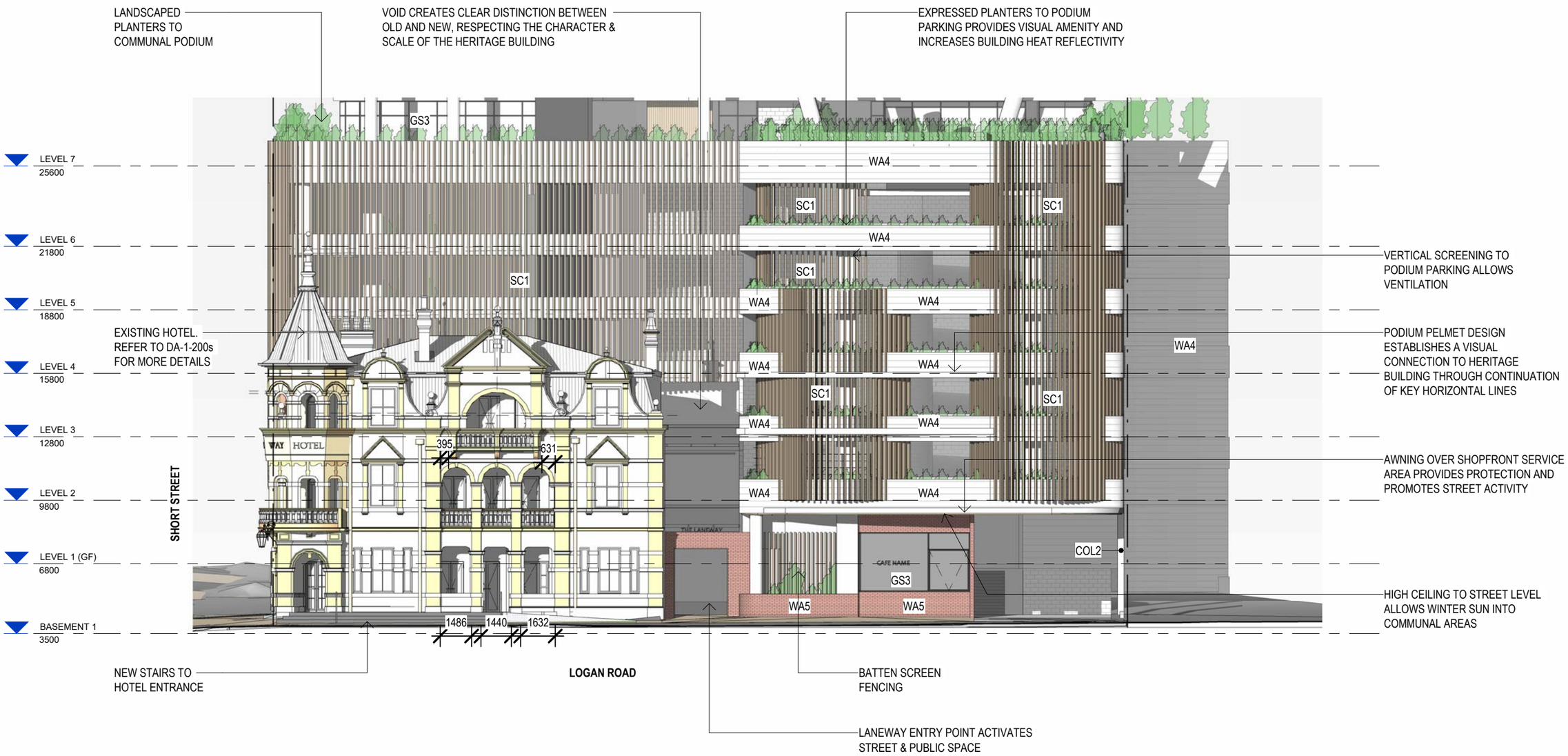


2 / - HOTEL - SOUTH EAST ELEVATION
1 : 200@A3

REDDOOR ARCHITECTURE

REVISION E 01.09.25 DA SUBMISSION

WWW.RDARCH.COM.AU | 210078 | SCALE 1 : 200 | 01.09.25 | 93 LOGAN ROAD, WOOLOONGABBA, QLD. 4102 | MIXED USE DEVELOPMENT | DA-2-206 | HOTEL ELEVATIONS - SOUTH



1 - NORTH-EAST ELEVATION - LOGAN ROAD
1 : 200@A3

REDDOOR ARCHITECTURE

REVISION E 01.09.25 DA SUBMISSION

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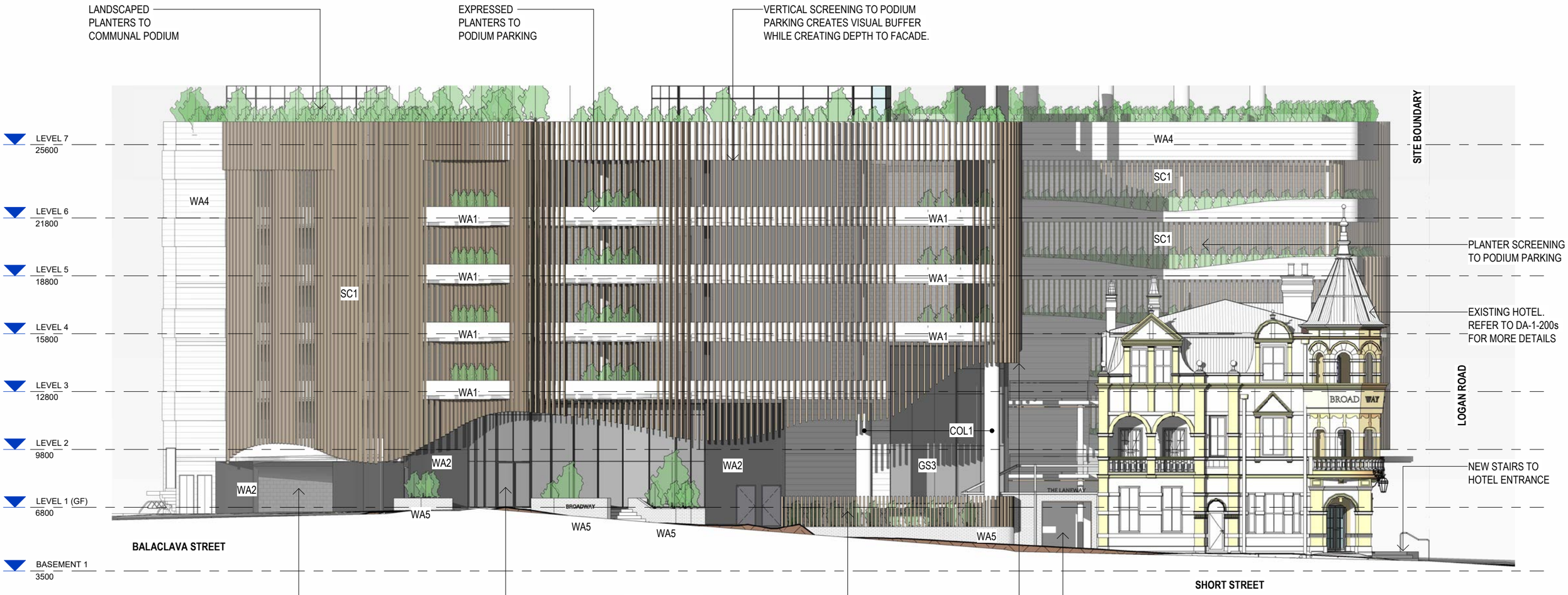


