PROVIDENCE WEST ROL 2

STORMWATER QUALITY MANAGEMENT PLAN

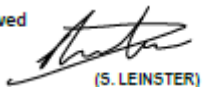
VERSION 2

DesignFlow

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1 INTRODUCTION

Development approval is currently being sought for the Reconfiguration of a Lot on land at 833-865 Ripley Road, South Ripley. The subject site is located on Lot 196 on SP157517. The Providence West ROL2 development area is located within a wider development zone, where several developments are currently either in planning or construction to the north.

The following report provides a site-based stormwater management plan for the proposed development in Providence West ROL2. The development is to be undertaken by Stockland and will involve the creation of lots for residential purposes, parklands, waterway zones and a balance lot for future development.

This stormwater management plan demonstrates how the proposed development meets the operational stormwater quality objectives defined in the *State Planning Policy* (DLGIP, 2017) and manages stormwater quantity in line with *Queensland Urban Design Manual* (QUDM) and the *Ipswich Planning Scheme Implementation Guideline No 24 – Stormwater Management*.

This is Version 2 of the stormwater management plan for Providence West ROL2 which have been documented to support a response to an Information Request.

1.1 STRATEGY OVERVIEW

The stormwater strategy for ROL2 presented in this report manages stormwater quality from the development to comply with both the current City Plan and State Planning Policy. The proposed strategy includes:

- Sediment basin 300m^2 and bioretention basin 675m^2 which treats a 16.36ha catchment
- Sediment basin 300m^2 and bioretention basin 800m^2 which treats a 16.1ha catchment.

1.2 ENDORSED STORMWATER MANAGEMENT PLAN

The stormwater strategy has been designed be consistent with the outcomes provided in the approved *Site Based Stormwater Quality Management Report for Proposed Development at 813-843 Ripley Rd, South Ripley 4306* (ETS, 2013). The report was approved as part of the Context Plan (Material Change of Use) Approval - DEV2012/283 (latest 14 November 2023). The approved report outlines the broad stormwater management strategy for the Whole Precinct West site. Appendix A illustrates the approved ETS (2013) report for Providence West and identifies the ROL2 site.

The Providence West ROL2 site forms part of the stormwater strategy outlined in this document. The new stormwater quality strategy has adopted stormwater treatment systems along the edge of the waterway, as per the approved ETS (2013) report, with the new strategy optimising the number and location of the treatment system to suit the new development layout.

Table 1 summarises the key elements of the approved SMP and summarises how the new strategy for Providence West ROL 2 implements the approved SMP.

Table 1: Assessment of Providence West ROL 2 SMP against Approved SQMP (ETS, 2013)

<table>
<tr><th>TWCM Strategy (from Section 4 of report)</th><th>Providence South ROL 1 SMP</th></tr>
<tr><td>Section 4.0 Stormwater Quality
<u>Water Quality Objectives</u>
The load based Water Quality Objectives (WQO) adopted for the Operational Phase of the development are taken from the State Planning Policy 4/10 for Healthy Waters.
Table 4: Ipswich City Council's Water Quality Objectives
<table><tr><th>Pollutant</th><th>SPP 4/10 WQO's</th></tr><tr><td>Suspended Solids</td><td>80% (Removal)</td></tr><tr><td>Total Phosphorus</td><td>60%(Removal)</td></tr><tr><td>Total Nitrogen</td><td>45% (Removal)</td></tr><tr><td>Gross Pollutants</td><td>90% (Removal)</td></tr></table></td><td>The stormwater objectives proposed for Providence West ROL 2 SMP is entirely consistent with the approved SMP:
• Construction phase objectives are consistent with the State Planning Policy – Refer Section 3.2. Detailed ESC to be developed prior to commencement of construction.
• Operational phase objectives are consistent with the State Planning Policy – Refer Section 3.1.</td></tr>
<tr><td>Section 4.0 Stormwater Quality
<u>Stormwater quality treatment summary</u>
In terms of water quality treatment, the Ripley Road development will encompass 31 separate stormwater runoff catchments which originate from within the subject site. Bioretention systems and associated trash racks and sediment forebays will be modelled and designed for each catchment. Modelling of the 31 catchments determines the bioretention filter media area required to treat the stormwater runoff from each catchment in accordance with the State Planning Policy 4/10 for Healthy Waters Water Quality Objectives (WQO's). These WQO's satisfy both Ipswich City Council and the Urban Land Development Authority requirements for stormwater quality treatment.</td><td>The stormwater strategy proposed for Providence South ROL 1 SMP is entirely consistent with the approved SMP:
• Bioretention and sediment basin systems have been adopted to deliver treatment.
• The stormwater strategy is consistent with
– Ipswich Planning Scheme (ICC, 2017)
– State Planning Policy (DSDIP, 2017)</td></tr>
</table>

2 SITE CHARACTERISTICS

2.1 SITE LOCATION

The Providence West ROL2 development is located south of the Centenary Highway and immediately west of Ripley Road, in South Ripley. The development is bounded by land currently being developed by Stockland (development known as Lacebark) to the north and future development / the proposed Catalyst Road to the south. Bundamba Creek is located to the east of Providence West.

Figure 1 shows the location of Providence West ROL2 development.



Figure 1: Locality plan (source: Nearmap)

2.2 CLIMATE

Figure 2 provides a summary of the monthly rainfall based on climate statistics for Amberley AMO (station No 40004).

The annual average rainfall is 852 mm, whilst annual evaporation is approximately 1,400mm. The figure clearly indicates the seasonal nature of rainfall and evaporation with lower rainfall and evaporation periods during the winter months.

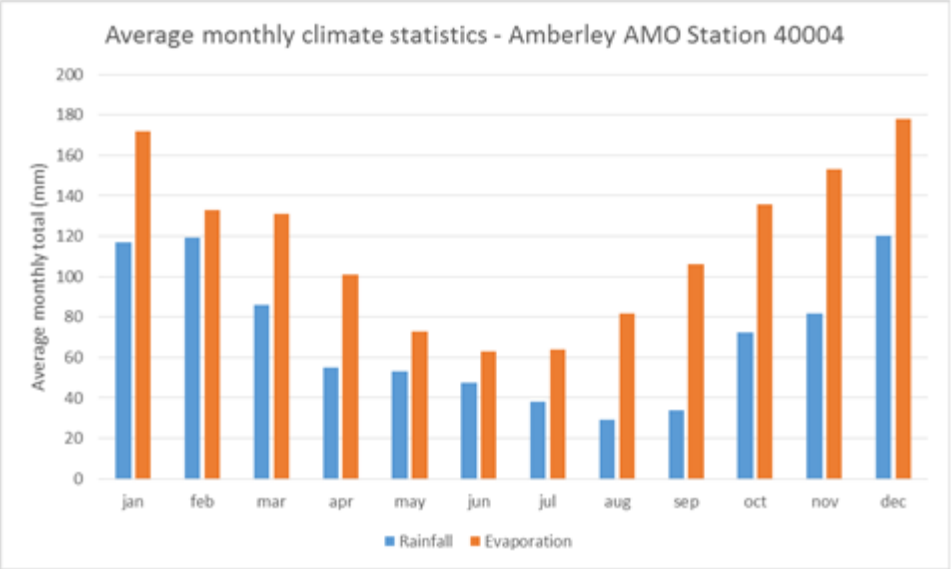


Figure 2: Average monthly climate statistics

2.3 TOPOGRAPHY AND SITE DRAINAGE

The site is characterised by moderate to steep topography (10-15% typical) in the north half of the site with flat grades along the floodplain areas (1-3%) to the south and east. The majority of the development zone drains southward off ridge lines and then east along the lower drainage and floodplain areas.

Drainage is characterised by sheet flow and then overland flow gullies in the steeper topography. On the lower zones of the site, conveyance occurs via ephemeral overland sheet flow with some isolated areas of previous erosion creating disconnected ephemeral channels / ponds on the floodplain. A large external catchment enters the site from the south west and drains from west to east through the site along the floodplain alignment.

Figure 3 shows the topography and drainage associated with the site including the main points of discharge of interest to the development zone.

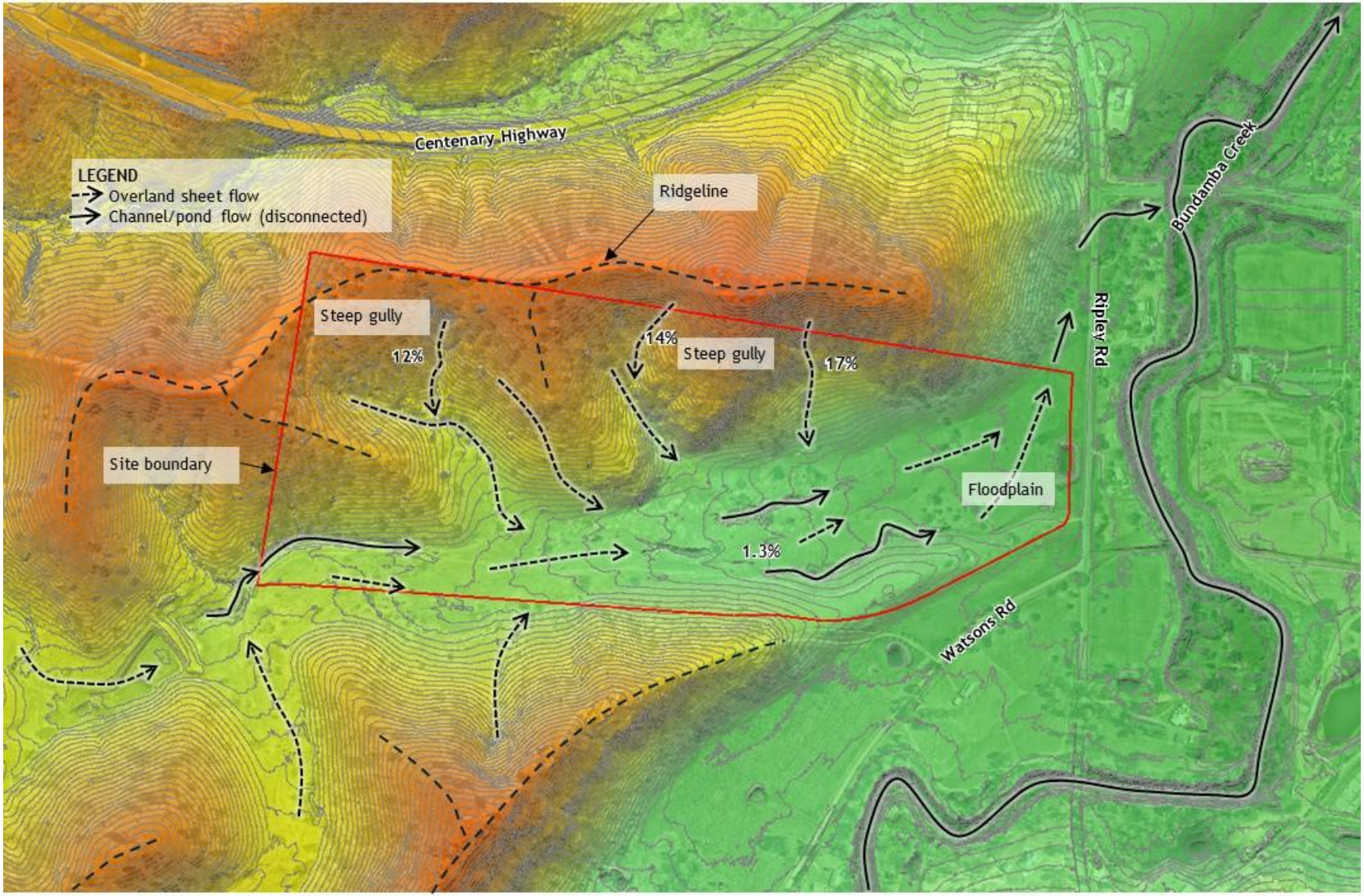


Figure 3: Existing topography and drainage

2.4 WATERWAY / MAIN DRAINAGE PATH

The main drainage path through the site runs from west to east along the southern part of the development site. The drainage and associated floodplain are highly modified due to widespread historical clearance of vegetation, ongoing grazing practices and the presence of farm dams. The drainage path is characterised by the following:

- Sandy soil with fine material component which based on observations is likely dispersive.
- Broad low level zone and floodplain with ephemeral grass-lined swales as flow paths.
- Disconnected and isolated pond/dams and eroded channels are located on the floodplain which are present as a result of farming works (to construct the dams) or erosion due to track crossing or other features. The following description is provided from upstream to downstream:
  - Upstream - Stable ponds with vegetation. Elongation of some pools indicates past channelisation or construction of dams by farmer.
  - Middle Upstream – Overland sheet flow with no defined channel.
  - Middle - Channel incision occurring along the southern and northern banks of valley margin (i.e. floodplain) creating isolated reaches of defined channels. A number of headcuts are present.
  - Downstream - Broad floodplain with overland sheet flow with no defined channel.



Photo: Upper farm dam - channel



Photo: Upper middle sheet flow (no channel)





Photo: Middle isolated incised channel



Photo: Downstream floodplain (no channel)

2.5 SOILS

The site soils are generally comprised of shallow topsoil overlaying a dispersive subsoil (dispersive nature of soils has been confirmed via soil testing). The subsoils comprise Tenosol soils, with the chief soils being hard, acidic, yellow and red mottled soils and associated soils comprising hard, alkaline, yellow and red mottled soils, and leached sands which contain large amounts of nodular ironstone material (Bioregional Assessment Programme, 2015).

The site being grazing pasture with some evidence of erosion on some incised channels on the floodplain.

2.6 PROPOSED DEVELOPMENT

The proposed development layout for Providence West ROL 2 is provided in Figure 4. The development covers an area of ~46ha comprised of the following land uses and areas:

- Residential lots (Approx 302 lots)
- Local roads
- Conservation
- District Recreation Park
- Neighbourhood Recreation Park
- Waterway corridor
- Stormwater management
- Balance Lot / Stage 5 (10.0ha) – This lot is subject to future development application but is assumed to be developed as high density residential (25 dwellings per ha)



Figure 4: Proposed development layout (Source: Therefor Group)

2.7 STORMWATER CATCHMENTS

The project civil engineers (KN Group) have completed functional engineering design for the development earthworks grading and stormwater drainage. Details of the proposed stormwater drainage catchments are summarised in Figure 5. Table 2 presents a summary of urban catchment areas and land uses proposed.



