# NEW BEITH PRECINCT B
## STORMWATER QUALITY MANAGEMENT PLAN

**DesignFlow**
Prepared for Fraser Property
August 2025

## Document Control Sheet

| | |
|---|---|
| Report Title: | New Beith Precinct B – Stormwater Quality Management Plan |
| Suggested Reference: | New Beith Precinct B – Stormwater Quality Management Plan (DesignFlow, April 2025) |
| Version: | 01 |
| Client: | Frasers Property |
| Author(s): | Shaun Leinster |
| Reviewed By: | Ralph Williams |
| Approved By: | Shaun Leinster RPEQ 15637  |
| Date: | 15/08/2025 |
| File Location: | S:\Projects\4488 |
| Circulation: | Frasers Property, RPS |

## Disclaimer

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# 1 INTRODUCTION

This report has been prepared to support the Reconfiguring a Lot (RAL) development application for the Frasers Property New Beith development Precinct B.

The New Beith Precinct B development is a greenfield development site located within the Flagstone Priority Development Area Context Area 2. The development will involve the creation of mostly residential landuse set amongst recreational and open space precincts. Flagstone Creek lies to the south of the development zone and will represent important feature within the development.

The approved *Stormwater Infrastructure Master Plan Context Area 2 – Lot 4 (New Beith) - Version 4.0* (14 February 2023) defines the stormwater management principles and objectives for the New Beith development. This report demonstrates how Precinct B development will meet the operational water quality objectives defined in the *Stormwater IMP*, *State Planning Policy* (2017) and Council Planning Scheme.

The report focuses on stormwater quality management only. Flood/stormwater quantity/ waterway stability flow management is presented in the following:

- *New Beith, Flagstone Creek Flood Study* (DesignFlow, March 2025)

# 2 SITE CHARACTERISTICS

## 2.1 SITE LOCATION

The proposed New Beith development is located on the north side of Flagstone Creek within the Flagstone PDA. Precinct B is located in the south eastern corner of the New Beith development. Figure 1 shows the location of the site.