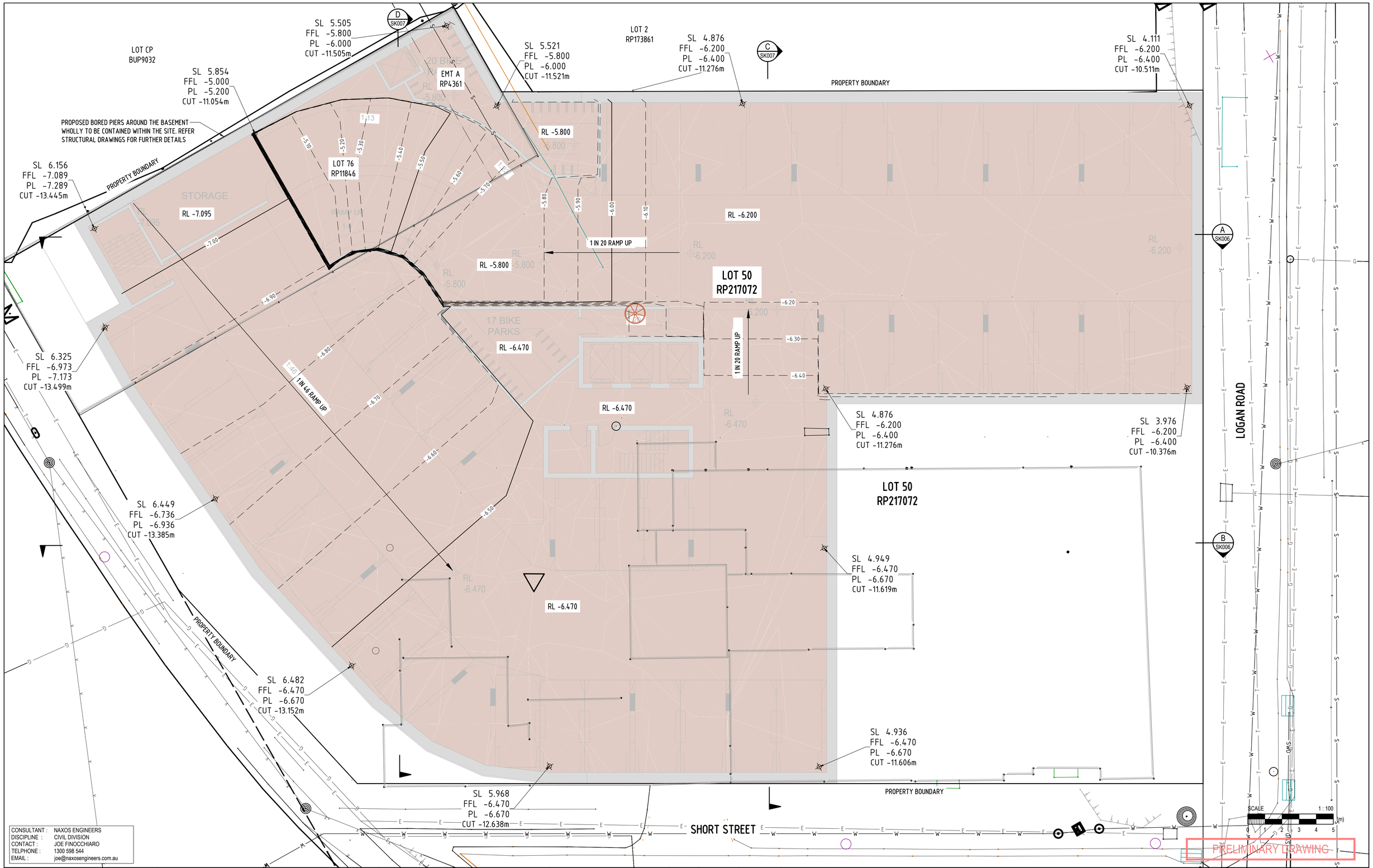
1 - SOUTH-EAST ELEVATION - SHORT STREET
1 : 200@A3

REDDOOR ARCHITECTURE

REVISION			
	E	01.09.25	DA SUBMISSION

WWW.RDARCH.COM.AU	210078	SCALE 1 : 200	01.09.25	93 LOGAN ROAD, WOOLOONGABBA, QLD. 4102	MIXED USE DEVELOPMENT	DA-2-208	PODIUM ELEVATIONS - SOUTH

Appendix F – CONCEPT STORMWATER PLANS



CONSULTANT : NAXOS ENGINEERS
DISCIPLINE : CIVIL DIVISION
CONTACT : JOE FINOCCHIARO
TELPHONE : 1300 598 544
EMAIL : joe@naxosengineers.com.au

NAXOS ENGINEERS
T 1300 598 544
E info@naxosengineers.com.au
Level 1, Suite B
557 Gregory Terrace, Fortitude Valley, Qld 4006
PO Box 224, Spring Hill QLD 4004
NAXOSENGINEERS.COM.AU

AMENDMENTS

No.	DATE	DESCRIPTION	DRAWN
A	26.06.2023	PRELIMINARY ISSUE	SD
B	06.09.2023	PRELIMINARY ISSUE	NP
C	16.07.2025	PRELIMINARY ISSUE	NP

Associated Consultant:
RED DOOR ARCHITECTURE

Approved: GREGG TYQUIN
RPEQ. 1528 Date:
Drawn: NP
Design: NP
Checked: GT
Supervisor: GF

DISCLAIMER NOTE:

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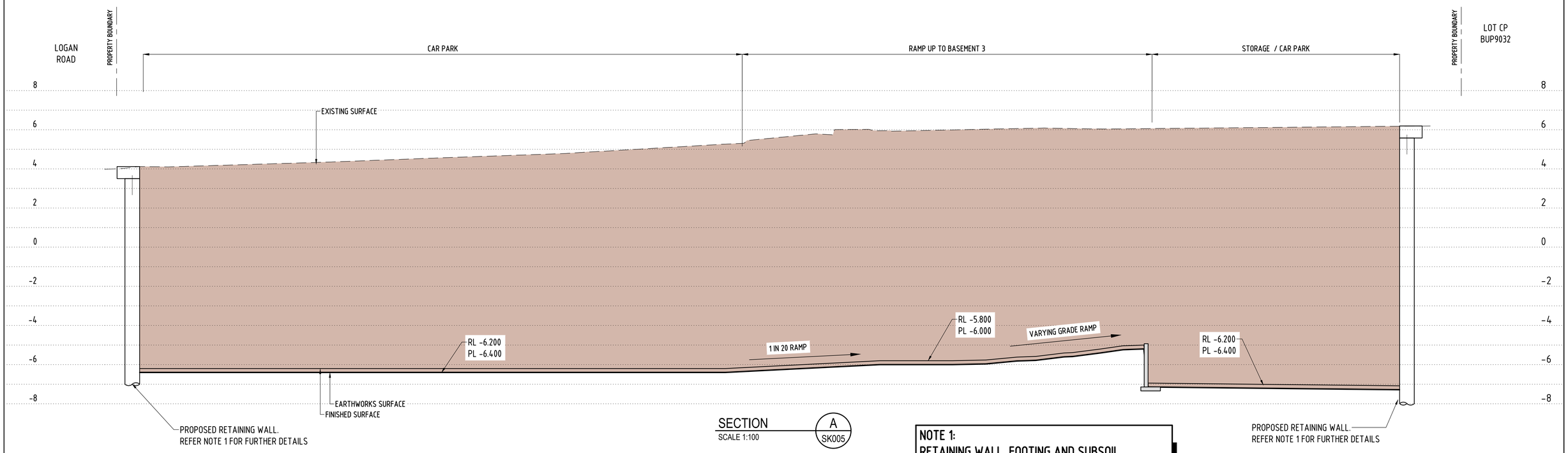
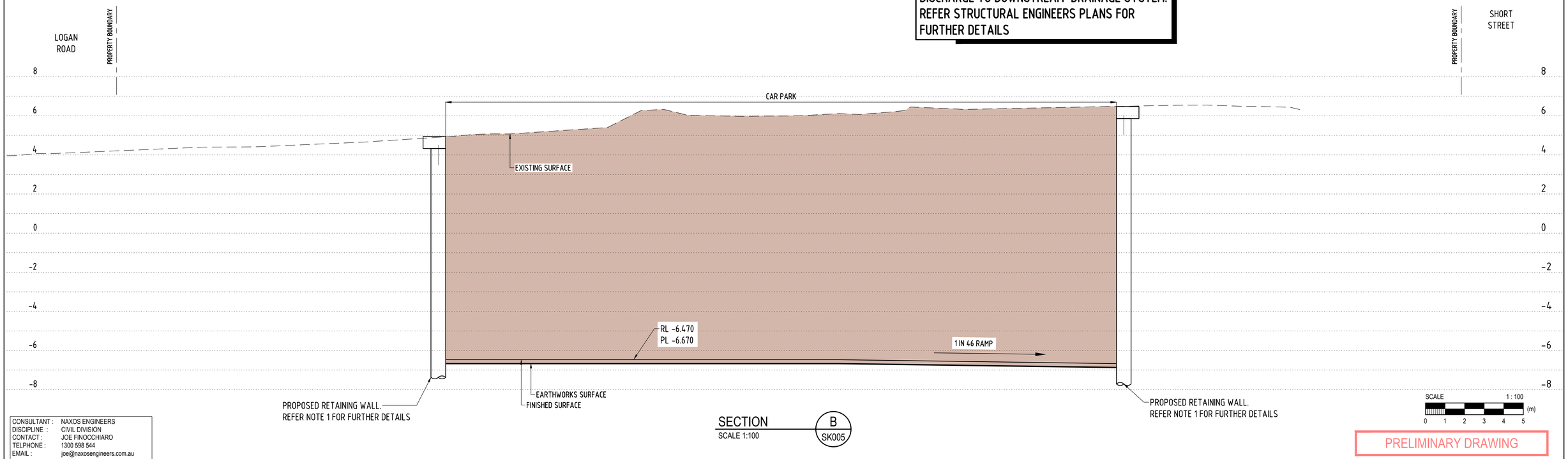
CONCEPT EARTHWORKS LAYOUT PLAN