Figure 5. Proposed development catchments.

Table 2. Proposed developed stormwater catchment areas.

Catchment	Total Area (ha)	Land use	Dwellings per hectare	Assumed catchment impervious
A	2.39	Residential (incl roads)	~17	65%
B	0.50	Park	-	10%
C	14.00	Residential (incl roads)	~20	65%
D	0.20	Entry Road	-	70%
E	3.0	Park	-	10%
F	10	Future Residential (incl roads)	25	70%
G (ROL 3 external)	3.5	Residential (incl roads)	~17	65%

3 STORMWATER DESIGN OBJECTIVES

Stormwater management objectives have been established based on the following:

- *Ipswich Planning Scheme (current version)*
- *Ipswich City Council Implementation Guideline No.24*
- *State Planning Policy (DLGIP, 2017)*
- *Queensland Urban Drainage Manual (2017)*

3.1 STORMWATER QUALITY - OPERATIONAL PHASE

The stormwater quality management objectives that apply to the operational phase of the development are defined in the State Planning Policy (DLGIP, 2017) which applies load-based objectives presented in Table 3.

Table 3: Operational Phase Stormwater quality objectives.

Constituent	Discharge criteria
Total suspended solids (TSS)	80% reduction in post developed mean annual load
Total phosphorous (TP)	60% reduction in post developed mean annual load
Total nitrogen (TN)	45% reduction in post developed mean annual load
Gross pollutants	90% reduction in post developed mean annual load

3.2 STORMWATER QUALITY - CONSTRUCTION PHASE

The management of stormwater runoff during the construction phase is a critical part of protecting the waterways. The objectives defined in the State Planning Policy will apply as listed in Table 4 to Table 6 and will require compliance during construction.

This report does not provide an Erosion and Sediment Control Plan to meet these objectives. This will be provided as part of the detailed design (self-certification) and again prior to commencement of construction and certified by a CPESC.

Table 4: Construction phase stormwater quality

Issue	Desired Outcome
Drainage control	1. Manage stormwater flows around or through areas of exposed soil to avoid contamination.
	2. Manage sheet flows in order to avoid or minimise the generation of rill or gully erosion.
	3. Provide stable concentrated flow paths to achieve the construction phase stormwater management design objectives for temporary drainage works (part 2).
	4. Provide emergency spillways for sediment basins to achieve the construction phase stormwater management design objectives for emergency spillways on temporary sediment basins (part 3).
Erosion control	1. Stage clearing and construction works to minimise the area of exposed soil at any one time.
	2. Effectively cover or stabilise exposed soils prior to predicted rainfall.
	3. Prior to completion of works for the development, and prior to removal of sediment controls, all site surfaces must be effectively stabilised13 using methods which will achieve effective short-term stabilisation.
Sediment control	1. Direct runoff from exposed site soils to sediment controls that are appropriate to the extent of disturbance and level of erosion risk.
	2. All exposed areas greater than 2500 metres2 must be provided with sediment controls which are designed, implemented and maintained to a standard which would achieve at least 80% of the average annual runoff volume of the contributing catchment treated (i.e. 80% hydrological effectiveness) to 50mg/L Total Suspended Solids (TSS) or less, and pH in the range (6.5–8.5).
Litter, hydrocarbons and other contaminants	1. Remove gross pollutants and litter.
	2. Avoid the release of oil or visible sheen to released waters.
	3. Dispose of waste containing contaminants at authorised facilities.
Waterway stability and flood flow management	1. Where measures are required to meet post-construction waterway stability objectives (specified in table B), these are either installed prior to land disturbance and are integrated with erosion and sediment controls, or equivalent alternative measures are implemented during construction.
	2. Earthworks and the implementation of erosion and sediment controls are undertaken in ways which ensure flooding characteristics (including stormwater quantity characteristics) external to the development site are not worsened during construction for all events up to and including the 1 in 100 year ARI (1% AEP).

Notes:

1. Drainage, erosion and sediment controls should be appropriate to the risk posed by the activity for the relevant climatic region e.g. considering the potential soil loss rate, monthly erosivity or average monthly rainfall.
2. An effectively stabilised surface is defined as one that does not, or is not likely to result in visible evidence of soil loss caused by sheet, rill or gully erosion or lead to sedimentation water contamination.

Table 5: Construction Phase Objectives for temporary drainage.

Temporary drainage works	Anticipated operation design life and minimum design storm event		
	< 12 months	12–24 months	> 24 months
Drainage structure	1 in 2 year ARI / 39% AEP	1 in 5 year ARI / 18% AEP	1 in 10 year ARI / 10% AEP
Where located immediately up-slope of an occupied property that would be adversely affected by the failure or overtopping of the structure	1 in 10 year ARI / 10% AEP		
Culvert crossing	1 in 1 year ARI / 63% AEP		

Table 6: Construction Phase Objectives Emergency spillway on temporary sediment basins.

Drainage structure	Anticipated operation design life and minimum design storm event		
	< 3 months	3-12 months	> 12 months
Emergency spillways on temporary sediment basins	1 in 10 year ARI / 10% AEP	1 in 20 year ARI / 5% AEP	1 in 50 year ARI / 2% AEP

Note: Refer to IECA 2008 Best Practice Erosion and Sediment Control (as amended) for details on the application of the Construction Phase requirements. Advice should be obtained from a suitably qualified person e.g. Certified Practitioner in Erosion and Sediment Control, or Registered Professional Engineer Queensland, with appropriate knowledge and experience in erosion and sediment control design and implementation.

4 STORMWATER QUALITY MANAGEMENT STRATEGY

The stormwater quality treatment strategy for Providence West ROL 2 has been designed in accordance with the following policy and guidelines applicable at the date of this report:

- Ipswich Planning Scheme – namely Implementation Guideline 24
- Heathy Land and Water – Water by Design Guidelines (which are referenced in the Ipswich Planning Scheme)
- Queensland Urban Drainage Manual

Stockland propose to continue to design and implement the strategy in accordance with these policy and guidelines (current in May 2025).

Details of stormwater treatment strategy for Providence West ROL 2 are presented schematically in Figure 6 and summarised in Table 7. All treatment systems are proposed to be located between the urban development and drainage path/waterway zone. The treatment strategy includes two sediment basins and two bioretention systems.

Table 7. Stormwater management strategy elements

WSUD System ID	Treatment type	Treatment size[1]	Contributing catchment ID	Contributing catchment area
WSUD 1	Sediment pond 1 Bioretention 1	300m^2 675m^2	A, B, F and G (ext)	16.36 ha
WSUD 2	Sediment pond 2 Bioretention 2	300m^2 800m^2	C, D, & E	16.11 ha

1. Relates to the filter area. Additional space will be required during detailed design to provide proper integration with urban areas and public open space (batters, coarse sediment management, and maintenance access). Refer Appendix A for conceptual earthworks designs.

Further details are provided in the following sections, with performance assessments provided in Section 5. Preliminary earthworks plans and functional details are provided in Appendix B to demonstrate that the proposed strategy is functionally feasible within the constraints of the site.

NOTE:

- WSUD 1 has been designed in this report to treat both Catchment F (Future Low-Medium Density Development) and Catchment G (part of future development ROL 3 which drains into ROL 2). Although Catchment F is planned to be Low-Medium Density this may change and be developed as detached dwellings. This will require suitable space in the urban design for this treatment and this is provided in WSUD 1. If the Low-Medium Density goes ahead then is can provide its own treatment and WSUD 1 can be reduced.
- The drainage path / waterway to the south of Providence West ROL 2 is to be restored and vegetated as part of the Providence West development. The intent is to create a similar outcome as Councils Small Creek located in Raceview. For the purposes of this SQMP, the pollutant removal associated with the vegetated waterway has not been included. Stockland would like to explore opportunity with Council in the future for gaining some water quality benefit from this waterway restoration through mutual agreement and approval, but this initiative does not form part of this application.



Figure 6: Proposed stormwater quality management strategy





Photos: Bioretention photo examples





Photos: Sediment basin photo examples

4.1 CONCEPTUAL DESIGN DETAILS

A preliminary earthworks model of each treatment system has been completed. The earthworks design is preliminary but has been completed to demonstrate that sufficient space has been allowed for batters, bunds, filter surface area, access ramps and outlet structures. A copy of the design plans are provided in Appendix B, showing conceptual earthworks designs, cross section and stormwater outfall locations. The conceptual designs are consistent with the requirements of the Water by Design Guidelines and ICC City Plan (as of May 2025).

We have attempted to comply with Council 'standard condition' requests as far as practical as outlined in Section 4.2.

In terms of batters and maintenance access the following has been adopted for the stormwater management systems:

- 1 in 4 batters are appropriate for a bioretention basin (as per the Water by Design Guidelines) and have been adopted for these designs. Flatter batters were tested but will not fit within the topography of the site without walls. The 1 in 4 batters will be vegetated.
- Maintenance access at 4m width has been provided to the sediment basin and the bioretention basin. Sucker truck will park at the top of the sediment basin to clean out the system every 10-15 years. Dewatering locations have not been provided in the conceptual design as sucker trucks will be used but will be explored as part of detailed design and incorporate if a suitable solution can be identified.
- 3m access has been provided around part of the perimeter the systems in accordance with the Water by Design guidelines. For WSUD 2, the 4m access has been extend around part of the bund to the bioretention system.

4.2 COUNCIL STORMWATER MANAGEMENT DESIGN REQUIREMENTS (STANDARD CONDITIONS)

Ipswich City Council have issued to the industry standard conditions, including stormwater management items, which they plan to apply to all new development in Ipswich. Although these requirements have no head of power (i.e. not part of the Planning Scheme), Council has asked that Stockland consider these in previous designs for Providence as far as practically possible. Table 8 provides each of these requirements and identifies how the stormwater strategy for Providence West ROL2 has considered these requirements.

Table 8. Ipswich City Council stormwater management requirements - responses

Category	Requirement	Response
Council Standard Conditions of Approval – Stormwater Treatment Devices		
Offline	Water quality devices must: • be located offline and outside of the riparian buffers of waterways and drainage channels;	Compliant
Immunity	• have the full depth of their drainage profiles (including saturated zones) located above the 5% AEP inundation level;	The stormwater systems have been designed in accordance with the Water by Design Bioretention Technical Design Guideline in terms of immunity.
Saturated zone	• incorporate a saturated zone;	Compliant. The bioretention systems will incorporate saturated zones.
Filter media Depth	• have a minimum of 700mm filter depth to facilitate all structural planting layers ie. ground cover, shrub, canopy species);	Compliant. 700m filter media will be provided in detailed design.
Bypass	• incorporate high flow bypass arrangements to divert flows above the design flow;	High flow bypass has been provided out of the sediment basins in accordance with the Water by Design guidelines.
Sediment pond and 1 year ARI flow	• the maximum design flow for a stormwater quality treatment device that utilises a sediment point for pre-treatment is the peak 1-year ARI flow;	The sediment basins have been and will continue to be design in accordance with the Water by Design Guidelines to avoid resuspension of sediment.
Forebay velocity	• the maximum design flow for a stormwater quality treatment device that utilises a sediment forebay for pre-treatment is the peak 3-month ARI flow;	No forebays adopted. Sediment basins adopted.

Category	Requirement	Response
Forebay design	• sediment forebays must be designed generally in accordance with ICC standard drawings SD.15 Sediment Forebays Typical Layouts and General Notes, SD.16 Sediment Forebays Small Sediment Forebay pipe Dia. <=525 Layout, Sections and Details and SD.17 Sediment Forebays Large Sediment Forebay Pipe Dia. >=600 Layout, Sections and Details and not include baffles;	No forebays adopted. Sediment basins adopted.
Sediment basin	• sediment ponds must have a concrete base;	Noted. The sediment basin will be designed to incorporate a concrete base as part of detailed design.
	• incorporate hardstand maintenance and dewatering areas adjacent to the sediment pond/forebay constructed of reinforced concrete, and with a maximum slope of 1V:10H and suitable bearing capacity to support standard maintenance machinery;	Compliant. Hardstand area will be explored as part of detailed design to support parking of a sucker truck within suitable distance of the sediment basins to allow hose to extend into the base of the basin. Dewatering areas are not provided as provision for parking of sucker truck has been allowed.
	• sediment pond must be serviceable from the maintenance hardstand area by standard maintenance equipment (e.g. excavator with maximum 7m reach and 11m long HRV vacuum truck);	Compliant. Maintenance access via concrete to be provided. Refer to Appendix A.
	• 4m wide all weather reinforced concrete maintenance access track, extending from the street to the hardstand area and basin floor, having a maximum grade of 1V:6H and suitable for the safe and efficient manoeuvring of a HRV;	Compliant. Refer to Appendix A.
	• have absolute maximum batter slopes of 1V:4H, with batters to be densely vegetated with WSUD species consisting of a mixture of groundcovers, shrubs and canopy layers;	Compliant. 1 in 4 batters have been used for the stormwater treatment systems.
	• contain all structural planting layers (ie. groundcover, shrub and canopy species);	Noted. The landscape plans will be developed in detailed design to achieve this outcome.
	• not contain retaining walls; • not contain valve configurations;	Compliant. No walls or valves are adopted.

Category	Requirement	Response
	• not receive runoff across the filter media in excess of 1m/s for all storm events up to and including the peak 5% AEP design storm events; • not receive runoff across the filter media in excess of 2m/s for storm events greater than the 5% AEP storm event and up to the 1% AEP storm event;	Noted. This will be considered as part of detailed design.
	• have planting species selected in consultation with a Registered Landscape Architect with AILA and experienced in WSUD design integration within the urban development;	Noted. The landscape plans will be developed in detailed design to achieve this outcome.
	• be designed to ensure shear stress and velocities of works adjacent to or near riparian buffer areas are appropriate for the receiving environment and informed by the approved geomorphological assessment.	Noted. Geomorphic assessment will be completed as part of detailed design.