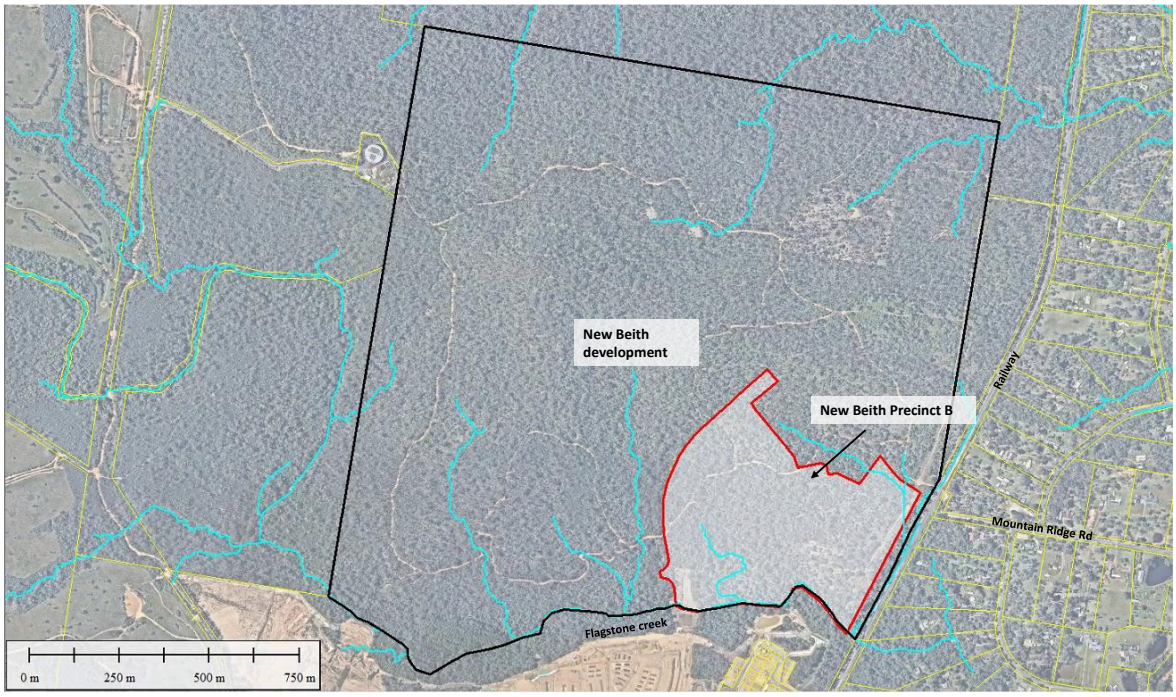



**Figure 1: Locality plan – New Beith Precinct B**

## 2.2 TOPOGRAPHY, CATCHMENTS AND DRAINAGE

Ground levels range from approximately RL80 within Precinct B and even RL 100 at the top of the Precinct E to the west through to RL33 along the edge of Flagstone Creek. Slopes vary from moderate to steep grades (generally 3-12%). Figure 2 shows the main drainage discharges and catchments across the site. For Precinct B the high point is located to the west in future Precinct E with two catchments away from this high point:

- Catchment 2 drains eastern to the railway and ultimate enters Flagstone Creek (350m downstream)
- Catchment 3 drains to Flagstone Creek

The topography of the site supports end of pipe stormwater treatment systems prior to discharge to tributaries of Flagstone Creek. Careful selection of treatment sites has occurred to integrate with site topography.

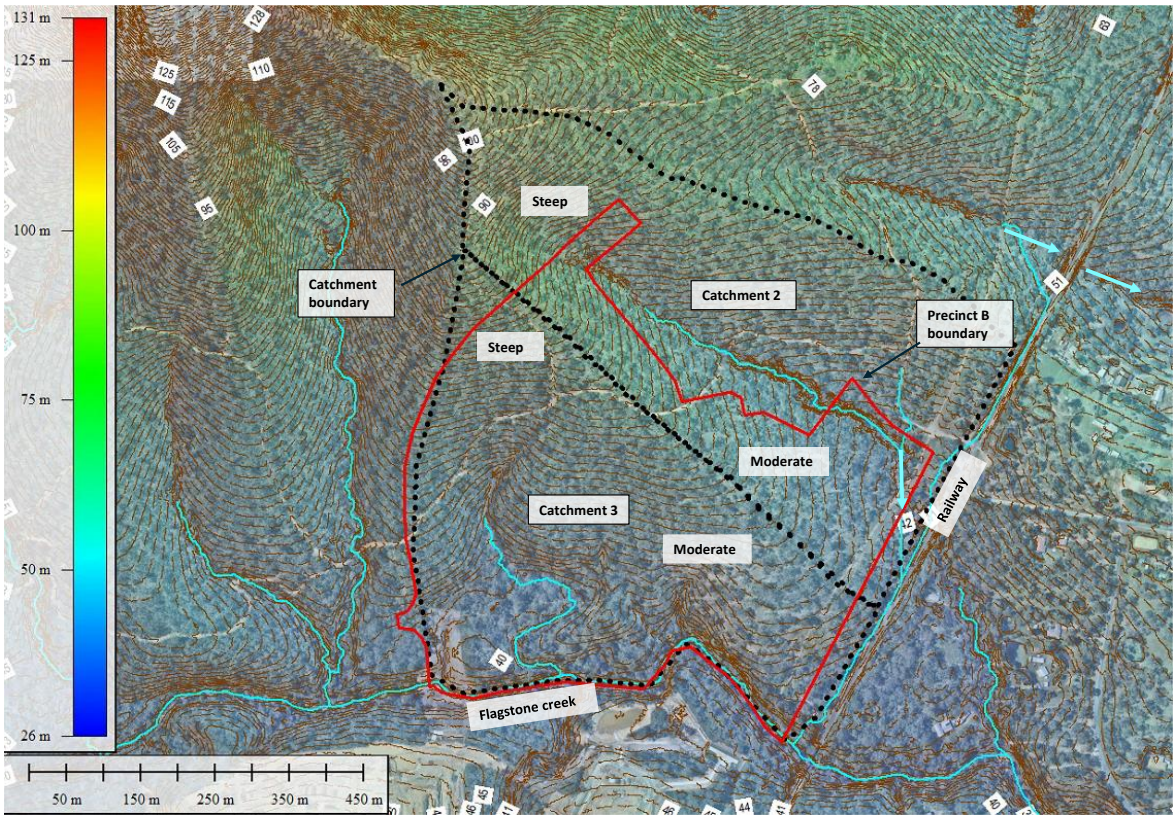



**Figure 2: Topography, catchments and drainage**

## 2.3 PROPOSED DEVELOPMENT

The New Beith Precinct B development layout is provided in **Figure 3** and consists of the following:

- Residential landuse and roads
- Active open space/local parks
- Passive open space/conservation

This SQMP focuses on managing stormwater runoff from the urban areas (residential landuse, roads and local parks) in accordance with the State Planning Policy and the Stormwater IMP for New Beith.

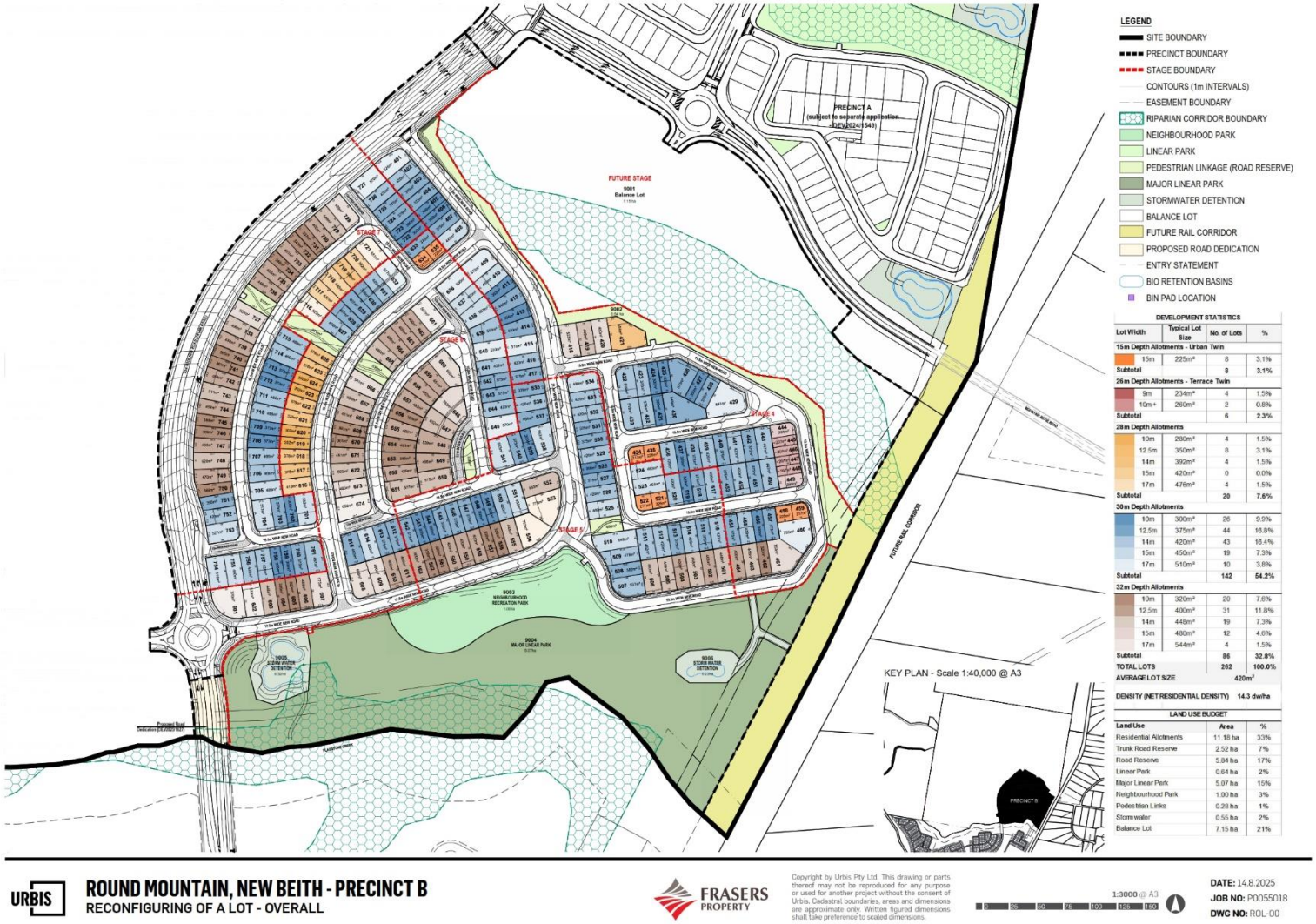



**Figure 3: Precinct B overall layout (source: Urbis)**

# 3 DESIGN OBJECTIVES

In order to protect receiving waterways, relevant state and local planning policies are applied to the development and require water sensitive urban design (WSUD) to comply. These are described in more detail in the following sections.

## 3.1 CONSTRUCTION PHASE WATER QUALITY

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 (DILGP, 2017) will apply as listed in Tables 1 to 3 and will require compliance during construction.

Construction phase stormwater management measures will be designed and documented as part of the operational works design or prior to commencement of works on the site.

**Table 1 – Construction phase stormwater quality**

| Issue | Desired Outcome |
|---|---|
| Drainage control | 1. Manage stormwater flows around or through areas of exposed soil to avoid contamination.<br>2. Manage sheet flows in order to avoid or minimise the generation of rill or gully erosion.<br>3. Provide stable concentrated flow paths to achieve the construction phase stormwater management design objectives for temporary drainage works (part 2).<br>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.<br>2. Effectively cover or stabilise exposed soils prior to predicted rainfall.<br>3. Prior to completion of works for the development, and prior to removal of sediment controls, all site surfaces must be effectively stabilised[2] 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.<br>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.<br>2. Avoid the release of oil or visible sheen to released waters.<br>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.<br>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 2 – 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 3 – Emergency spillway objectives 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.