North:
Orig. Drg. Size A1
Size of Land: 2374M²
Scale: AS SHOWN
Client: CARBONE DEVELOPMENTS PTY LTD
Project: PROPOSED MULTI-USE DEVELOPMENT
93 LOGAN ROAD, WOOLLOONGABBA,QLD 4102
Job No. 23-198
Drawing No. SK005
Revision: C



SECTION A
SCALE 1:100
SK005

NOTE 1:
RETAINING WALL, FOOTING AND SUBSOIL DRAINAGE TO BE WHOLLY CONTAINED WITHIN DEVELOPMENT SITE AND SUBSOIL DRAINAGE TO DISCHARGE TO DOWNSTREAM DRAINAGE SYSTEM. REFER STRUCTURAL ENGINEERS PLANS FOR FURTHER DETAILS



SECTION B
SCALE 1:100
SK005

SCALE 1 : 100
0 1 2 3 4 5 (m)

PRELIMINARY DRAWING

CONSULTANT : NAXOS ENGINEERS
DISCIPLINE : CIVIL DIVISION
CONTACT : JOE FINOCCHIARO
TELPHONE : 1300 598 544
EMAIL : joe@naxosengineers.com.au

NAXOS ENGINEERS
T 1300 598 544
E info@naxosengineers.com.au
Level 1, Suite B
557 Gregory Terrace, Fortitude Valley, Qld 4006
PO Box 224, Spring Hill QLD 4004
NAXOSENGINEERS.COM.AU

AMENDMENTS

No.	DATE	DESCRIPTION	DRAWN
A	26.06.2023	PRELIMINARY ISSUE	SD
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C	16.07.2025	PRELIMINARY ISSUE	NP

Associated Consultant:
RED DOOR ARCHITECTURE

Approved: GREGG TYQUIN
RPEQ. 1528 Date:

Drawn:	Design:
NP	NP
Checked:	Supervisor:
GT	GF

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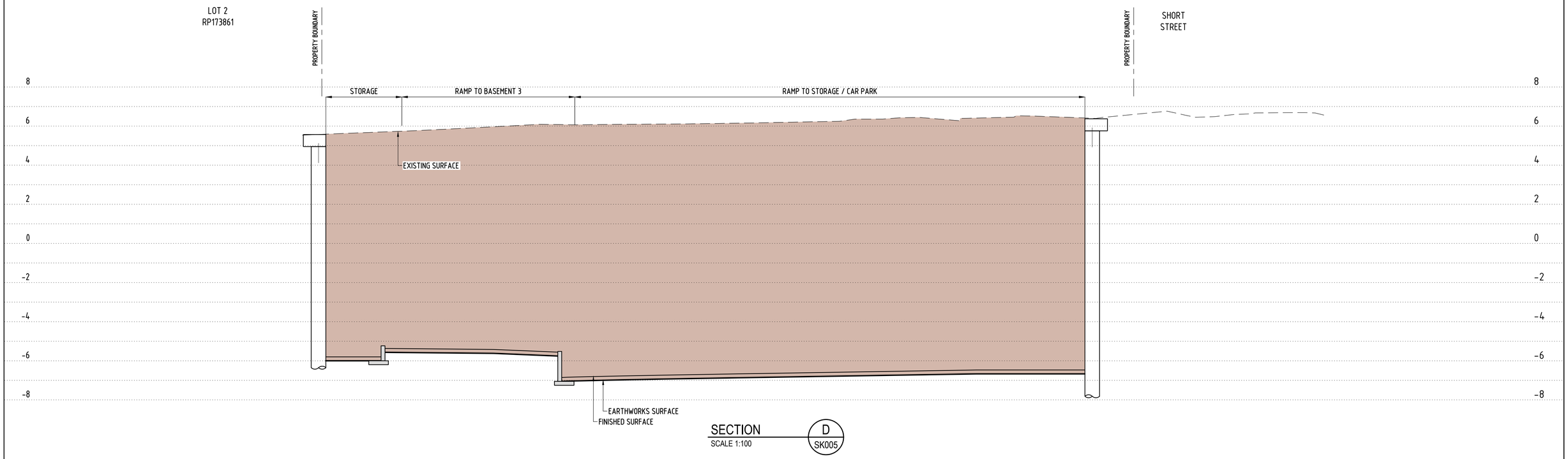
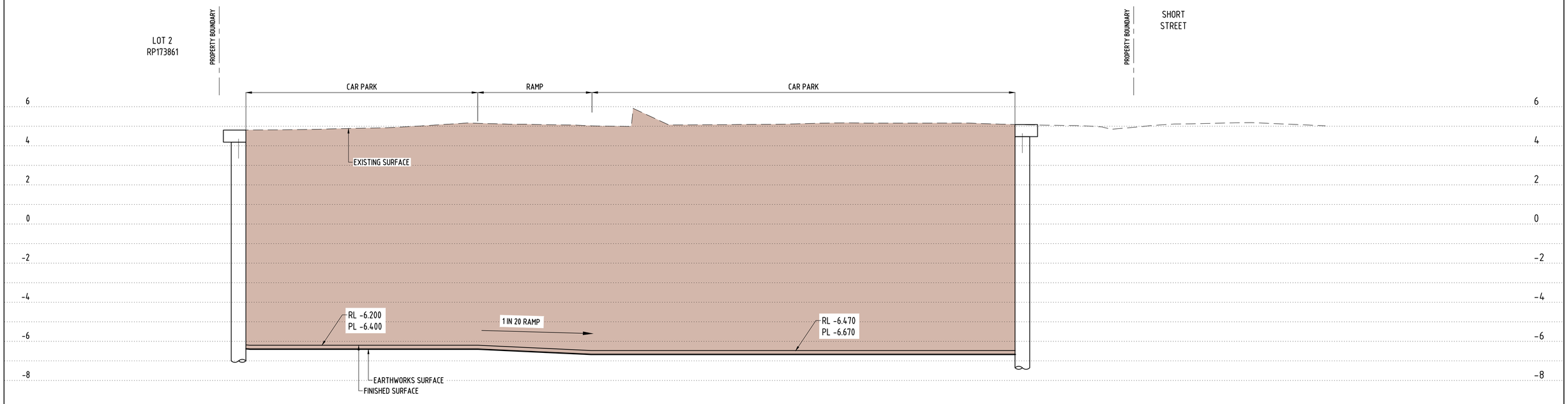
CONCEPT EARTHWORKS SECTIONS (SHEET 1 OF 2)

North:
Orig. Drg. Size: A1
Size of Land: 2374M²
Scale: AS SHOWN
Client: CARBONE DEVELOPMENTS PTY LTD
Project: PROPOSED MULTI-USE DEVELOPMENT
93 LOGAN ROAD, WOOLLOONGABBA,QLD 4102
Job No. 23-198
Drawing No. SK006
Revision: C



SECTION D
SCALE 1:100 SK005



SECTION C
SCALE 1:100 SK005

SCALE 1 : 100
0 1 2 3 4 5 (m)

PRELIMINARY DRAWING

CONSULTANT : NAXOS ENGINEERS
DISCIPLINE : CIVIL DIVISION
CONTACT : JOE FINOCCHIARO
TELPHONE : 1300 598 544
EMAIL : joe@naxosengineers.com.au