5 STORMWATER QUALITY MODELLING

5.1 METHOD AND ASSUMPTIONS

MUSIC modelling was conducted to quantitatively assess the stormwater treatment performance of the proposed stormwater strategy. MUSIC version 6.3 was used for the assessment and the parameters have been established in accordance with the *MUSIC Modelling Guidelines* (Water by Design, 2010).

The structure of the MUSIC model is shown in Figure 7 with the general data upon which the model is based provided in Table 9.

The stormwater catchments, defined previously in Figure 5, were used as the basis for the MUSIC model catchment nodes. Given there are no rainwater tanks there is no need to split the catchments into roof, road and ground level. A catchment impervious fraction of 65% was adopted for the residential catchments and 70% adopted for the future development site based on the typical ranges presented in Table 3.6 of the MUSIC Modelling Guidelines (water by Design, 2010).

Table 9: MUSIC model data summary

Parameter	Value
Source Data	
Rainfall data set	1990-2000 – Amberley AMO Station No. 40004
Modelled time step	6 minute
Mean annual rainfall 1986-1996	762 mm (for the period used)
Potential evapotranspiration	1,393mm
Soil properties (runoff generation parameters)	Table 3.7 Music Modelling Guidelines for SEQ
Pollutant concentrations (base and storm flow concentration parameters)	Table 3.9 Music Modelling Guidelines for SEQ
Percent impervious	Table 3.6 Music Modelling Guidelines for SEQ Urban residential: 65% impervious Future Development: 70% impervious
Treatment Devices	
Bioretention	
Filter area	High Flow Bypass = $3m^3/s$ Filter media depth = 0.7 m Extended detention depth = 0.3 m Seepage = 0 mm/hr Saturated hydraulic conductivity 200mm/hr TN content 400 mg/kg Orthophosphate content 30mg/kg
Sediment pond	High Flow Bypass = $3m^3/s$ Extended detention = 0.01m – no treatment assumed in the flood storage zone Permanent pool = $300m^3$ Exfiltration rate = 0mm/hr Evaporation loss as %PET = 75% Equivalent pipe dia = 300mm Overflow weir 4m

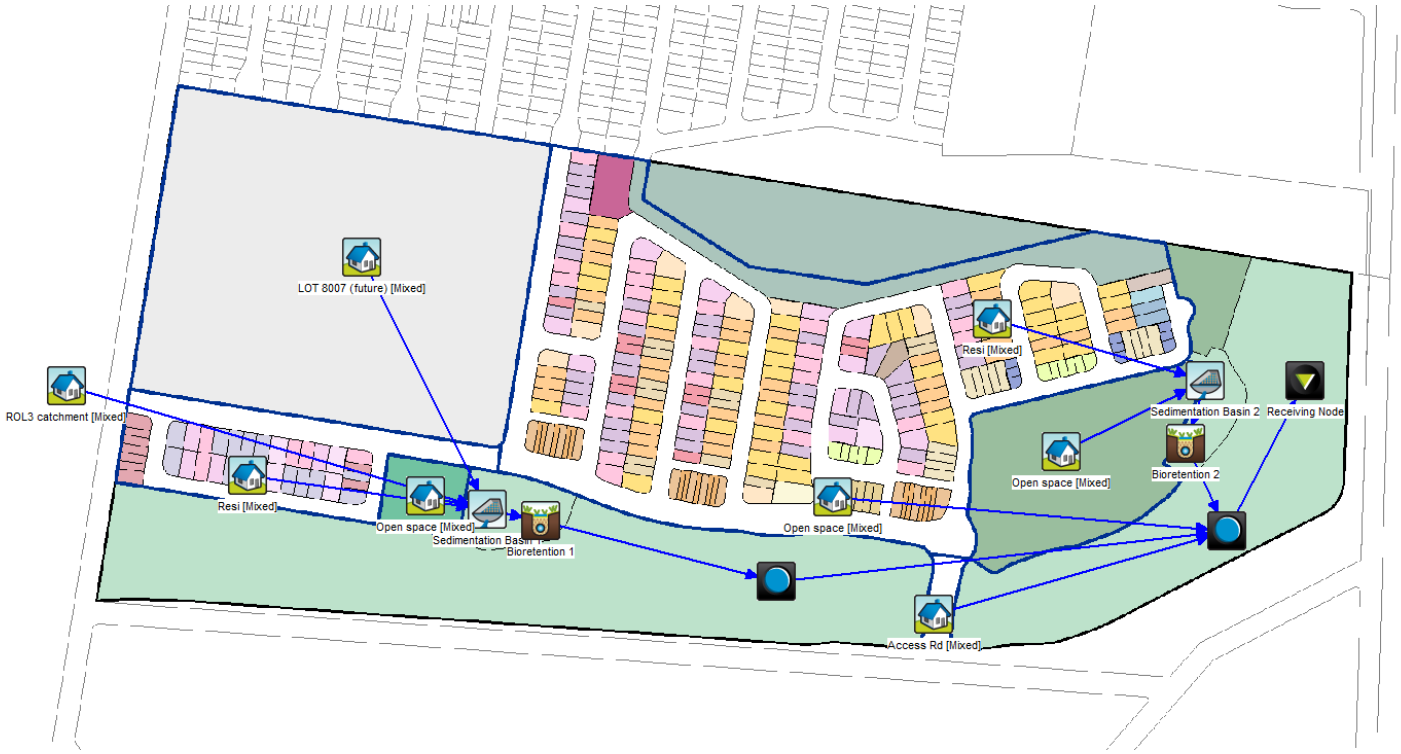


Figure 7: MUSIC model

5.2 RESULTS

The results of the MUSIC modelling for the proposed Providence West ROL2 development are shown in Table 10.

Table 10: MUSIC model results

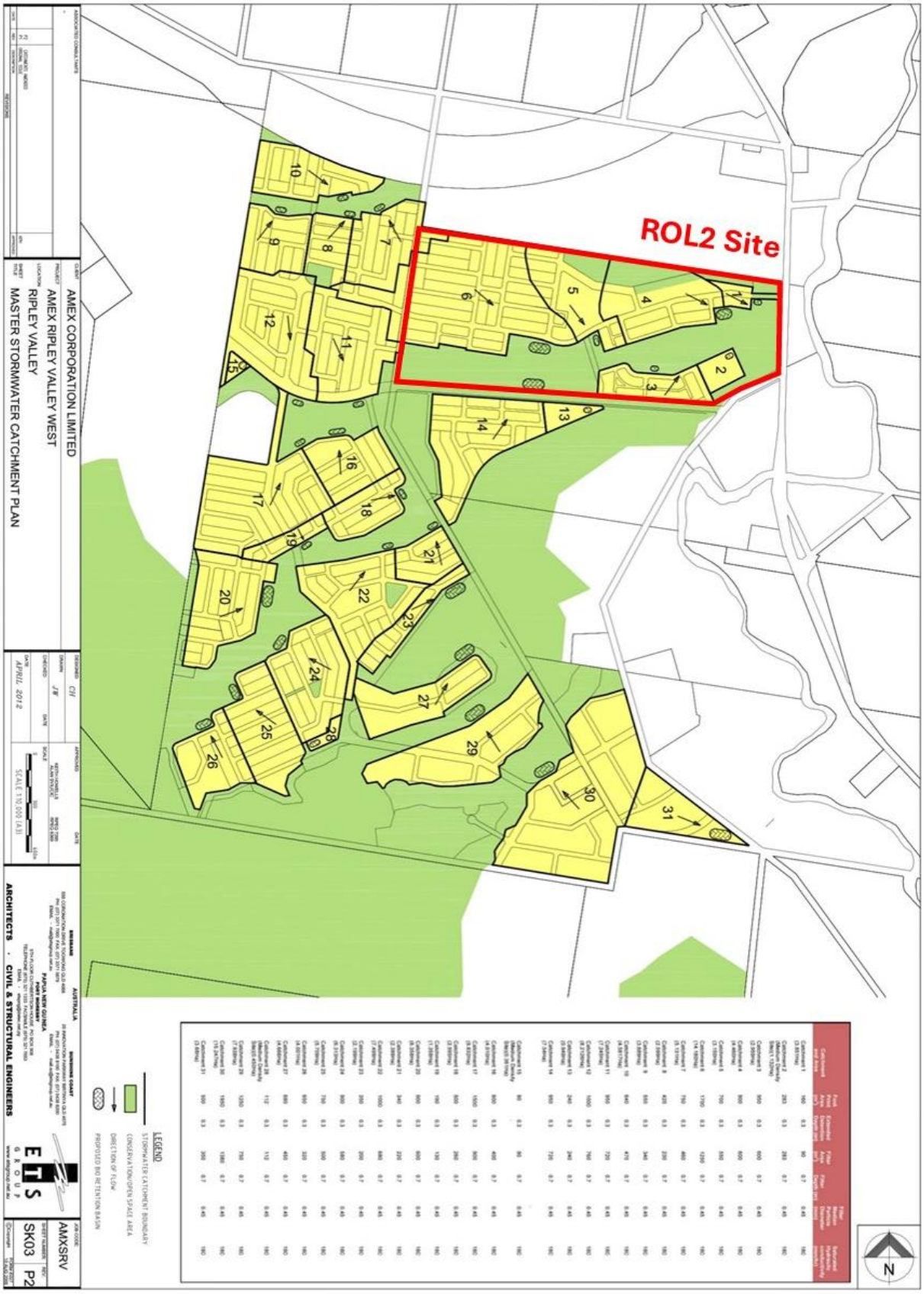
Treatment ID	Pollutant	Inflows (kg/yr)	Outflows (kg/yr)	Reduction achieved (%)	Water quality objective
TOTAL DEVELOPMENT DISCHARGE	TSS	33100	6000	**81.9%**	80%
	TP	65.3	17.7	**72.8%**	60%
	TN	317	174	**45.0%**	45%
	Gross Pollutants	4570	52.8	**98.8%**	90%

The results demonstrate that the proposed stormwater strategy achieves the water quality objectives for the combined development discharge. A copy of the MUSIC model has been submitted with this report.

6 CONCLUSION

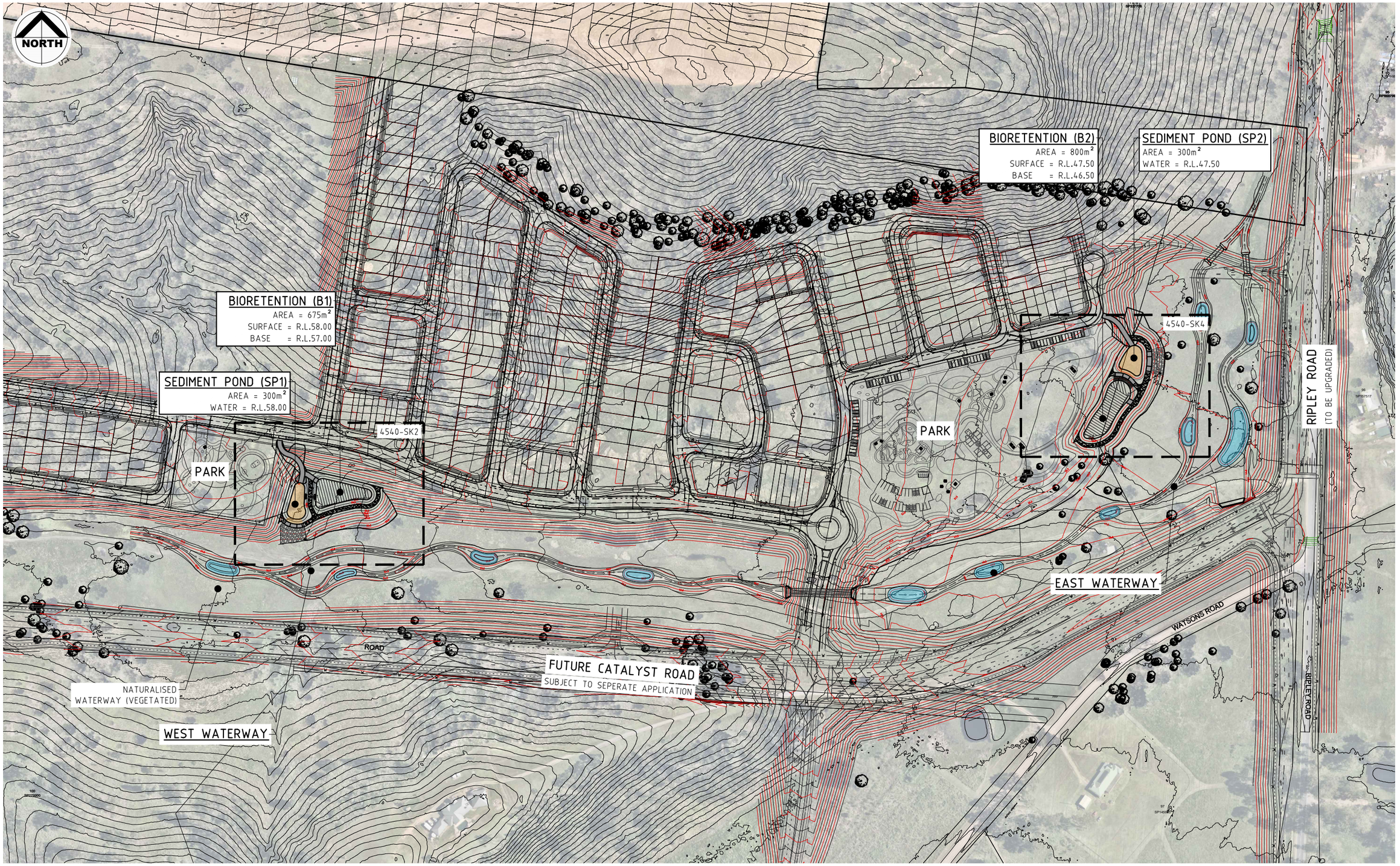
This report documents the Stormwater Management Strategy in support for the development application for Providence West ROL2. The strategy addresses the stormwater quality requirements set out in the *State Planning Policy* (DILGIP, 2017) and Councils I*mplementation Guideline 24 – stormwater management* and is consistent with the approved *Site Based Stormwater Quality Management Report for Proposed Development at 813-843 Ripley Rd, South Ripley 4306* (ETS, 2013).