## 3.2 OPERATIONAL PHASE WATER QUALITY

The stormwater quality management objectives that apply to the operational phase of the New Beith development (refer Table 4) have been established considering the State Planning Policy (DILGP, 2017) and Council policy. The objectives relates to the reduction of pollutants discharge from the urban landuses of the development site (residential and commercial landuses).

**Table 4 – Operational phase stormwater quality objectives**

| Pollutant | Discharge Criteria (% reduction in mean annual load) |
|---|---|
| Total suspended solids (TSS) | 80% |
| Total phosphorus (TP) | 60% |
| Total nitrogen (TN) | 45% |
| Gross Pollutants (GP) | 90% |

# 4 STORMWATER QUALITY MANAGEMENT STRATEGY

A stormwater quality management strategy has been developed for New Beith Precinct B considering field inspections, confirmation of constraints/opportunities, catchments and topography and integration with the development layout. The proposed strategy has been developed in collaboration with the design team to ensure the proposed strategy is well integrated with both engineering, landscape and ecological aspects of the design.

The proposed strategy is generally in accordance with the endorsed *Stormwater Infrastructure Master Plan Context Area 2 – Lot 4 (New Beith) - Version 4.0* (14 February 2023).

When developing the strategy a number of guiding principles were considered:

- achieve obligations under New Beith Stormwater IMP, Council Planning Scheme and State Planning Policy;
- ensure treatments chosen are functionally feasible within the constraints of development and drainage levels ;
- integrate with landscape outcomes particularly how treatments integrate with waterways; and
- minimise impacts on mapped vegetation areas.

Figure 4 and Table 5 show the stormwater treatment strategy for Precinct B. Performance assessments of the proposed treatment strategy are presented in Section 5.

Appendix A provides a preliminary earthworks and functional layout for the proposed treatment system to demonstrate functional feasibility within the constraints of the site. The bioretention designs adopt the following:

- Above the local flood levels and extent (no loss of floodplain storage)
- Type 2 sealed bioretention system given the dispersive nature of the in-situ soils. The systems may be designed with a saturated zone to supply water to the plant but will not contain organic material in this zone.
- The impermeable liner will be either 300mm compact clay (preferred) or geosynthetic clay liner.