NAXOS ENGINEERS
T 1300 598 544
E info@naxosengineers.com.au
Level 1, Suite B
557 Gregory Terrace, Fortitude Valley, Qld 4006
PO Box 224, Spring Hill QLD 4004
NAXOSENGINEERS.COM.AU

AMENDMENTS

No.	DATE	DESCRIPTION	DRAWN
A	06.09.2023	PRELIMINARY ISSUE	NP
B	06.09.2023	PRELIMINARY ISSUE	NP
C	16.07.2025	PRELIMINARY ISSUE	NP

Associated Consultant:
RED DOOR ARCHITECTURE

Approved: GREGG TYQUIN
RPEQ. 1528 Date:

Drawn: NP | Design: NP
Checked: GT | Supervisor: GF

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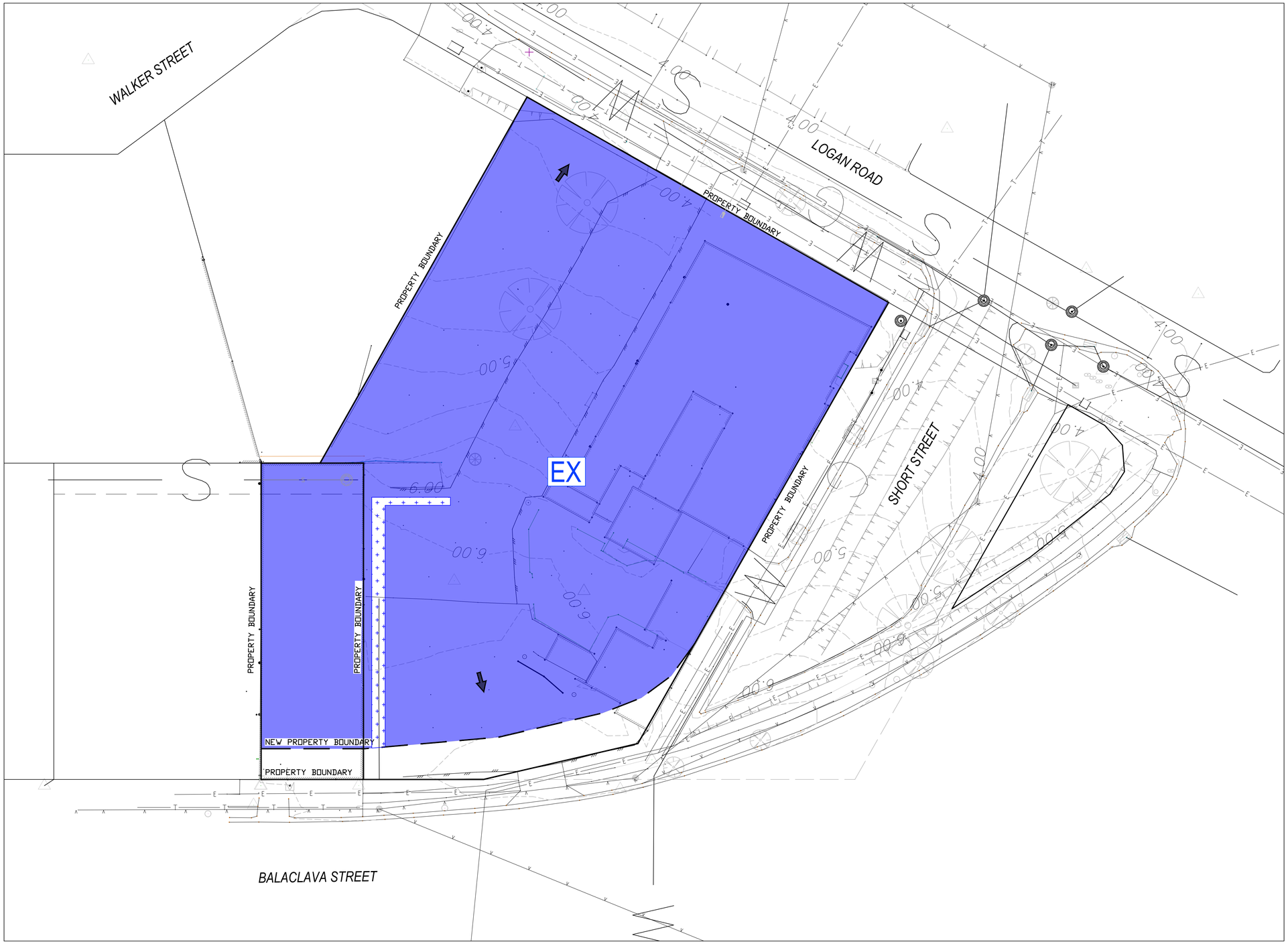
CONCEPT EARTHWORKS SECTIONS (SHEET 2 OF 2)

North:
Orig. Drg. Size A1
Size of Land: 2374M²
Scale: 1:100
Client: CARBONE DEVELOPMENTS PTY LTD
Project: PROPOSED MULTI-USE DEVELOPMENT
93 LOGAN ROAD, WOOLLOONGABBA,QLD 4102
Job No. 23-198
Drawing No. SK007
Revision: C



STORMWATER CATCHMENT TABLE

CATCHMENT NAME	CATCHMENT AREA (m²)	MINOR COEFFICIENT (ARI 10 YEAR)	MAJOR COEFFICIENT (ARI 100 YEAR)	IMPERVIOUS CATCHMENT AREA (m²)	PERVIOUS CATCHMENT AREA (m²)	IMPERVIOUS AREA (%)	PERVIOUS AREA (%)
EX	2374	0.900	1.000	2333	41	98.3	1.7

NOTES:
1. SITE EXTENTS BASED OFF NEAR MAP IMAGERY.
2. SUBJECT TO DETAILED DESIGN AND SITE SURVEY.

LEGEND

- PROPERTY BOUNDARY
- NEW PROPERTY BOUNDARY
- OVERLAND FLOW DIRECTION
- IMPERVIOUS AREA
- PERVIOUS AREA
- EX — CATCHMENT LABEL
- EXISTING KERB AND CHANNEL
- EXISTING CROWN OF ROAD
- EXISTING CONTOUR
- SW — EXISTING STORMWATER DRAINAGE
- W — EXISTING WATER
- S — EXISTING SEWER
- T — EXISTING TELSTRA
- G — EXISTING GAS
- EXISTING TREE

SCALE 1 : 200
0 2 4 6 8 10 (m)

PRELIMINARY DRAWING

CONSULTANT : NAXOS ENGINEERS
DISCIPLINE : CIVIL DIVISION
CONTACT : JOE FINOCCHIARO
TELPHONE : 1300 598 544
EMAIL : joe@naxosengineers.com.au

NAXOS ENGINEERS
T 1300 598 544
E info@naxosengineers.com.au
Level 1, Suite B
557 Gregory Terrace, Fortitude Valley, Qld 4006
PO Box 224, Spring Hill QLD 4004
NAXOSENGINEERS.COM.AU

AMENDMENTS

No.	DATE	DESCRIPTION	DRAWN
A	26.06.2023	PRELIMINARY ISSUE	SD
B	16.07.2025	PRELIMINARY ISSUE	NP

Associated Consultant:
RED DOOR ARCHITECTURE

Approved: GREGG TYQUIN
RPEQ. 1528 Date:

Drawn: SD | Design: SD
Checked: GT | Supervisor: GF

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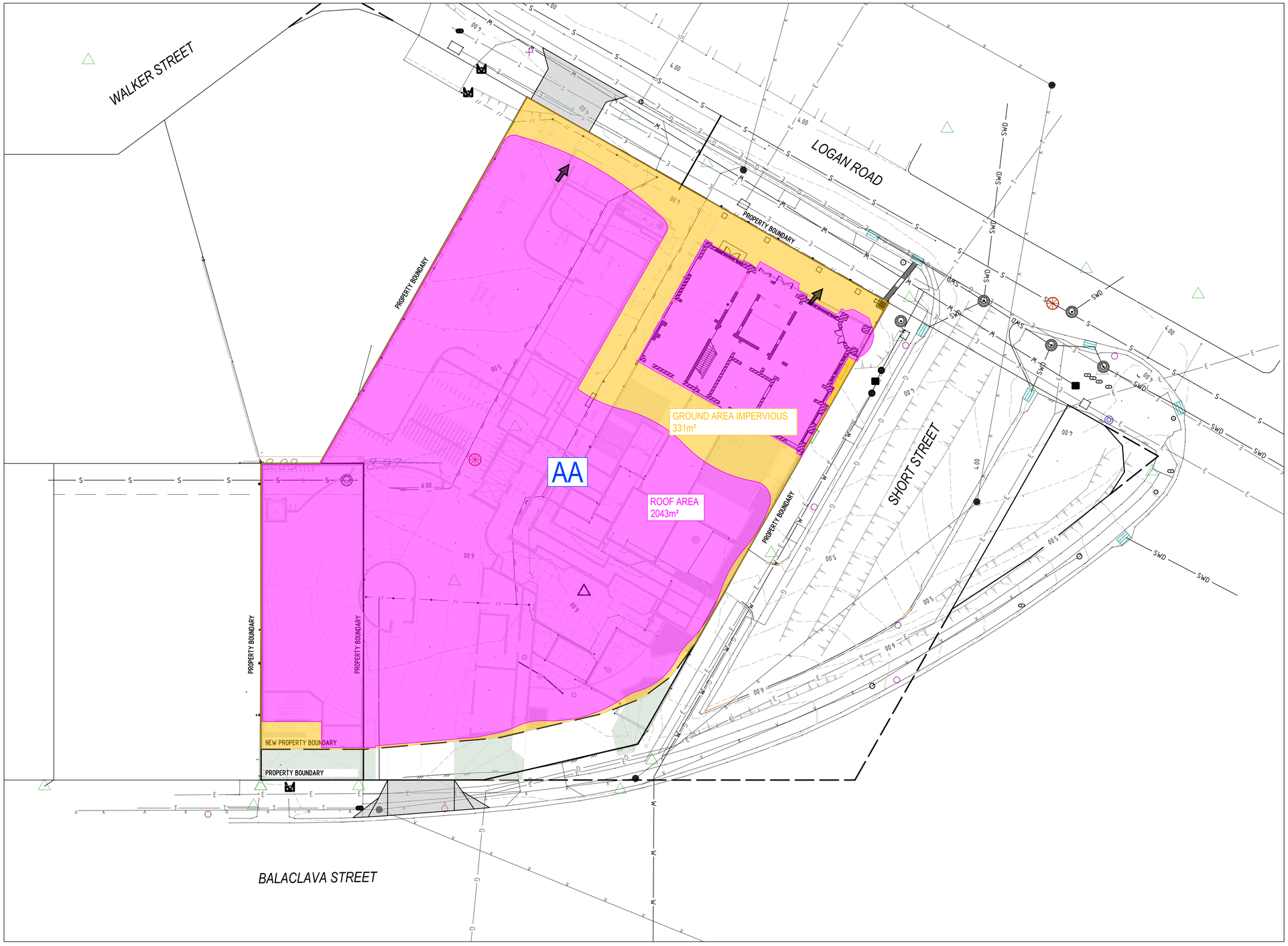
PRE-DEVELOPMENT STORMWATER CATCHMENT PLAN

North:
Orig. Drg. Size A1
Size of Land: 2374M²
Scale: 1:200
Client: CARBONE DEVELOPMENTS PTY LTD
Project: PROPOSED MULTI-USE DEVELOPMENT
93 LOGAN ROAD, WOOLLOONGABBA,QLD 4102
Job No. 23-198
Drawing No. SK001
Revision: B



STORMWATER CATCHMENT TABLE

CATCHMENT NAME	CATCHMENT AREA (m²)	MINOR COEFFICIENT (ARI 10 YEAR)	MAJOR COEFFICIENT (ARI 100 YEAR)	IMPERVIOUS CATCHMENT AREA (m²)	PERVIOUS CATCHMENT AREA (m²)	IMPERVIOUS AREA (%)	PERVIOUS AREA (%)
AA	2374	0.9	1.000	2374	0	100	0

STORMWATER SUB-CATCHMENTS

CATCHMENT NAME	CATCHMENT AREA (m²)	IMPERVIOUS AREA (%)	PERVIOUS AREA (%)
ROOF	2043	100	-
GROUND	331	100	-

LEGEND

- PROPERTY BOUNDARY
- NEW PROPERTY CBOUNDARY
- OVERLAND FLOW DIRECTION
- CATCHMENT AREA - ROOF
- CATCHMENT AREA - LAND IMPERVIOUS
- AA — CATCHMENT LABEL
- EXISTING KERB AND CHANNEL
- EXISTING CROWN OF ROAD
- EXISTING CONTOUR
- SW — EXISTING STORMWATER DRAINAGE
- W — EXISTING WATER
- S — EXISTING SEWER
- T — EXISTING TELSTRA
- G — EXISTING GAS
- EXISTING TREE
- PROPOSED FIELD INLET - TRAFFICABLE FIELD INLET WITH CLASS D GRATE AS PART OF STAGE 1 DEVELOPMENT.
- PROPOSED STORMWATER PIPE AS PART OF STAGE 1 DEVELOPMENT

SCALE 1 : 200

0 2 4 6 8 10 (m)

PRELIMINARY DRAWING

CONSULTANT : NAXOS ENGINEERS
DISCIPLINE : CIVIL DIVISION
CONTACT : JOE FINOCCHIARO
TELPHONE : 1300 598 544
EMAIL : joe@naxosengineers.com.au

NAXOS ENGINEERS
T 1300 598 544
E info@naxosengineers.com.au
Level 1, Suite B
557 Gregory Terrace, Fortitude Valley, Qld 4006
PO Box 224, Spring Hill QLD 4004
NAXOSENGINEERS.COM.AU

AMENDMENTS

No.	DATE	DESCRIPTION	DRAWN
A	26.06.2023	PRELIMINARY ISSUE	SD
	16.07.2025	PRELIMINARY ISSUE	NP

Associated Consultant:
RED DOOR ARCHITECTURE

Approved: GREGG TYQUIN

Drawn: GT | Design: SD | Checked: SD | Supervisor: GF

RPEQ. 1528 Date: 1528

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POST-DEVELOPMENT STORMWATER CATCHMENT PLAN

North:

Orig. Drg. Size A1

Size of Land: 2374M²

Scale: 1:200

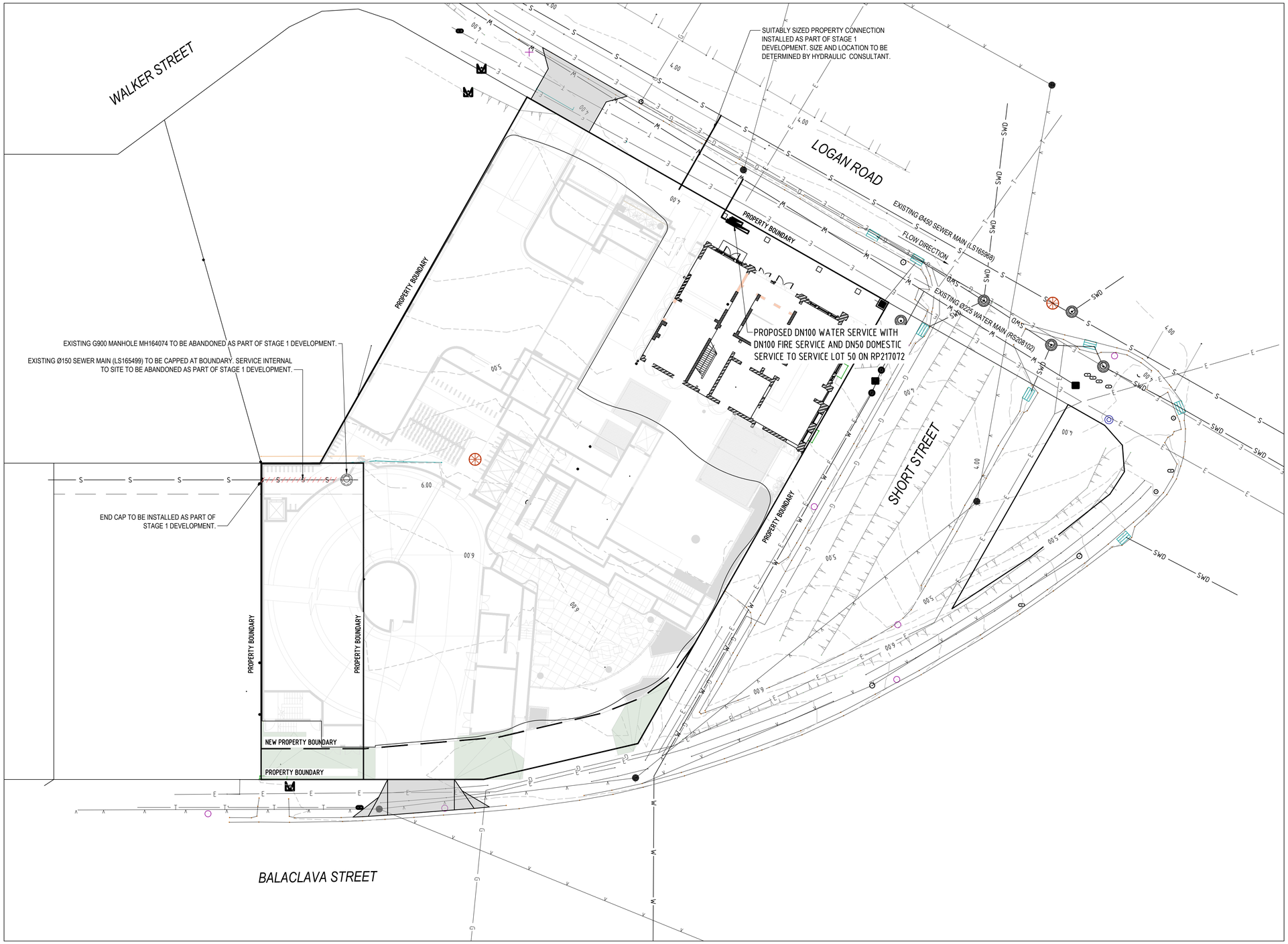
Client: CARBONE DEVELOPMENTS PTY LTD

Project: PROPOSED MULTI-USE DEVELOPMENT
93 LOGAN ROAD, WOOLLOONGABBA,QLD 4102

Job No. 23-198

Drawing No. SK002

Revision: B



SERVICES LEGEND

EXISTING	PROPOSED	ITEM DESCRIPTION
W	W	WATER RETICULATION MAIN - POTABLE
		WATER METER (SMALL / LARGE)
W		WATER SERVICE ABANDONED
S	S	GRAVITY MAIN
S		SEWER MAIN ABANDONED
		SEWER PROPERTY CONNECTION
		SEWER MANHOLE STRUCTURE (MH)
		SEWER MAINTENANCE STRUCTURE
SW	SW	STORMWATER DRAINAGE PIPE
		STORMWATER FIELD INLET WITH GRATE
		STORMWATER MANHOLE STRUCTURE (MH)
		KERB AND CHANNEL
		CROWN OF ROAD
		CONTOUR MAJOR
		CONTOUR MINOR
T		TELSTRA
G		GAS
		TREE
		PROPERTY BOUNDARY

NOTES:
1. THIS IS A GENERIC LEGEND. NOT ALL ITEMS WITHIN THIS LEGEND MAY BE PRESENT ON THIS PLAN AND THE SCALE OF THE ITEMS MAY BE DIFFERENT TO THE ITEMS PRESENTED ON THIS PLAN.

SCALE 1 : 200
0 2 4 6 8 10 (m)

PRELIMINARY DRAWING

CONSULTANT : NAXOS ENGINEERS
DISCIPLINE : CIVIL DIVISION
CONTACT : JOE FINOCCHIARO
TELPHONE : 1300 598 544
EMAIL : joe@naxosengineers.com.au

NAXOS ENGINEERS
T 1300 598 544
E info@naxosengineers.com.au
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NAXOSENGINEERS.COM.AU

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No.	DATE	DESCRIPTION	DRAWN
A	26.06.2023	PRELIMINARY ISSUE	SD
B	16.07.2025	PRELIMINARY ISSUE	NP

Associated Consultant:
RED DOOR ARCHITECTURE

Approved: GREGG TYQUIN
RPEQ. 1528 Date:

Drawn: SD | Design: SD
Checked: GT | Supervisor: GF

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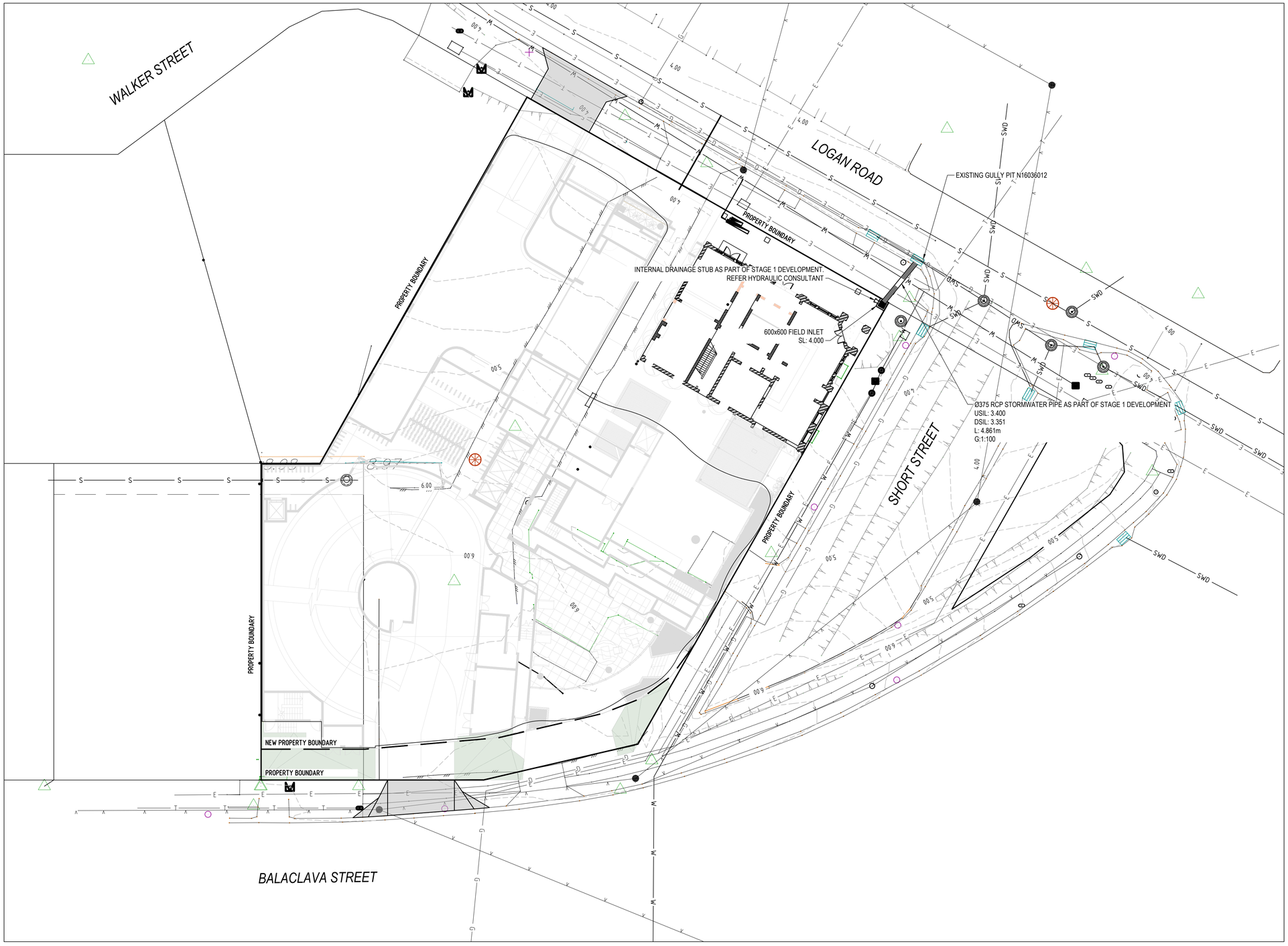
CONCEPT SERVICES LAYOUT PLAN