APPENDIX A – APPROVED STORMWATER QUALITY MANAGEMENT PLAN (ETS, 2013) STRATEGY



APPENDIX B – STORMWATER TREATMENT CONCEPT DESIGNS

DATE PLOTTED: 29 October 2025 BY: STEPHEN TOLPUTT



30 0 30 60 90 120 150m

SCALE 1:1500 @ A1 SCALE 1:3000 @ A3

REVISION	DESCRIPTION	DRAFTED INITS	DRAFTED DATE	APPROVED INITS	APPROVED DATE
C	ISSUE FOR APPROVAL	S.T.	27.10.25	S.L.	27.10.25
B	ISSUE FOR APPROVAL	S.B.Y.	19.10.25	S.L.	19.10.25
A	PRELIMINARY ISSUE - NOT FOR CONSTRUCTION	S.B.Y.	14.10.25	S.L.	14.10.25

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DF JOB No. - 4540

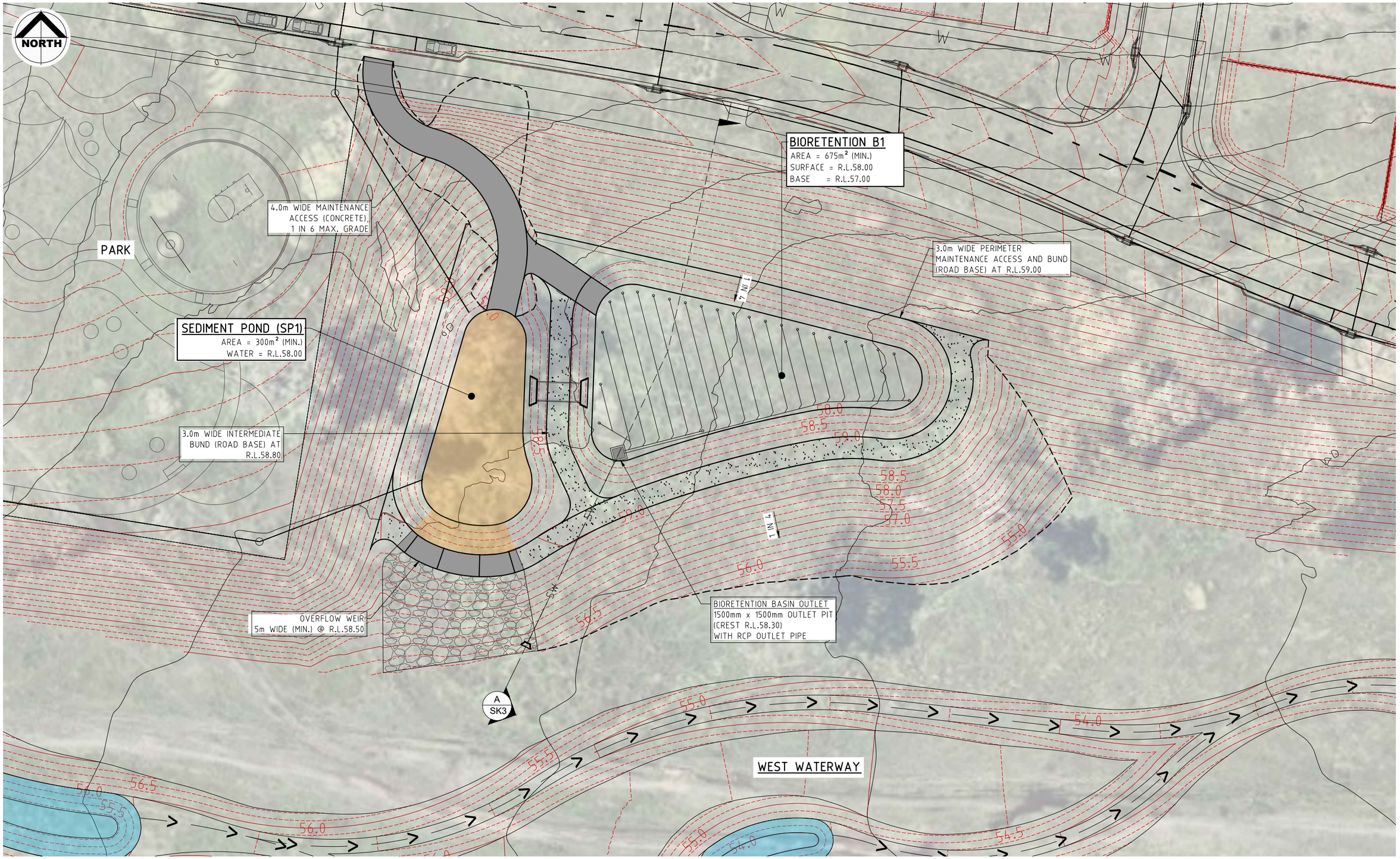
Approved (S. LEINSTER) RPEQ 15637 Date 27.10.2025

CLIENT	STOCKLAND
DRAWN	S.B.Y. / S.T.
DATE	27.10.2025
DESIGNED	S.L.
DATE	27.10.2025
SCALE	1 : 1,500
	A1

PROJECT	PROVIDENCE WEST
DRAWING TITLE	STORMWATER CONCEPTUAL DESIGN OVERALL LAYOUT PLAN
PROJECT No	4540
DRAWING No	SK1
REVISION	C

XREF:
FILE: C:\JOBS\DESIGNFLOW\4540 - PROVIDENCE WEST\ACAD\4540-SK1 (OVERALL WSUD).DWG

DATE PLOTTED: 29 October 2025 BY: STEPHEN TOLPUTT



5 0 5 10 15 20 25m

SCALE 1:250 @ A1 SCALE 1:500 @ A3

REVISION	DESCRIPTION	DRAFTED INITS	DRAFTED DATE	APPROVED INITS	APPROVED DATE
C	ISSUE FOR APPROVAL	S.T.	27.10.25	S.L.	27.10.25
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DRAWN: S.B.Y. / S.T. DATE: 27.10.2025

DESIGNED: S.L. DATE: 27.10.2025

SCALE: 1 : 250 A1

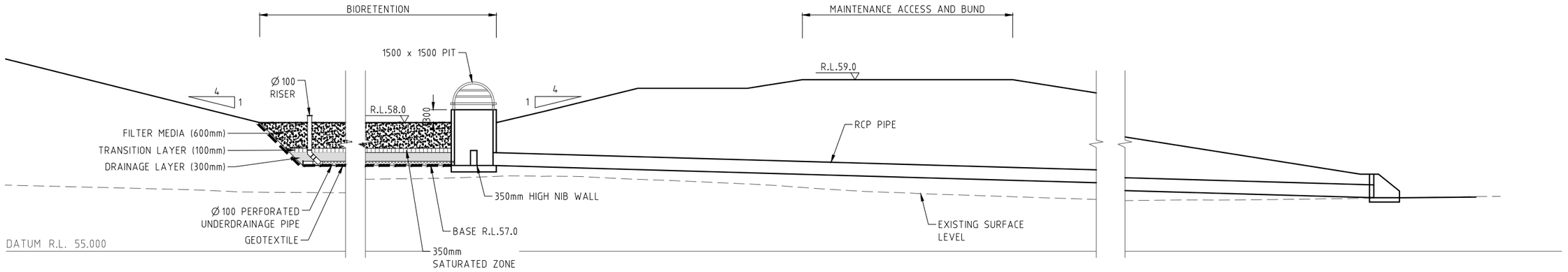
PROJECT: PROVIDENCE WEST

DRAWING TITLE: STORMWATER CONCEPTUAL DESIGN BIORETENTION BASIN B1 LAYOUT

PROJECT No: 4540 DRAWING No: SK2 REVISION: C

XREF:
FILE: C:\JOBS\DESIGNFLOW\4540 - PROVIDENCE WEST\ACAD\4540-SK2 (BASIN 1 LAYOUT).DWG

DATE PLOTTED: 29 October 2025 BY: STEPHEN TOLPUTT



SECTION A
SCALE 1 : 50 (A1)
SK2

1 0 1 2 3 4 5m
SCALE 1:50 @ A1
SCALE 1:100 @ A3

REVISION	DESCRIPTION	DRAFTED INITS	DRAFTED DATE	APPROVED INITS	APPROVED DATE
C	ISSUE FOR APPROVAL	S.T.	27.10.25	S.L.	27.10.25
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Date

CLIENT	STOCKLAND
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DATE	27.10.2025
DESIGNED	S.L.
DATE	27.10.2025
SCALE	A1
PROJECT	PROVIDENCE WEST
DRAWING TITLE	STORMWATER CONCEPTUAL DESIGN BIORETENTION BASIN B1 SECTIONS
PROJECT No	4540
DRAWING No	SK3
REVISION	C

XREF:
FILE: C:\JOBS\DESIGNFLOW\4540 - PROVIDENCE WEST\ACAD\4540-SK3 (BASIN 1 SECTIONS).DWG

DATE PLOTTED: 29 October 2025 BY: STEPHEN TOLPUTT

NORTH

SEDIMENT POND (SP2)
AREA = 300m² (MIN.)
WATER = R.L.47.50

4.0m WIDE MAINTENANCE ACCESS (CONCRETE), 1 IN 6 MAX. GRADE

7.5m WIDE OVERFLOW WEIR (CONCRETE) AT R.L48.00

5m WIDE WEIR (CONCRETE) AT R.L47.55

B SK5

PARK

4m

4.0m WIDE
MAINTENANCE ACCESS AND BUND (ROAD BASE) AT R.L.48.50

BIORETENTION BASIN OUTLET
1500mm x 1500mm OUTLET PIT (CREST R.L.47.80) WITH RCP OUTLET PIPE

3m

EAST WATERWAY

BIORETENTION (B2)
AREA = 800m² (MIN.)
SURFACE = R.L.47.50
BASE = R.L.46.50

5 0 5 10 15 20 25m
SCALE 1:250 @ A1 SCALE 1:500 @ A3

REVISION	DESCRIPTION	INITS	DATE	INITS	DATE
C	ISSUE FOR APPROVAL	S.T.	27.10.25	S.L.	27.10.25
B	ISSUE FOR APPROVAL	S.B.Y.	19.10.25	S.L.	19.10.25
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		DRAFTED		APPROVED	

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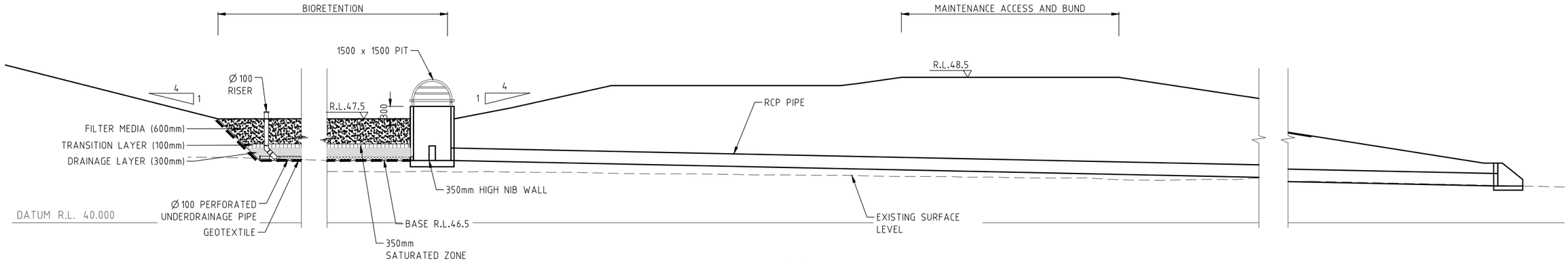
Approved RPEQ
Date

CLIENT: STOCKLAND
DRAWN: S.B.Y. / S.T. DATE: 27.10.2025
DESIGNED: S.L. DATE: 27.10.2025
SCALE: 1 : 250 A1

PROJECT: PROVIDENCE WEST
DRAWING TITLE: STORMWATER CONCEPTUAL DESIGN BIORETENTION BASIN B2 LAYOUT
PROJECT No: 4540 DRAWING No: SK4 REVISION: C

XREF:
FILE: C:\JOBS\DESIGNFLOW\4540 - PROVIDENCE WEST\ACAD\4540-SK4 (BASIN 2 LAYOUT).DWG

DATE PLOTTED: 29 October 2025 BY : STEPHEN TOLPUTT



SECTION B / SK4
SCALE 1 : 50 (A1)

1 0 1 2 3 4 5m
SCALE 1:50 @ A1 SCALE 1:100 @ A3

REVISION	DESCRIPTION	DRAFTED INITS	DRAFTED DATE	APPROVED INITS	APPROVED DATE
C	ISSUE FOR APPROVAL	S.T.	27.10.25	S.L.	27.10.25
B	ISSUE FOR APPROVAL	S.B.Y.	19.10.25	S.L.	19.10.25
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DESIGNED: S.L. DATE: 27.10.2025
SCALE: A1

PROJECT: PROVIDENCE WEST
DRAWING TITLE: STORMWATER CONCEPTUAL DESIGN BIORETENTION BASIN B2 SECTIONS
PROJECT No: 4540
DRAWING No: SK5
REVISION: C

XREF:
FILE: C:\JOBS\DESIGNFLOW\4540 - PROVIDENCE WEST\ACAD\4540-SK5 (BASIN 2 SECTIONS).DWG
4540_TITLE SHEET

APPENDIX C – CIVIL CONCEPTUAL DESIGN DRAWINGS

LEGEND

- RAL 2 BOUNDARY
- 3.5 DESIGN SURFACE CONTOURS
- 2.0 EXISTING SURFACE CONTOURS
- EXISTING TREE TO REMAIN
- EXISTING TREE TO BE REMOVED
- ENVIRONMENTAL PROTECTION ZONE
- EXTENT OF CUT
- EXTENT OF FILL
- NEIGHBOURHOOD PARK(DESIGNED BY OTHER)

TIE INTO PROVIDENCE LACEBARK LEVELS COVERED UNDER RAL APPROVAL 2342/2024/ MAPDA/A

EXISTING DEVELOPMENT

FUTURE DEVELOPMENT

PEDESTRIAN PATH TO TIE INTO RIPLEY ROAD VERGE (INTERIM & ULTIMATE)

ENVIRONMENTAL PROTECTION ZONE

ROAD 02 ROAD 03 ROAD 05 ROAD 06 ROAD 07 ROAD 08 ROAD 09 ROAD 10 ROAD 11 DRIVEWAY 03

LANEWAY 01 LANEWAY 02 LANEWAY 03

NEIGHBOURHOOD PARK

DRAINAGE RESERVE

LOT 370 SP 198119

LOT 100 SP279900

LOT 197 SP279900

LOT 97 SP145995

REFER TO FUNCTIONAL LAYOUT PLANS PREPARED BY DESIGNFLOW FOR DRAINAGE RESERVE DETAILS

LIMIT OF PROJECT WORKS. REFER TO CATALYST ROAD DESIGN SUBMISSION BY OTHERS

REFER TO PARK FUNCTIONAL LAYOUT PLANS PREPARED BY RPS FOR LOW LEVEL LANDSCAPING WALLS

INDICATIVE FUTURE EAST-WEST CATALYST ROAD CORRIDOR BOUNDARY. REFER TO SEPARATE DESIGN SUBMISSION BY OTHERS.