**Table 5 - Treatment strategy Precinct B**

| Catchment / Treatment ID | Catchment area (ha) | Treatment | Treatment area (m2) |
|---|---|---|---|
| 4 | 5.29 | Bioretention | 320 |
| 5 | 13.49 | Sediment basin<br>Bioretention | 350<br>525 |
| 6 | 7.83 | Bioretention | 500 |

Treatment Systems 4 and 5 are located adjacent and within the waterway buffers of Flagstone Creek. The design of these systems required close coordination with the project team to minimise the impact on existing trees and preserving the function of the waterway buffer. This required:

- numerous site inspections;
- identifying of species and breast height diameters;
- accurate survey of trees;
- identification of treatment location to ensure the least impact on trees;
- numerous conceptual designs and refinements; and
- inclusion of walls along some edges (in particular Treatment 5) to avoid trees.

Design of treatment system 5, in particular has required careful consideration of ecological constraints and potential impacts on trees. Whilst the footprint of the basin marginally encroaches into the 50m setback to the high bank, no significant trees are lost, including from remnant mapped riparian areas. The design has also incorporated retaining walls to protect the existing significant trees. The proposed layout has been ground truthed and is believed to result in the least impact outcome on existing trees whilst still providing the necessary treatment required for the development. Importantly, under the EDQ endorsed NESS, the clearing of remnant vegetation within creek corridors is permitted for stormwater infrastructure, and here every effort has been made to minimise any resultant impact.

A sediment basin has been provided for Catchment 5 as the catchment is large and therefore a sediment basin is required in accordance with the Water by Design *Bioretention Technical Guideline*.

Treatment system 6 predominately treats future urban area to the north (Precinct E) but also manages a portion of road runoff from Precinct B. This system has been sized for the portion of Precinct B that contribute to this system plus the future urban catchment associated with Precinct E