North:
Orig. Drg. Size A1
Size of Land: 2374M²
Scale: 1:200

Client: CARBONE DEVELOPMENTS PTY LTD

Project: PROPOSED MULTI-USE DEVELOPMENT
93 LOGAN ROAD, WOOLLOONGABBA,QLD 4102

Job No. 23-198
Drawing No. SK003
Revision: B



SERVICES LEGEND

EXISTING	PROPOSED	ITEM DESCRIPTION
W	W	WATER RETICULATION MAIN - POTABLE
		WATER METER (SMALL / LARGE)
W		WATER SERVICE ABANDONED
S	S	GRAVITY MAIN
S		SEWER MAIN ABANDONED
		SEWER PROPERTY CONNECTION
		SEWER MANHOLE STRUCTURE (MH)
		SEWER MAINTENANCE STRUCTURE
SW		STORMWATER DRAINAGE PIPE
		STORMWATER FIELD INLET WITH GRATE
		STORMWATER MANHOLE STRUCTURE (MH)
		KERB AND CHANNEL
		CROWN OF ROAD
		CONTOUR MAJOR
		CONTOUR MINOR
T		TELSTRA
G		GAS
		TREE
		PROPERTY BOUNDARY

NOTES:
1. THIS IS A GENERIC LEGEND. NOT ALL ITEMS WITHIN THIS LEGEND MAY BE PRESENT ON THIS PLAN AND THE SCALE OF THE ITEMS MAY BE DIFFERENT TO THE ITEMS PRESENTED ON THIS PLAN.

SCALE 1 : 200
0 2 4 6 8 10 (m)

PRELIMINARY DRAWING

CONSULTANT : NAXOS ENGINEERS
DISCIPLINE : CIVIL DIVISION
CONTACT : JOE FINOCCHIARO
TELPHONE : 1300 598 544
EMAIL : joe@naxosengineers.com.au

NAXOS ENGINEERS
T 1300 598 544
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Level 1, Suite B
557 Gregory Terrace, Fortitude Valley, Qld 4006
PO Box 224, Spring Hill QLD 4004
NAXOSENGINEERS.COM.AU

AMENDMENTS

No.	DATE	DESCRIPTION	DRAWN
A	26.06.2023	PRELIMINARY ISSUE	SD
B	16.07.2025	PRELIMINARY ISSUE	NP

Associated Consultant:
MIRVAC DESIGN

Approved: GREGG TYQUIN
RPEQ. 1528 Date:

Drawn: SD | Design: SD
Checked: GT | Supervisor: GF

DISCLAIMER NOTE:

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CONCEPT STORMWATER LAYOUT PLAN

North:
Orig. Drg. Size A1
Size of Land: LAND SIZE
Scale: 1:200
Client: MIRVAC
Project: SKYRING TERRACE
57 SKYRING TERRACE, NEWSTEAD, QLD-4006
Job No. 23-096
Drawing No. SK004
Revision: B

Appendix G – RATIONAL METHOD CALCULATIONS

STORMWATER DISCHARGE CALCULATION

Refer QUDM 4th Ed. Section 4.3, "The Rational Method"

Project Number	**23-198**
Project Address	**93 Logan Road**
Description	**Pre-Development Vs Post-Development**
Author	**GF**
Date	**16 th July 2025**

NAXOS ENGINEERS

NAXOS ENGINEERS PTY LTD
ABN 65 613 555 687
PO Box 224, Spring Hill QLD 4004
1300 598 544
info@naxosengineers.com.au

Catchment Details

Development Type	Pre-Development	Post-Development
Catchment Area (m^2)	2374	2374
Total Area (ha)	0.237	0.237
Impervious Area (m^2)	2333	2374
Pervious Area (m^2)	41	0

Fraction Impervious Details

Calculated Fraction Impervious fi (%)	0.983	1.000
Manually override Fraction Impervious (fi)		
Fraction Impervious (fi) used	0.983	1.000
Is Fraction Impervious (fi) is less than 0.2 (If Yes soil properties required)	NO	NO
Soil Description		
Soil Permeability		

1 hour rainfall intensity ($^1I_{10}$) Details

IFD value calculated from IFD Input (mm/hr)	64.40
Manually override IFD value (mm/hr)	
IFD value used (mm/hr)	64.40

Discharge Ceofficient C_{10} Details

QUDM 10 year Discharge Ceofficient C_{10}	0.895	0.900
Manually override Discharge Ceofficient C_{10}	0.9	0.9
10 year Discharge Ceofficient C_{10} used:	0.900	0.900

Time of Concentration T_c Details

Time of Concentration T_c (min.) :	10.000	5.000

			Pre-Development			Post-Development	
Flood Event	**Frequency Factor**	**Coeff. of Discharge**	**Intensity**	**Peak Discharge**	**Coeff. of Discharge**	**Intensity**	**Peak Discharge**
ARI	**F_y**	**$C_y = F_y \times C_{10}$**	**mm/hr**	**Q_y**	**$C_y = F_y \times C_{10}$**	**mm/hr**	**Q_y**
1	0.80	0.720	92	0.044	0.720	112	0.053
2	0.85	0.765	105	0.053	0.765	127	0.064
5	0.95	0.855	142	0.080	0.855	174	0.098
10	1.00	0.900	167	0.099	0.900	205	0.122
20	1.05	0.945	192	0.120	0.945	236	0.147
50	1.15	1.000	223	0.147	1.000	276	0.182
100	1.20	1.000	247	0.163	1.000	307	0.202

Rational Method

Q = CIA / 360

Appendix H - FILTER BASKET OPERATION & MAINTENANCE MANUAL

Model Number

Job Number

SPEL StormSack

OPERATIONS & MAINTENANCE

www.spel.com.au

SPEL ENVIRONMENTAL
INTEGRATED WATER SOLUTIONS

Manual Introduction

CHAPTER 1

Maintenance of the SPEL StormSack is essential to preservation of its condition to ensure lifetime operational effectiveness.

The SPEL StormSack is a highly engineered water quality device that is deployed directly in the stormwater system as primary treatment to capture contaminants close to the surface. To ensure full operational capacity, it is vital to ensure that the pollutants it captures are periodically removed, and filtration components are thoroughly cleaned.

Maintenance frequencies and requirements of the SPEL StormSack are dependent on the biological factors of the site in which it is situated. These factors can include excessive sediment loading or occurrence of toxic chemicals due to the natural and unnatural factors such as site erosion, chemical spills or extreme storms.

This manual has been designed by the SPEL StormSack Manufacturer the client or device owner in the maintenance of the SPEL StormSacks.

This manual should be used in conjunction with the relevant site traffic management and safety plans, as well as any other provided documentation from SPEL.

SPEL StormSack Specifications/Features

CHAPTER 2

1. General Description

The SPEL StormSack provides effective filtration of solid pollutants and debris typical of urban runoff, while utilising the existing or new storm drain infrastructure. The StormSack is designed to rest on the flanges of conventional catch basin frames and is engineered for most hydraulic and cold climate conditions.

Components:

a. Adjustable Flange and Deflector: Aluminium Alloy 6063-T6
b. Splash Guard: neoprene rubber
c. StormSack: woven polypropylene geotextile with US Mesh 20
d. Corner Filler: Aluminium Allow 5052-H32
e. Lifting Tabs: Aluminium Allow 5052-H32
f. Replaceable Oil Boom: polypropylene 3 inch (76 mm) diameter
g. Mesh Liner: HDPE, diamond configuration
h. Support Hardware: CRES 300 Series

Sizes:

STANDARD SPEL STORMSACK TO SUIT PIT SIZES

- 450x450mm
- 600x600mm
- 900x600mm
- 900x900mm

Custom sizes (i.e. 1200x900mm) can be manufactured on short lead times.

Health and Safety

CHAPTER 3

1. Personal Health & Safety

When carrying out maintenance operations of the SPEL StormSack all contractors and staff personnel must comply with all current workplace health and safety legislation.

The below measures should be adhered as practically as possible:

- Comply with all applicable laws, regulations and standards
- All those involved are informed and understand their obligations in respect of the workplace health and safety legislation.
- Ensure responsibility is accepted by all employees to practice and promote a safe and healthy work environment.