NOTE
PRELIMINARY ONLY. FINAL DETAILS TO BE PROVIDED AT DETAIL DESIGN.

CUT FILL SUMMARY

TOTAL CUT	248,726m³
TOTAL FILL	602,616m³
TOTAL IMPORT	353,890m³

VOLUMES ASSUME FULLY COMPACTED AND IN PLACE. RAL 2 BOUNDARY ONLY

NOT FOR CONSTRUCTION

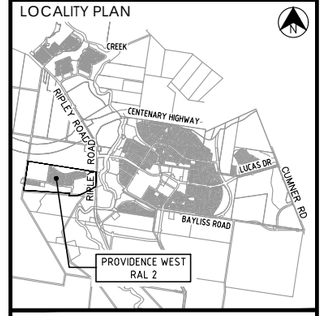
EARTHWORKS LAYOUT PLAN
SCALE 1:2000

SCALE 20 10 0 20 40 60 80 100 120 140 160 180 200m
1 : 2000 (A1 UNREDUCED)

DO NOT SCALE THIS DRAWING
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NORTH

LOCALITY PLAN



REVISIONS

No	Description	Date	By
A	ISSUED FOR APPROVAL	19.10.2025	APB
B	ISSUED FOR APPROVAL	31.10.2025	TRP

Client

Stockland

PROVIDENCE

Project

PROVIDENCE WEST
RAL 2

AUTHORITY REFERENCE NUMBER

3406/2025/PDA

kn group
L1, 62 Astor Terrace, Spring Hill, QLD 4000
www.kngroup.com.au | 07 3017 1900

Approved

Digitally signed by Amy Bamford B.E.(Civil), MIEAust, CPEng, NER, RPEQ 36180
Date: 31/10/2025

Drawing Title

EARTHWORKS
SITE LAYOUT PLAN

Drawn	Designed	Checked	Date
TRP	AG	APB	OCT' 25

Scale	Sheet
AS SHOWN	12 of 53

Drawing No	Revision
24-154-51	B

A1

\\kn-svr-02\projects\2024\24154-Providence West - 817 - Preliminary Support\Engineering\Acad\24-154-51-EW-FL.dwg Plotted by: TRP on 31/10/2025 4:35:33 PM

REFER KNg DWG No 24-154-56

REFER KNg DWG No 24-154-53

ROAD 02

ROAD 03

2001 71.77
2002 71.99
2003 72.28
2004 72.66
2005 73.05
2006 73.41
2007 73.69
2008 73.10
2009 72.33
2010 71.64
2011 70.87
2012 70.18
2013 69.49
2014 68.72
2015 67.84
2016 67.18
2017 66.59
2018 66.02
2019 65.49
2020 63.06
2021 63.39
2022 63.86
2023 64.43
2024 65.11
2025 66.00
2026 66.77
2027 67.47
2028 68.16
2029 68.94
2030 69.63
2031 70.36
2032 62.99
2033 63.57
2034 63.72
2035 63.86
2036 64.13

CUT FILL SUMMARY

TOTAL CUT	248,726m³
TOTAL FILL	602,616m³
TOTAL IMPORT	353,890m³

VOLUMES ASSUME FULLY COMPACTED AND IN PLACE. RAL 2 BOUNDARY ONLY

NOTE

PRELIMINARY ONLY. FINAL DETAILS TO BE PROVIDED AT DETAIL DESIGN.

LEGEND

- RAL 2 BOUNDARY
- DESIGN SURFACE CONTOURS
- EXISTING SURFACE CONTOURS
- PROPOSED RETAINING WALL 0.5m-1.5m
- PROPOSED RETAINING WALL 1.5m-2.0m
- PROPOSED RETAINING WALL 2.0m-3.0m
- PROPOSED RETAINING WALL 3.0m
- PROPOSED RETAINING WALL >3.0m
- PROPSOED DRIVEWAY LOCATION
- EXISTING TREE TO REMAIN
- EXISTING TREE TO BE REMOVED
- ENVIRONMENTAL PROTECTION ZONE
- EXTENT OF CUT
- EXTENT OF FILL
- INDICATIVE STAIR / RAMP LOCATION

NOT FOR CONSTRUCTION

LOW HEIGHT SANDSTONE BLOCK WALLS TO BE INTEGRATED INTO BATTER TO RETAIN EXSITING TREES. TO BE CONFIRMED AS PART OF DETAILED DESIGN MODELLING

DRAINAGE RESERVE

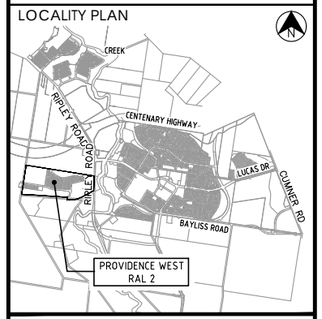
EARTHWORKS LAYOUT PLAN
SCALE 1:500

SCALE
10 5 0 10 20 30 40 50m
1 : 500 (A1 UNREDUCED)

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NORTH

LOCALITY PLAN



REVISIONS

No	Description	Date	By
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Client

Stockland
PROVIDENCE

Project

PROVIDENCE WEST
RAL 2

AUTHORITY REFERENCE NUMBER

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kn group
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Approved

Digitally signed by
Amy Bamford
B.E.(Civil),
MIEAust, CPEng, NER,
RPEQ 36180
Date: 31/10/2025

Drawing Title

EARTHWORKS
LAYOUT PLAN
SHEET 1

Drawn	Designed	Checked	Date
TRP	AG	APB	OCT' 25

Scale	Sheet
AS SHOWN	13 of 53

	Drawing No	Revision
A1	24-154-52	B

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REFER KNg DWG No 24-154-57

REFER KNg DWG No 24-154-52

REFER KNg DWG No 24-154-54

LANEWAY 01

LANEWAY 02

ROAD 02

NEIGHBOURHOOD PARK

DRAINAGE RESERVE

9002

LEGEND

- RAL 2 BOUNDARY
- 3.5 DESIGN SURFACE CONTOURS
- 2.0 EXISTING SURFACE CONTOURS
- PROPOSED RETAINING WALL 0.5m-1.5m
- PROPOSED RETAINING WALL 1.5m-2.0m
- PROPOSED RETAINING WALL 2.0m-3.0m
- PROPOSED RETAINING WALL 3.0m
- PROPOSED RETAINING WALL >3.0m
- PROPSOED DRIVEWAY LOCATION
- EXISTING TREE TO REMAIN
- EXISTING TREE TO BE REMOVED
- ENVIRONMENTAL PROTECTION ZONE
- EXTENT OF CUT
- EXTENT OF FILL
- INDICATIVE STAIR / RAMP LOCATION

NOT FOR CONSTRUCTION

NOTE
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CUT FILL SUMMARY

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TOTAL FILL	602,616m³
TOTAL IMPORT	353,890m³

VOLUMES ASSUME FULLY COMPACTED AND IN PLACE. RAL 2 BOUNDARY ONLY

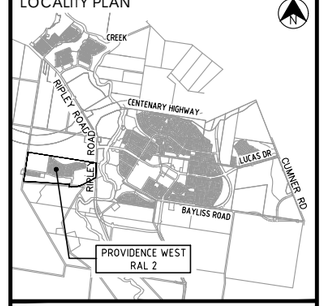
EARTHWORKS LAYOUT PLAN
SCALE 1:500

SCALE 10 5 0 10 20 30 40 50m
1 : 500 (A1 UNREDUCED)

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NORTH

LOCALITY PLAN



REVISIONS

No	Description	Date	By
A	ISSUED FOR APPROVAL	19.10.2025	APB
B	ISSUED FOR APPROVAL	31.10.2025	TRP

Client

Stockland
PROVIDENCE

Project

PROVIDENCE WEST
RAL 2

AUTHORITY REFERENCE NUMBER
3406/2025/PDA

kn group
L1, 62 Astor Terrace, Spring Hill, QLD 4000
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Approved

Digitally signed by
Amy Bamford
B.E.(Civil),
MIEAust, CPEng, NER,
RPEQ 36180
Date: 31/10/2025

Drawing Title

EARTHWORKS
LAYOUT PLAN
SHEET 2

Drawn	Designed	Checked	Date
TRP	AG	APB	OCT' 25

Scale	Sheet
AS SHOWN	14 of 53

	Drawing No	Revision
A1	24-154-53	B

\\kn-syr-02\project\3202\124\54 Providence West - 817 - Preliminary Support\Engineering\Acad\24-154-51-EW-FL.dwg Plotted by TRP on 31/10/2025 9:36:11 PM

REFER KNg DWG No 24-154-58

REFER KNg DWG No 24-154-53

REFER KNg DWG No 24-154-55

LANEWAY 03

ROAD 02

ROAD 01

DRAINAGE RESERVE

LOCALISED SHAPING AROUND CULVERT HEADWALL TO SUIT. GROUTED ROCK TO BE PLACED AROUND HEADWALL AND LOCALISED AREAS OF STEEP BATTER

LIMIT OF PROJECT WORKS. REFER TO CATALYST ROAD DESIGN SUBMISSION BY OTHERS

LEGEND

- RAL 2 BOUNDARY
- DESIGN SURFACE CONTOURS
- EXISTING SURFACE CONTOURS
- PROPOSED RETAINING WALL 0.5m-1.5m
- PROPOSED RETAINING WALL 1.5m-2.0m
- PROPOSED RETAINING WALL 2.0m-3.0m
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- PROPOSED RETAINING WALL >3.0m
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- EXISTING TREE TO REMAIN
- EXISTING TREE TO BE REMOVED
- ENVIRONMENTAL PROTECTION ZONE
- EXTENT OF CUT
- EXTENT OF FILL
- INDICATIVE STAIR / RAMP LOCATION

NOT FOR CONSTRUCTION

EARTHWORKS LAYOUT PLAN

SCALE 1:500

SCALE 10 5 0 10 20 30 40 50m

1 : 500 (A1 UNREDUCED)

NOTE
PRELIMINARY ONLY. FINAL DETAILS TO BE PROVIDED AT DETAIL DESIGN.

CUT FILL SUMMARY

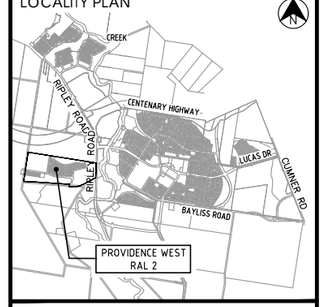
TOTAL CUT	248,726m³
TOTAL FILL	602,616m³
TOTAL IMPORT	353,890m³

VOLUMES ASSUME FULLY COMPACTED AND IN PLACE. RAL 2 BOUNDARY ONLY

DO NOT SCALE THIS DRAWING
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NORTH

LOCALITY PLAN



REVISIONS

No	Description	Date	By
A	ISSUED FOR APPROVAL	19.10.2025	APB
B	ISSUED FOR APPROVAL	31.10.2025	TRP

Client

Stockland

PROVIDENCE

Project

PROVIDENCE WEST
RAL 2

AUTHORITY REFERENCE NUMBER

3406/2025/PDA

kn group
L1, 62 Astor Terrace, Spring Hill, QLD 4000
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Approved

Digitally signed by
Amy Bamford
B.E.(Civil),
MIEAust, CPEng, NER,
RPEQ 36180
Date: 31/10/2025

Drawing Title

EARTHWORKS
LAYOUT PLAN
SHEET 3

Drawn	Designed	Checked	Date
TRP	AG	APB	OCT' 25

Scale	Sheet
AS SHOWN	15 of 53

A1	Drawing No	Revision
	24-154-54	B

\\kn-svr-02\projects\2024\24154-Providence West - 817 - Preliminary Support\Engineering\Acad\24-154-51-EW-FL.dwg Plotted by: TRP on 31/10/2025 4:36:30 PM