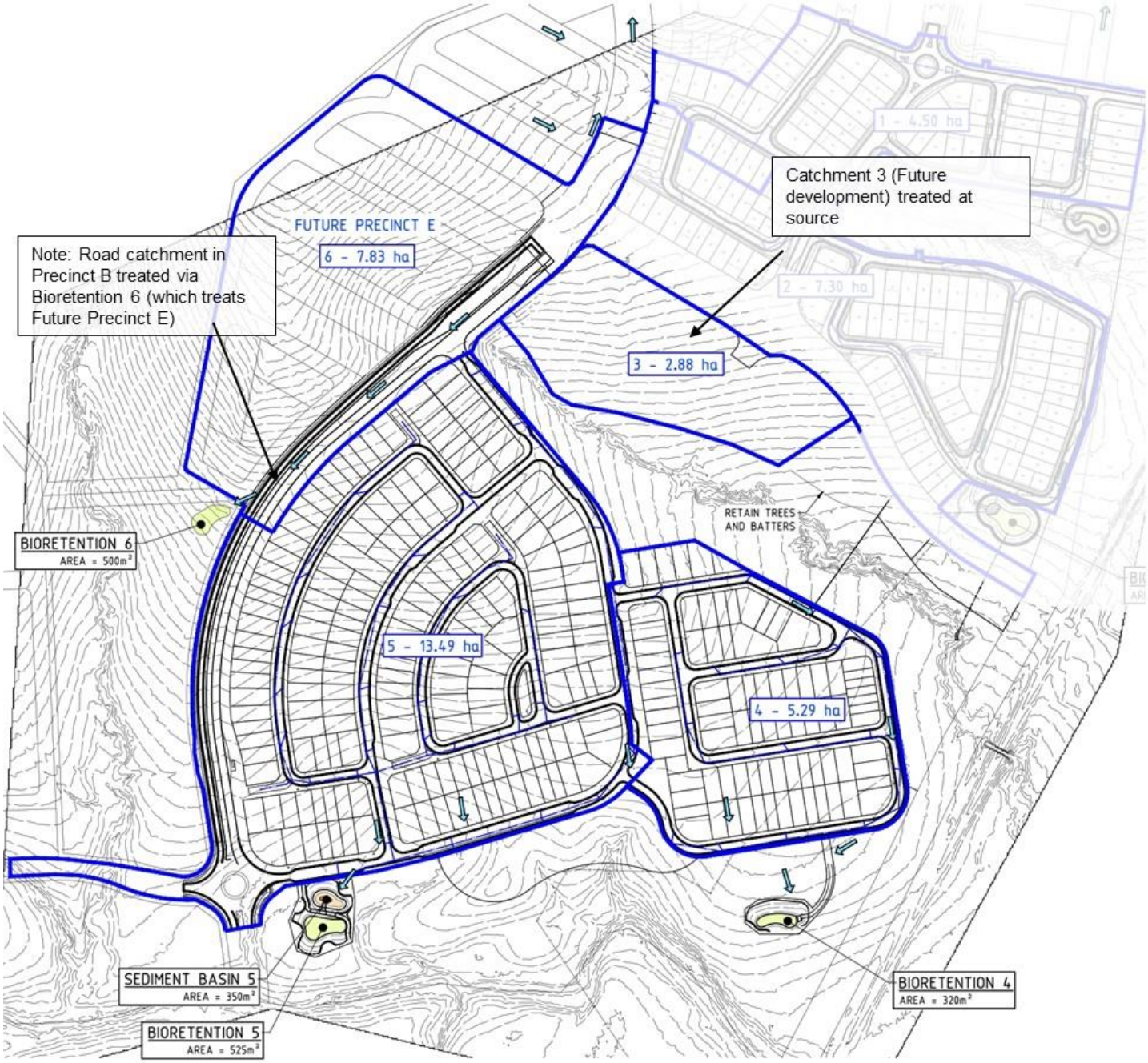



**Figure 4: Stormwater quality management strategy - Precinct B (and part of E)**

**Figure 5: Bioretention photo examples**

**Figure 6: Sediment basin photo examples**

# 5 PERFORMANCE ASSESSMENT

To support the RAL application for Precincts B development, 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 for South East Queensland (Water by Design, 2010).

Details of the modelling assumptions, parameters used and results are presented in the following sections.

## 5.1 MODEL STRUCTURE

The structure of the MUSIC model is shown in Figure 7 with the general data upon which the model is based provided in Table 6.

Catchment areas draining to each treatment element have been derived from the proposed urban layout for the development, considering the pipe drainage system that would apply (refer to Figure 4). Catchments contributing include the urban areas, roads, parks and the treatment area. A lumped catchment approach is used, consistent with the MUSIC Modelling Guidelines (HLW,2019, page 17) which states that splitting land use is only required when land use does not reflect a typical land use split or tanks are adopted. Tanks are not adopted and the landuse proposed is typical of that proposed in the MUSIC Modelling Guidelines so the lumped approach is appropriate.