2. Personal Protective Equipment

When carrying out maintenance operations of the SPEL StormSack, wearing the appropriate personal protective equipment is vital to reducing potential hazards. Personal protective equipment in this application includes:

- Eye protection
- Safety apron
- Fluorescent safety vest
- Form of skin protection
- Puncture resistant gloves
- Steel capped safety boots

3. Maintenance of the SPEL StormSacks is a specialist activity.

When carrying out maintenance operations of the SPEL StormSack, factors such as equipment handling methods, pollutants and site circumstances can impose potential risks to the maintainer and nearby civilians.

4. Captured Pollutants

The material captured by the SPEL StormSack can be harmful and needs to be handled correctly. The nature and amount of the captured pollutants depends on the characteristics of the site. Pollutants can include from organic material such as leaves and sticks through to debris such as plastics, glass and other foreign objects such as syringes.

5. Site Circumstances

It is essential that Occupational Safety and Health guidelines and site specific safety requirements are followed at all times. It is important that all following steps specified by SPEL are carried out to ensure safety in the entire maintenance operation. The general workplace hazards associated with working outdoors also need to be taken into account.

6. Equipment Handling

Handling activities such as a removing the drain grate a well as managing pedestrians and other non-worker personnel at the site should be exercised in accordance with specified safety procedures and guidelines.

CHAPTER 3

7. Confined Spaces

Confined space entry procedures are not covered in this manual. It is requested that all personnel carrying out maintenance of the SPEL StormSack must evaluate their own needs for confined space entry and compliance with occupational health and safety regulations

When maintenance operations cannot be carried out from the surface and there is a need to enter confined space, only personnel that currently hold a Confined Space Entry Permit are allowed to enter the confined space. All appropriate safety equipment must be worn, and only trained personnel are permitted to use any required breathing apparatus gear. Necessary measures and controls must always be exercised to meet the confined space entry requirements. Non trained staff are not permitted to participle in any confined space entries.

8. Traffic Management

Typically stormwater gully pits are situated on roads and carparks, or adjacent to roads in a footpath or swale. As traffic requirements vary depending on the circumstance of the site, separate traffic control plans should be prepared for each site.

The specific road safety requirements for each site can be obtained from the relevant road authority to ensure all maintenance operations comply with the laws and regulations. State government publications can also be useful to find out the signage requirements, placement of safety cones and barricades that are required when working on public roads.

Operations

CHAPTER 4

1. General Monitoring

The SPEL Stormsack must be checked on a regular basis to analyse whether it requires maintenance or cleaning.

As gully pit grates are usually quite heavy, it is vital to exercise the correct lifting techniques and also ensure that the area surrounding the open pit is shielded from access of non-work personnel.

To ensure optimal performance of the SPEL Stormsack, the material collected by the filter bag should not exceed the level of approximately a half to two thirds of the total bag depth. When this material collected is showing signs of exceeding this level they should be scheduled to be emptied.

It is also recommended that additional monitoring is conducted following moderate to extreme rainfall events, especially when previous months have had little or no rainfall.

2. Gully Pit Cover Removal

CHAPTER 4

Opening a Hinged Pit Cover

A. Insert the lifting hooks beneath the grate

B. Check hinge points are not damaged and debris is not caught in the hinge area

C. Fully open pit grate, ensuring that the grate will stay in the open position without any external forces applied. Grates that do not remain open without being held, should be removed or secured during maintenance activities.

Opening a Non-Hinged Pit Cover

A. Place lifting hooks beneath grate, where possible in the four corners of the grate. Concrete lids may have Gatic lifting points, a key arrangement or holes in the lid, which may require special equipment such as Gatic lifters. Alternatively if safe to do so grip the grade with your hands.

B. Position each person on either side of the grate.

C. Lift the grate, ensuring that good heavy lifting posture is used at all times.

D. Place the grate on angle on the gutter, to allow for the lifting hooks to be removed.

E. For extremely heavy one-piece grates and concrete Gatic covers, insert the lifters in place and slide the lids back.

CHAPTER 4

3. Cleaning Methods

Cleaning using an inductor truck

A. Open Gully pit
B. Place the indicator hose, suck out all of the sediment, organic leaf material, litter and other materials that were collected in the filter bag
C. Allow the filter bag to be sucked up in the inductor hose for a few seconds to allow for the filter mesh pores to be cleaned.
D. Use the inductor hose to remove any build-up of material around the overflows and in the bottom of the pit.
E. Remove filter back from pit
F. Remove any sediment and litter caught in the Gully pit grate
G. Back opening channels are to be cleared of any debris to ensure flow is not hindered.
H. Thoroughly examine the structural integrity of the filter bag and frame.
I. Reinstate filter bag and gully pit covers

Hand Maintenance

A. Open Gully pit
B. Using the correct lifting technique, lift the StormSack out by the diagonal lifting corners fitted to the frame.
C. For extremely heavy and overfilled bags either use a hydraulic lifting arm to lift the StormSack, or remove excess material using a shovel or etc. Take care not to damage the bag when removing litter form the bag.
D. Lift the StormSack clear of the stormwater pit.



E. Position the StormSack over the collection bin or vehicle.
F. Lift and empty the bag by holding the bottom lifting loops only.
G. Brush the StormSack with a stiff brush to remove the sediment from the filter pores.
H. Thoroughly examine the structural integrity of the filter bag and frame.
I. Reinstate StormSack and gully pit covers.



CHAPTER 4

4. SPEL StormSack Post Maintenance Inspection

After the SPEL Stormsack has been removed, emptied and cleaned, it should be thoroughly examined to sure that:

- There is no movement or damage to the Cage
- There is no movement or damage to the plastic pit seals
- Structural integrity is in good condition including all fixings, joints and connections.
- The filter bag pores are not clogged
- The filter bag is not damaged in anyway.

The gully pit, pipe inlet/outlets and its cover should also be inspected to ensure there is no damage, debris build up or any potential to cause the SPEL StormSack to operate inefficiently.

5. Material Disposal

Collected materials can be potentially harmful to humans and the environment.

Once all captured material from the SPEL Stormsack has been removed, it must be taken off site and disposed of at a transfer station or a similar approved disposal site.

CHAPTER 4

6. SPEL StormSack Repairs

Depending on the extent of the damage to the SPEL StormSack unit, it can usually be repaired.

Small tears to the filter bag can be repaired by either sewing the tear back together with additional fabric to increase the strength of the stitching, or by sewing a patch of filter material onto the filter bag.

If large tears or irreparable damage to the frame and structure are present, it is advisable to replace the components.

All required spare parts can be sourced from SPEL Environmental at a cost to the owner of the SPEL Stormsack.

7. Emergency Procedures

Spills and blockages can be detrimental to the performance of a stormwater management system, potentially damaging the surrounding built infrastructure, waterways and environment.

Spill Procedures

In the event of a spill discharging into a gully pit, all effected sediment must be removed from the filter bags and the filter bags are to be removed and replaced with new filter bags. All additional cleaning as a result of the spill should also be carried out in accordance with the normal operation procedures.

Blockages

In the unlikely event of surface flooding around a gully pit which has a SPEL StormSack fitted, the following steps should be carried out:

A. Check the overflow bypass.

B. If overflow is clear and surface flooding still exists remove the SPEL StormSack and check the outlet pipe for blockages. Removal of the SPEL StormSack can be difficult if clogged with sediment and holding water.

C. If the filter is clogged brush the side walls to dislodge particles trapped at the interface allowing water to flow through the filter.

D. If the outlet pipe is blocked, it is likely that a gully sucker truck will be required to unblock it. Litter can be removed from the SPEL StormSack using the gully sucker truck before the SPEL StormSack is removed. If a gully sucker truck is not available and the SPEL StormSacks need to be removed by hand follow the below steps.

   i. Remove excess debris by hand or brush the side of the filter bag

   ii. Remove entire SPEL Stormsack by taking hold of the inside of the frame.

   iii. Unblock the outlet pipe

HEAD OFFICE

PO Box 6144
Silverwater NSW 1811

100 Silverwater Rd
Silverwater NSW 2128

Phone: +61 2 8705 0255
Fax: +61 2 8014 8699

DESIGN OFFICES

New South Wales	61 2 8705 0255
Canberra	61 2 6128 1000
Queensland	61 7 3271 6960
Victoria & Tasmania	61 3 5274 1336
South Australia	61 8 8275 8000
West Australia	61 8 9350 1000
Northern Territory	61 2 8705 0255
New Zealand	64 9 276 9045

www.spel.com.au

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