REFER KNg DWG No 24-154-59

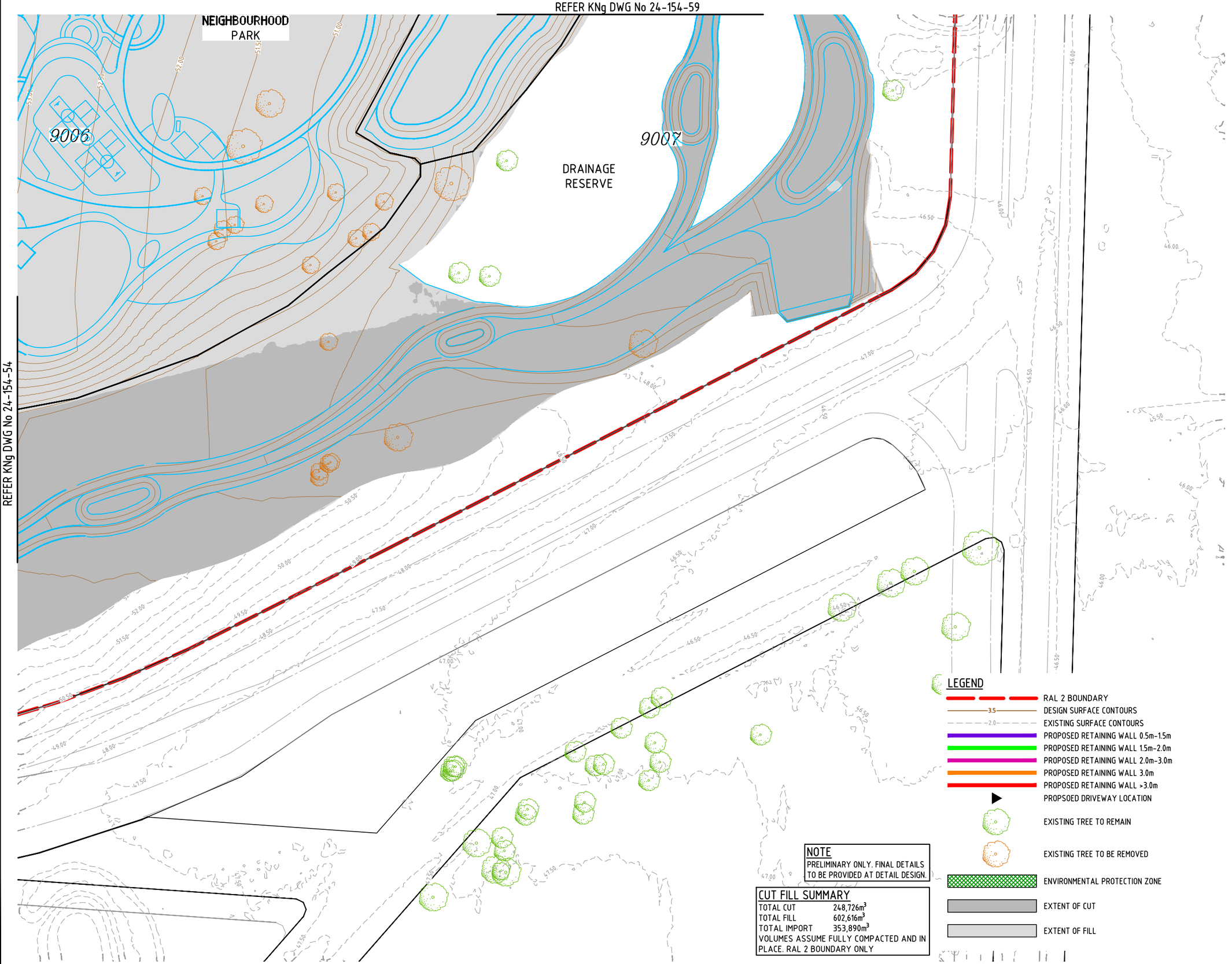
REFER KNg DWG No 24-154-54

NEIGHBOURHOOD PARK

9006

9007

DRAINAGE RESERVE



LEGEND

- RAL 2 BOUNDARY
- 3.5 DESIGN SURFACE CONTOURS
- 2.0 EXISTING SURFACE CONTOURS
- PROPOSED RETAINING WALL 0.5m-1.5m
- PROPOSED RETAINING WALL 1.5m-2.0m
- PROPOSED RETAINING WALL 2.0m-3.0m
- PROPOSED RETAINING WALL 3.0m
- PROPOSED RETAINING WALL >3.0m
- PROPSOED DRIVEWAY LOCATION
- EXISTING TREE TO REMAIN
- EXISTING TREE TO BE REMOVED
- ENVIRONMENTAL PROTECTION ZONE
- EXTENT OF CUT
- EXTENT OF FILL

NOTE
PRELIMINARY ONLY. FINAL DETAILS TO BE PROVIDED AT DETAIL DESIGN.

CUT FILL SUMMARY

TOTAL CUT	248,726m³
TOTAL FILL	602,616m³
TOTAL IMPORT	353,890m³

VOLUMES ASSUME FULLY COMPACTED AND IN PLACE. RAL 2 BOUNDARY ONLY

SCALE 10 5 0 10 20 30 40 50m
1 : 500 (A1 UNREDUCED)

EARTHWORKS LAYOUT PLAN
SCALE 1:500

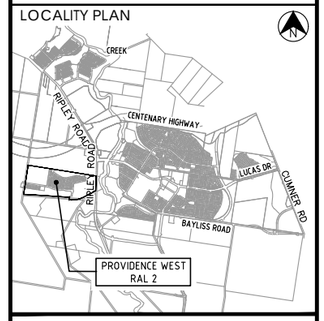
NOT FOR CONSTRUCTION

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NORTH

LOCALITY PLAN



REVISIONS

No	Description	Date	By
A	ISSUED FOR APPROVAL	19.10.2025	APB
B	ISSUED FOR APPROVAL	31.10.2025	TRP

Client

Stockland

PROVIDENCE

Project

PROVIDENCE WEST
RAL 2

AUTHORITY REFERENCE NUMBER
3406/2025/PDA

kn group
L1, 62 Astor Terrace, Spring Hill, QLD 4000
www.kngroup.com.au | 07 3017 1900

Approved

Digitally signed by
Amy Bamford
B.E.(Civil),
MIEAust, CPEng, NER,
RPEQ 36180
Date: 31/10/2025

Drawing Title

EARTHWORKS
LAYOUT PLAN
SHEET 4

Drawn	Designed	Checked	Date
TRP	AG	APB	OCT' 25

Scale	Sheet
AS SHOWN	16 of 53

	Drawing No	Revision
A1	24-154-55	B

LEGEND

- RAL 2 BOUNDARY
- 3.5 DESIGN SURFACE CONTOURS
- 2.0 EXISTING SURFACE CONTOURS
- PROPOSED RETAINING WALL 0.5m-1.5m
- PROPOSED RETAINING WALL 1.5m-2.0m
- PROPOSED RETAINING WALL 2.0m-3.0m
- PROPOSED RETAINING WALL 3.0m
- PROPOSED RETAINING WALL >3.0m
- PROPSOED DRIVEWAY LOCATION
- EXISTING TREE TO REMAIN
- EXISTING TREE TO BE REMOVED
- ENVIRONMENTAL PROTECTION ZONE
- EXTENT OF CUT
- EXTENT OF FILL

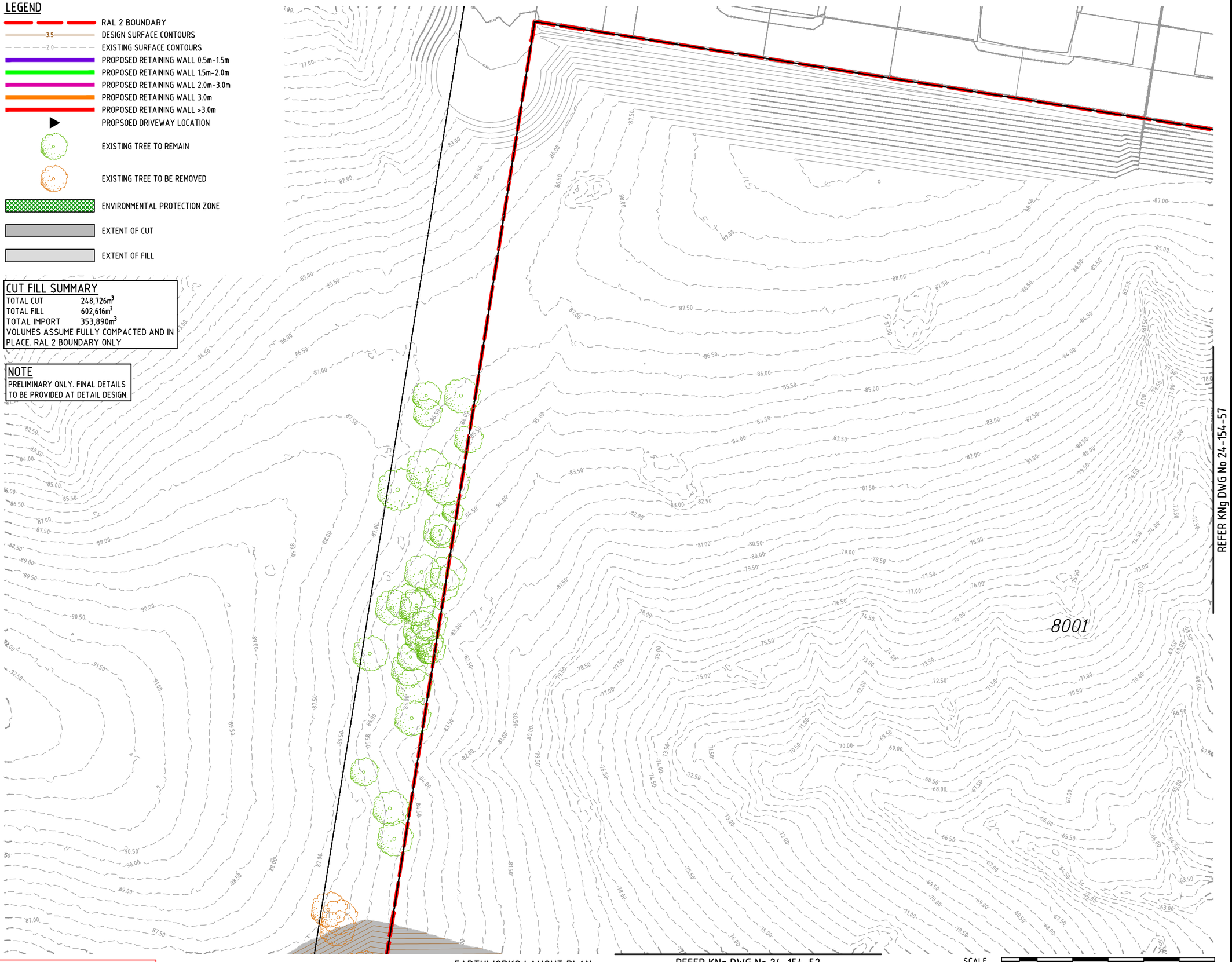
CUT FILL SUMMARY

TOTAL CUT	248,726m^3
TOTAL FILL	602,616m^3
TOTAL IMPORT	353,890m^3

VOLUMES ASSUME FULLY COMPACTED AND IN PLACE. RAL 2 BOUNDARY ONLY

NOTE

PRELIMINARY ONLY. FINAL DETAILS TO BE PROVIDED AT DETAIL DESIGN.



NOT FOR CONSTRUCTION

EARTHWORKS LAYOUT PLAN
SCALE 1:500

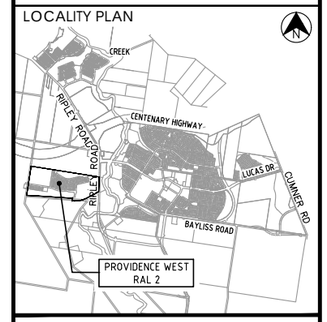
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SCALE
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1 : 500 (A1 UNREDUCED)

DO NOT SCALE THIS DRAWING
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LOCALITY PLAN



REVISIONS

No	Description	Date	By
A	ISSUED FOR APPROVAL	19.10.2025	APB
B	ISSUED FOR APPROVAL	31.10.2025	TRP

Client

Stockland

PROVIDENCE

Project

PROVIDENCE WEST
RAL 2

AUTHORITY REFERENCE NUMBER

3406/2025/PDA

kn group
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Approved

Digitally signed by
Amy Bamford
B.E.(Civil),
MIEAust, CPEng, NER,
RPEQ 36180
Date: 31/10/2025

Drawing Title

EARTHWORKS
LAYOUT PLAN
SHEET 5

Drawn	Designed	Checked	Date
TRP	AG	APB	OCT' 25

Scale	Sheet
AS SHOWN	17 of 53

	Drawing No	Revision
A1	24-154-56	B

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LEGEND

- RAL 2 BOUNDARY
- 3.5 DESIGN SURFACE CONTOURS
- 2.0 EXISTING SURFACE CONTOURS
- PROPOSED RETAINING WALL 0.5m-1.5m
- PROPOSED RETAINING WALL 1.5m-2.0m
- PROPOSED RETAINING WALL 2.0m-3.0m
- PROPOSED RETAINING WALL 3.0m
- PROPOSED RETAINING WALL >3.0m
- PROPSOED DRIVEWAY LOCATION
- EXISTING TREE TO REMAIN
- EXISTING TREE TO BE REMOVED
- ENVIRONMENTAL PROTECTION ZONE
- EXTENT OF CUT
- EXTENT OF FILL

CUT FILL SUMMARY

TOTAL CUT	248,726m^3
TOTAL FILL	602,616m^3
TOTAL IMPORT	353,890m^3

VOLUMES ASSUME FULLY COMPACTED AND IN PLACE. RAL 2 BOUNDARY ONLY

NOTE

PRELIMINARY ONLY. FINAL DETAILS TO BE PROVIDED AT DETAIL DESIGN.

REFER KNg DWG No 24-154-56

REFER KNg DWG No 24-154-58

ROAD 05

ROAD 06

ROAD 07

NOT FOR CONSTRUCTION

EARTHWORKS LAYOUT PLAN
SCALE 1:500

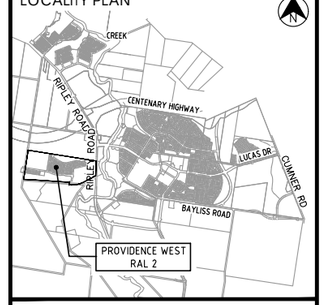
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SCALE
1 : 500 (A1 UNREDUCED)

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LOCALITY PLAN



REVISIONS

No	Description	Date	By
A	ISSUED FOR APPROVAL	19.10.2025	APB
B	ISSUED FOR APPROVAL	31.10.2025	TRP

Client

Stockland

PROVIDENCE

Project

PROVIDENCE WEST
RAL 2

AUTHORITY REFERENCE NUMBER

3406/2025/PDA

kn group
L1, 62 Astor Terrace, Spring Hill, QLD 4000
www.kngroup.com.au | 07 3017 1900

Approved

Digitally signed by
Amy Bamford
B.E.(Civil),
MIEAust, CPEng, NER,
RPEQ 36180
Date: 31/10/2025

Drawing Title

EARTHWORKS
LAYOUT PLAN
SHEET 6

Drawn	Designed	Checked	Date
TRP	AG	APB	OCT' 25

Scale	Sheet
AS SHOWN	18 of 53

A1	Drawing No	Revision
	24-154-57	B

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LEGEND

- RAL 2 BOUNDARY
- 3.5 DESIGN SURFACE CONTOURS
- 2.0 EXISTING SURFACE CONTOURS
- PROPOSED RETAINING WALL 0.5m-1.5m
- PROPOSED RETAINING WALL 1.5m-2.0m
- PROPOSED RETAINING WALL 2.0m-3.0m
- PROPOSED RETAINING WALL 3.0m
- PROPOSED RETAINING WALL >3.0m
- PROPSOED DRIVEWAY LOCATION
- EXISTING TREE TO REMAIN
- EXISTING TREE TO BE REMOVED
- ENVIRONMENTAL PROTECTION ZONE
- EXTENT OF CUT
- EXTENT OF FILL

NOTE
PRELIMINARY ONLY. FINAL DETAILS TO BE PROVIDED AT DETAIL DESIGN.

CUT FILL SUMMARY

TOTAL CUT	248,726m³
TOTAL FILL	602,616m³
TOTAL IMPORT	353,890m³

VOLUMES ASSUME FULLY COMPACTED AND IN PLACE. RAL 2 BOUNDARY ONLY

REFER KNg DWG No 24-154-57

REFER KNg DWG No 24-154-59

ROAD 05 ROAD 08 ROAD 09 ROAD 10

NOT FOR CONSTRUCTION

EARTHWORKS LAYOUT PLAN
SCALE 1:500

REFER KNg DWG No 24-154-54

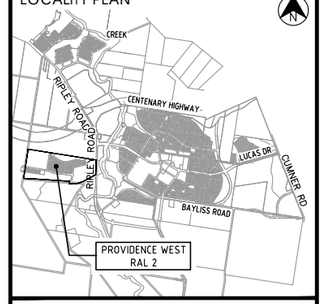
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LOCALITY PLAN



REVISIONS

No	Description	Date	By
A	ISSUED FOR APPROVAL	19.10.2025	APB
B	ISSUED FOR APPROVAL	31.10.2025	TRP

Client

Stockland

PROVIDENCE

Project

PROVIDENCE WEST
RAL 2

AUTHORITY REFERENCE NUMBER

3406/2025/PDA

kn group
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Approved

Digitally signed by
Amy Bamford
B.E.(Civil),
MIEAust, CPEng, NER,
RPEQ 36180
Date: 31/10/2025

Drawing Title

EARTHWORKS
LAYOUT PLAN
SHEET 7

Drawn	Designed	Checked	Date
TRP	AG	APB	OCT' 25

Scale	Sheet
AS SHOWN	19 of 53

Drawing No	Revision
24-154-58	B

A1

CUT FILL SUMMARY

TOTAL CUT	248,726m³
TOTAL FILL	602,616m³
TOTAL IMPORT	353,890m³

VOLUMES ASSUME FULLY COMPACTED AND IN PLACE. RAL 2 BOUNDARY ONLY

NOTE

PRELIMINARY ONLY. FINAL DETAILS TO BE PROVIDED AT DETAIL DESIGN.

LEGEND

- RAL 2 BOUNDARY
- 3.5 DESIGN SURFACE CONTOURS
- 2.0 EXISTING SURFACE CONTOURS
- PROPOSED RETAINING WALL 0.5m-1.5m
- PROPOSED RETAINING WALL 1.5m-2.0m
- PROPOSED RETAINING WALL 2.0m-3.0m
- PROPOSED RETAINING WALL 3.0m
- PROPOSED RETAINING WALL >3.0m
- PROPSOED DRIVEWAY LOCATION
- EXISTING TREE TO REMAIN
- EXISTING TREE TO BE REMOVED
- ENVIRONMENTAL PROTECTION ZONE
- EXTENT OF CUT
- EXTENT OF FILL
- INDICATIVE STAIR / RAMP LOCATION

ROAD 10
ROAD 11
DRIVEWAY 03
R9m
NEIGHBOURHOOD PARK
PEDESTRIAN PATH AND TEMP EMERGENCY ACCESS TO TIE INTO RIPLEY ROAD VERGE (INTERIM & ULTIMATE)

REFER KNg DWG No 24-154-58

REFER KNg DWG No 24-154-55

NOT FOR CONSTRUCTION

EARTHWORKS LAYOUT PLAN
SCALE 1:500

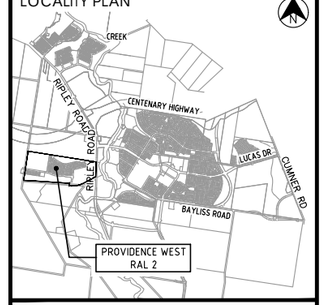
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LOCALITY PLAN



REVISIONS

No	Description	Date	By
A	ISSUED FOR APPROVAL	19.10.2025	APB
B	ISSUED FOR APPROVAL	31.10.2025	TRP

Client

Stockland
PROVIDENCE

Project

PROVIDENCE WEST
RAL 2

AUTHORITY REFERENCE NUMBER

3406/2025/PDA

kn group
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RPEQ 36180
Date: 31/10/2025

Drawing Title

EARTHWORKS
LAYOUT PLAN
SHEET 8

Drawn	Designed	Checked	Date
TRP	AG	APB	OCT' 25

Scale	Sheet
AS SHOWN	20 of 53

	Drawing No	Revision
A1	24-154-59	B

REFER KNg DWG No 24-154-95

REFER KNg DWG No 24-154-92

ROAD 02

ROAD 03

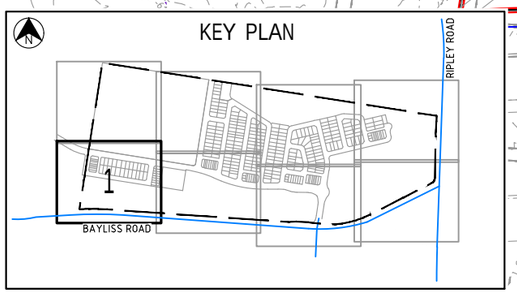
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2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031

2032 2033 2034 2035 2036

LOT 370
SP 198119

KEY PLAN



NOTE
PRELIMINARY ONLY. FINAL DETAILS TO BE PROVIDED AT DETAIL DESIGN.

LEGEND

- RAL 2 BOUNDARY
- S — PROPOSED SEWER RETICULATION
- TS — PROPOSED TRUNK SEWER
- SW — PROPOSED STORMWATER
- W — PROPOSED WATER MAIN
- DESIGN SURFACE CONTOURS
- PROPOSED DRIVEWAY LOCATIONS
- ENVIRONMENTAL PROTECTION ZONE
- WATER SERVICE LOCATION
- ELECTRICAL PILLAR (BY OTHERS)

COMBINED SERVICES - LAYOUT PLAN
SCALE 1:500

SCALE 10 5 0 10 20 30 40 50m
1 : 500 (A1 UNREDUCED)

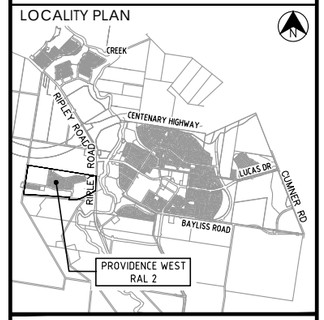
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LOCALITY PLAN



REVISIONS

No	Description	Date	By
A	ISSUED FOR APPROVAL	19.10.2025	APB
B	ISSUED FOR APPROVAL	31.10.2025	TRP

Client

Stockland

PROVIDENCE

Project

PROVIDENCE WEST
RAL 2

AUTHORITY REFERENCE NUMBER

3406/2025/PDA

kn group
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Approved

Digitally signed by
Amy Bamford
B.E.(Civil),
MIEAust, CPEng, NER,
RPEQ 36180
Date: 31/10/2025

Drawing Title

COMBINED SERVICES
LAYOUT PLAN
SHEET 1

Drawn	Designed	Checked	Date
TRP	AG	APB	OCT' 25

Scale	Sheet
AS SHOWN	29 of 53

	Drawing No	Revision
A1	24-154- 91	B

REFER KNg DWG No 24-154-96

REFER KNg DWG No 24-154-91

REFER KNg DWG No 24-154-93

LANEWAY 01

LANEWAY 02

ROAD 02

NEIGHBORHOOD PARK

PARK DESIGN BY RPS. REFER TO LANDSCAPE FUNCTIONAL PLANS FOR DETAILS

STORMWATER BASIN DESIGN BY DESIGN FLOW. REFER TO SWMP FOR DETAILS

DRAINAGE RESERVE

WATERWAY RECONSTRUCTION AND FLOOD MODELLING BY OTHERS. REFER TO DESIGN BY WEP & DESIGN FLOW

NOTE

PRELIMINARY ONLY. FINAL DETAILS TO BE PROVIDED AT DETAIL DESIGN.

LEGEND

- RAL 2 BOUNDARY
- PROPOSED SEWER RETICULATION
- PROPOSED TRUNK SEWER
- PROPOSED STORMWATER
- PROPOSED WATER MAIN
- DESIGN SURFACE CONTOURS
- PROPOSED DRIVEWAY LOCATIONS
- ENVIRONMENTAL PROTECTION ZONE
- WATER SERVICE LOCATION
- ELECTRICAL PILLAR (BY OTHERS)

KEY PLAN

RIPLEY ROAD

BAYLISS ROAD

COMBINED SERVICES - LAYOUT PLAN

SCALE 1:500

SCALE 10 5 0 10 20 30 40 50m

1 : 500 (A1 UNREDUCED)

NOT FOR C

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NORTH

LOCALITY PLAN

CREEK, RIPLEY ROAD, CENTENARY HIGHWAY, LUCAS DR, GUNNER RD, BAYLISS ROAD, PROVIDENCE WEST RAL 2

REVISIONS

No	Description	Date	By
A	ISSUED FOR APPROVAL	19.10.2025	APB
B	ISSUED FOR APPROVAL	31.10.2025	TRP

Client

Stockland

PROVIDENCE

Project

PROVIDENCE WEST
RAL 2

AUTHORITY REFERENCE NUMBER

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kn group
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www.kngroup.com.au | 07 3017 1900

Approved

Digitally signed by Amy Bamford
B.E.(Civil), MIEAust, CPEng, NER, RPEQ 36180
Date: 31/10/2025

Drawing Title

COMBINED SERVICES LAYOUT PLAN SHEET 2

Drawn	Designed	Checked	Date
TRP	AG	APB	OCT' 25

Scale	Sheet
AS SHOWN	30 of 53

	Drawing No	Revision
A1	24-154- 92	B

REFER KNg DWG No 24-154-97

REFER KNg DWG No 24-154-92

REFER KNg DWG No 24-154-94

LANEWAY 03

ROAD 02

ROAD 01

DRAINAGE RESERVE

PARK DESIGN BY RPS. REFER TO LANDSCAPE FUNCTIONAL PLANS FOR DETAILS

CULVERT SIZING INDICATIVE. FINAL SIZE TO BE CONFIRMED AT DETAILED DESIGN IN LINE WITH FLOOD MODELLING REQUIREMENTS AS PREPARED BY WEP, SUBJECT TO WWBW APPROVAL.

WATERWAY RECONSTRUCTION AND FLOOD MODELLING BY OTHERS. REFER TO DESIGN BY WEP & DESIGN FLOW

LIMIT OF PROJECT WORKS. REFER TO CATALYST ROAD DESIGN SUBMISSION BY OTHERS

LOW LEVEL WATER MAIN EXTENSION FROM RIPLEY RD TO BE CONSTRUCTED WITH CATALYST ROAD WORKS

TRUNK SEWER MAIN EXTENSION FROM BUNDAMBA CREEK CATALYST TRUNK SEWER

COACH PARKING FOR DISTRICT REC PARK

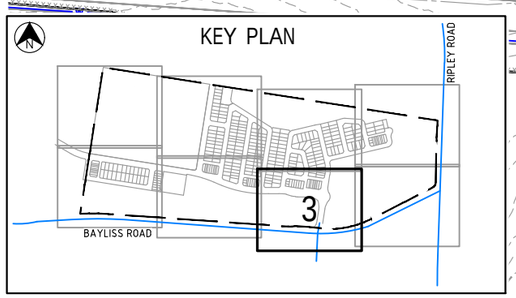
INDICATIVE FUTURE EAST-WEST CATALYST ROAD CORRIDOR BOUNDARY. REFER TO SEPARATE DESIGN SUBMISSION BY OTHERS.

NOTE
PRELIMINARY ONLY. FINAL DETAILS TO BE PROVIDED AT DETAIL DESIGN.

LEGEND

- RAL 2 BOUNDARY
- S — PROPOSED SEWER RETICULATION
- TS — PROPOSED TRUNK SEWER
- SW — PROPOSED STORMWATER
- W — PROPOSED WATER MAIN
- DESIGN SURFACE CONTOURS
- PROPOSED DRIVEWAY LOCATIONS
- ENVIRONMENTAL PROTECTION ZONE
- WATER SERVICE LOCATION
- ELECTRICAL PILLAR (BY OTHERS)

KEY PLAN



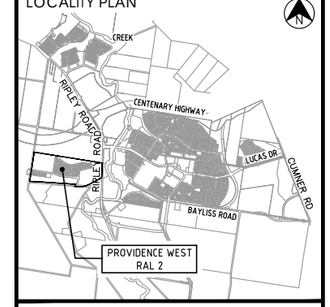
COMBINED SERVICES - LAYOUT PLAN
SCALE 1:500

SCALE 10 5 0 10 20 30 40 50m
1 : 500 (A1 UNREDUCED)

DO NOT SCALE THIS DRAWING
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NORTH

LOCALITY PLAN



REVISIONS

No	Description	Date	By
A	ISSUED FOR APPROVAL	19.10.2025	APB
B	ISSUED FOR APPROVAL	31.10.2025	TRP

Client

Stockland

PROVIDENCE

Project

PROVIDENCE WEST
RAL 2

AUTHORITY REFERENCE NUMBER

3406/2025/PDA

kn group
L1, 62 Astor Terrace, Spring Hill, QLD 4000
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Approved

Digitally signed by
Amy Bamford
B.E.(Civil),
MIEAust, CPEng, NER,
RPEQ 36180
Date: 31/10/2025

Drawing Title

COMBINED SERVICES
LAYOUT PLAN
SHEET 3

Drawn	Designed	Checked	Date
TRP	AG	APB	OCT' 25

Scale	Sheet
AS SHOWN	31 of 53

Drawing No	Revision
A1 24-154- 93	B

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REFER KNg DWG No 24-154-98

REFER KNg DWG No 24-154-93

NEIGHBORHOOD PARK

9006

9007

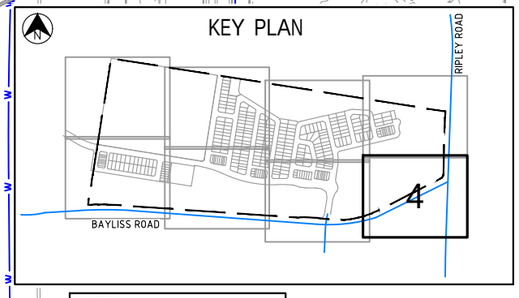
DRAINAGE RESERVE

WATERWAY RECONSTRUCTION AND FLOOD MODELLING BY OTHERS. REFER TO DESIGN BY WEP & DESIGN FLOW

TRUNK SEWER MAIN EXTENSION FROM BUNDAMBA CREEK CATALYST TRUNK SEWER TO SERVICE SUBJECT DEVELOPMENT. TO BE DESIGNED IN CONSIDERATION OF ULTIMATE CATALYST ROAD ALIGNMENTS

INDICATIVE FUTURE EAST-WEST CATALYST ROAD CORRIDOR BOUNDARY. REFER TO SEPARATE DESIGN SUBMISSION BY OTHERS.

KEY PLAN



NOTE
PRELIMINARY ONLY. FINAL DETAILS TO BE PROVIDED AT DETAIL DESIGN.

LEGEND

- RAL 2 BOUNDARY
- S — PROPOSED SEWER RETICULATION
- TS — PROPOSED TRUNK SEWER
- SW — PROPOSED STORMWATER
- W — PROPOSED WATER MAIN
- DESIGN SURFACE CONTOURS
- PROPOSED DRIVEWAY LOCATIONS
- ENVIRONMENTAL PROTECTION ZONE
- WATER SERVICE LOCATION
- ELECTRICAL PILLAR (BY OTHERS)

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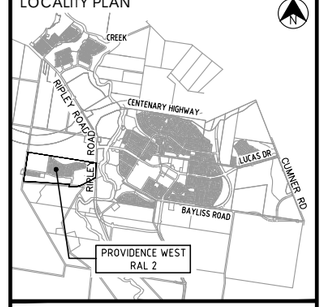
NOT FOR CONSTRUCTION

COMBINED SERVICES - LAYOUT PLAN
SCALE 1:500

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NORTH

LOCALITY PLAN



REVISIONS

No	Description	Date	By
A	ISSUED FOR APPROVAL	19.10.2025	APB
B	ISSUED FOR APPROVAL	31.10.2025	TRP

Client
Stockland
PROVIDENCE

Project
PROVIDENCE WEST
RAL 2

AUTHORITY REFERENCE NUMBER
3406/2025/PDA

kn group
L1, 62 Astor Terrace, Spring Hill, QLD 4000
www.kngroup.com.au | 07 3017 1900

Approved
Digitally signed by Amy Bamford
B.E.(Civil), MIEAust, CPEng, NER, RPEQ 36180
Date: 31/10/2025

Drawing Title
COMBINED SERVICES LAYOUT PLAN
SHEET 4

Drawn	Designed	Checked	Date
TRP	AG	APB	OCT' 25

Scale	Sheet
AS SHOWN	32 of 53

A1	Drawing No	Revision
	24-154- 94	B

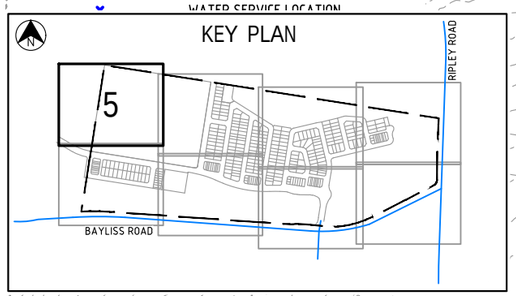
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NOTE
PRELIMINARY ONLY. FINAL DETAILS TO BE PROVIDED AT DETAIL DESIGN.

LEGEND

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- ENVIRONMENTAL PROTECTION ZONE
- WATER SERVICE LOCATION

KEY PLAN



REFER KNg DWG No 24-154-91

REFER KNg DWG No 24-154-96

8001

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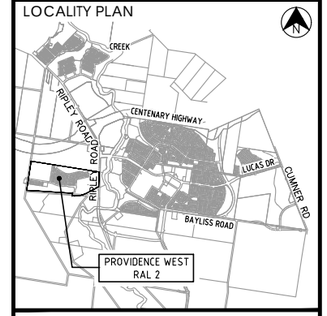
COMBINED SERVICES - LAYOUT PLAN
SCALE 1:500

SCALE
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1 : 500 (A1 UNREDUCED)

DO NOT SCALE THIS DRAWING
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LOCALITY PLAN



REVISIONS

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Client
Stockland
PROVIDENCE

Project
PROVIDENCE WEST
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RPEQ 36180
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Drawing Title
COMBINED SERVICES
LAYOUT PLAN
SHEET 5

Drawn	Designed	Checked	Date
TRP	AG	APB	OCT' 25

Scale	Sheet
AS SHOWN	33 of 53

	Drawing No	Revision
A1	24-154- 95	B

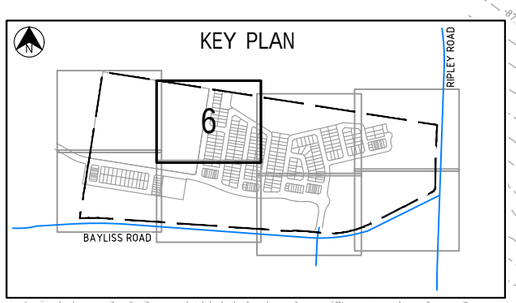
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NOTE
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KEY PLAN



COMBINED SERVICES - LAYOUT PLAN
SCALE 1:500

SCALE
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1 : 500 (A1 UNREDUCED)

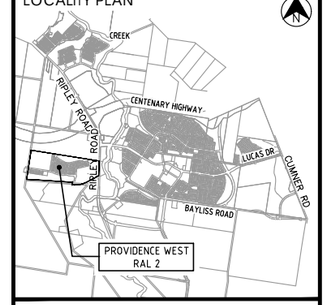
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LOCALITY PLAN



REVISIONS

No	Description	Date	By
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Client

Stockland

PROVIDENCE

Project

PROVIDENCE WEST
RAL 2

AUTHORITY REFERENCE NUMBER
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Approved

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MIEAust, CPEng, NER,
RPEQ 36180
Date: 31/10/2025

Drawing Title

COMBINED SERVICES
LAYOUT PLAN
SHEET 6

Drawn	Designed	Checked	Date
TRP	AG	APB	OCT' 25

Scale	Sheet
AS SHOWN	34 of 53

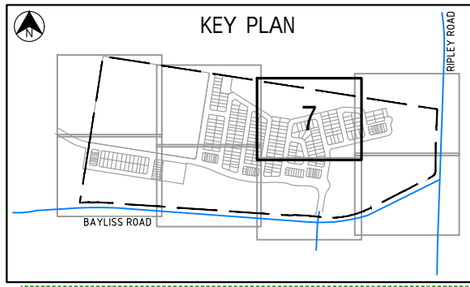
A1	Drawing No	Revision
	24-154- 96	B

NOTE
PRELIMINARY ONLY. FINAL DETAILS TO BE PROVIDED AT DETAIL DESIGN.

LEGEND

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KEY PLAN



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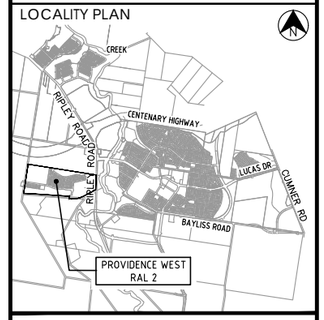
COMBINED SERVICES - LAYOUT PLAN
SCALE 1:500

SCALE
10 5 0 10 20 30 40 50m
1 : 500 (A1 UNREDUCED)

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LOCALITY PLAN



REVISIONS

No	Description	Date	By
A	ISSUED FOR APPROVAL	19.10.2025	APB
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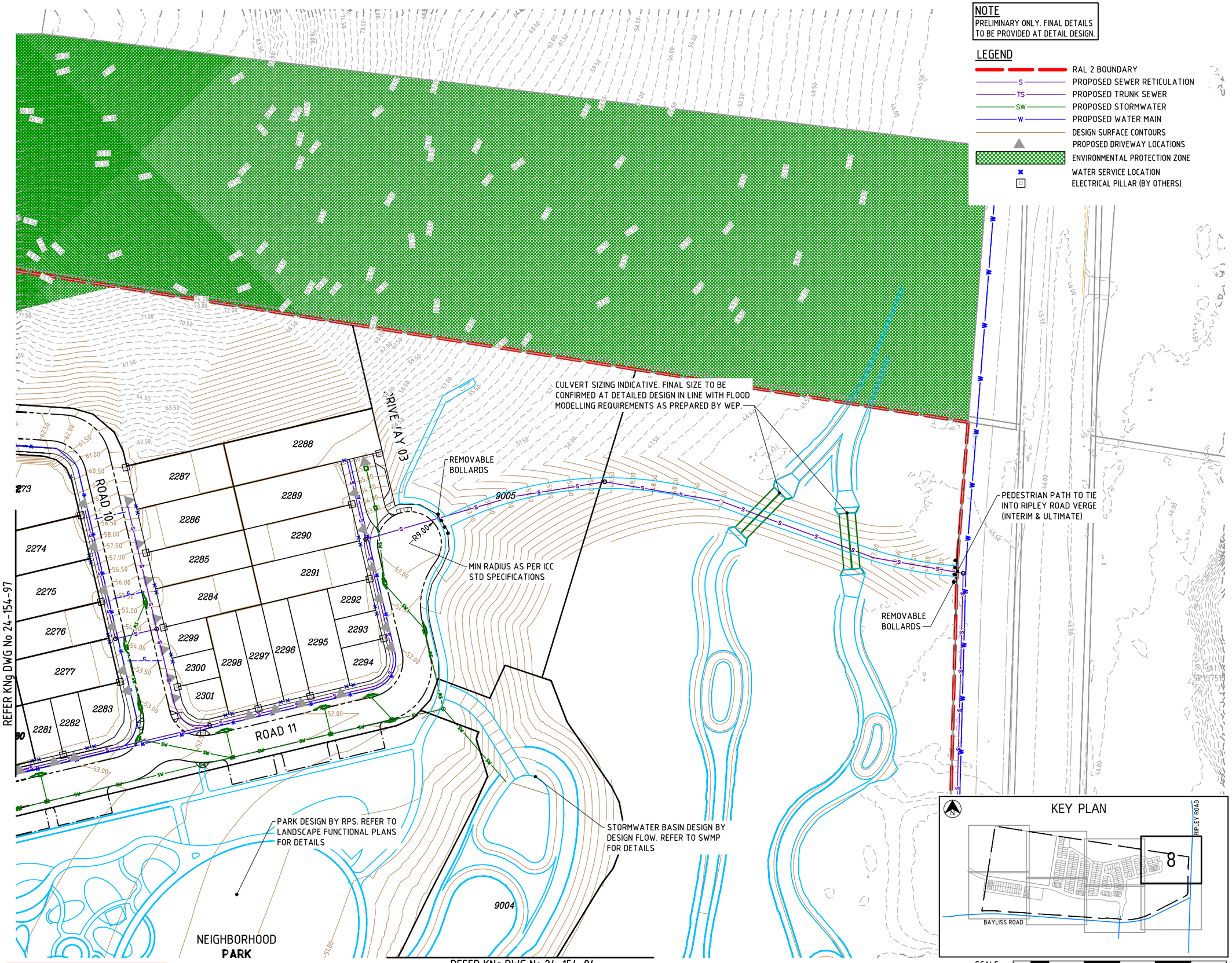
Drawing Title
COMBINED SERVICES
LAYOUT PLAN
SHEET 7

Drawn	Designed	Checked	Date
TRP	AG	APB	OCT' 25

Scale	Sheet
AS SHOWN	35 of 53

	Drawing No	Revision
A1	24-154- 97	B

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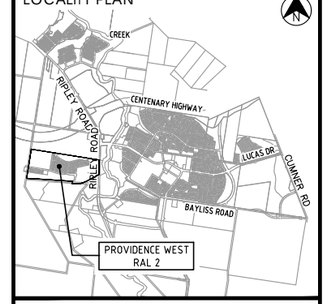


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LOCALITY PLAN



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Project

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Drawing Title

COMBINED SERVICES
LAYOUT PLAN
SHEET 8

Drawn	Designed	Checked	Date
TRP	AG	APB	OCT' 25

Scale	Sheet
AS SHOWN	36 of 53

	Drawing No	Revision
A1	24-154- 98	B