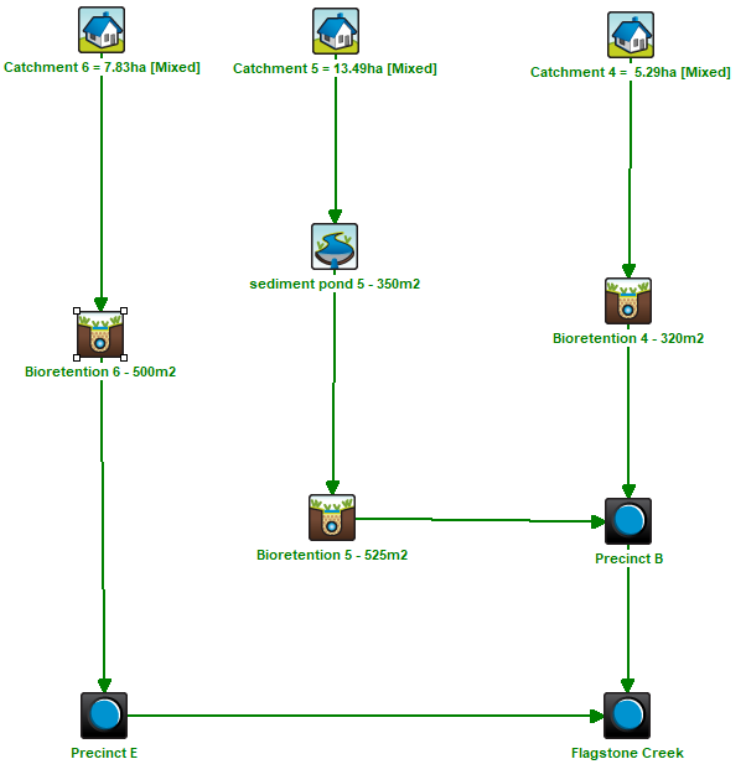



**Figure 7: MUSIC model**

**Table 6 - MUSIC model data summary**

| Parameter | Value |
|---|---|
| **Source Data** | |
| Rainfall data set | 1997-2006 – Greenbank |
| Modelled time step | 6 minute |
| Mean annual rainfall 1980-1990 | 787 mm |
| Potential evapotranspiration | 1,427 mm |
| Soil properties (runoff generation parameters) | Table 3.7 Music Modelling Guidelines for SEQ (as appropriate depending on land use) |
| Pollutant concentrations (base and storm flow concentration parameters) | Tables 3.8/Table 3.9 Music Modelling Guidelines for SEQ (as appropriate depending on surface type/land use) |
| Percent impervious | Table 3.6 Music Modelling Guidelines for SEQ (lumped catchment as appropriate depending on land use)<br>60% residential; 60% Commercial and Community given the intent to keep trees and create large area of pervious |
| **Treatment Devices** | |
| Bioretention 5 | Filter area – 525m2<br>Surface area – 875m2 (includes storage over sediment pond and bio at extended detention depth)<br>Filter media depth = 0.6 m<br>Extended detention depth = 0.3 m<br>Overflow weir – 10m<br>Seepage = 0 mm/hr<br>TN content 400 mg/kg<br>Orthophosphate content 30mg/kg |
| Sediment pond 5 | Surface area = 350m$^2$<br>Extended detention depth = 0.01m (extended detention depth combined with bioretention and included as part of bioretention node)<br>Permanent pool = 350m$^3$<br>Seepage = 0mm/hr<br>Evaporative loss = 75% of PET<br>Notional detention time = 0.1hr |
| Bioretention 4 and 6 | Filter area – Refer Table 5<br>Surface area (= filter area) – Refer Table 5<br>Filter media depth = 0.6 m<br>Extended detention depth = 0.3 m<br>Overflow weir – 10m<br>Seepage = 0 mm/hr<br>TN content 400 mg/kg<br>Orthophosphate content 30mg/kg |

For Catchment 5, the model assumptions account for the sediment pond and bioretention basin sharing an extended detention depth. In this case the extended detention volume over the sediment pond and bioretention basin will be processed by the bioretention basin. The surface area of the bioretention basin is increased to reflect this, whilst the

extended detention depth of the sediment pond is removed. This approach is supported by the MUSIC modelling guidelines (HLW, 2018, page 46) provided the filter area is maintained at greater than 50% of the total surface area. Furthermore, this modelling approach reflects exactly how the sediment basin and bioretention system will operate.

## 5.2 RESULTS

The results of the MUSIC modelling for each treatment zone are presented in Table 7. The results demonstrate that load based objectives for the developed discharges to Flagstone Creek are achieved.

**Table 7 - Summary of MUSIC modelling**

| Treatment ID | Pollutant | Inflows (kg/yr) | Outflows (kg/yr) | Reduction achieved (%) | Water quality objective |
|---|---|---|---|---|---|
| Bioretention 4 | TSS | 5070 | 970 | 80.9 | |
| | TP | 10.2 | 2.79 | 72.6 | |
| | TN | 48.4 | 25.3 | 47.6 | |
| Sediment pond/ Bioretention 5 | TSS | 13200 | 2560 | 80.6 | |
| | TP | 25.7 | 7.2 | 72.0 | |
| | TN | 123 | 65.3 | 46.7 | |
| Bioretention 6 | TSS | 7510 | 1470 | 80.4 | |
| | TP | 15.0 | 4.01 | 73.3 | |
| | TN | 71.5 | 36.2 | 49.3 | |
| **TOTAL TO FLAGSTONE CK** | **TSS** | **25800** | **5010** | **80.6%** | **80%** |
| | **TP** | **50.9** | **14.0** | **72.5%** | **60%** |
| | **TN** | **242** | **127** | **47.7%** | **45%** |

# 6 CONCLUSION

A stormwater treatment strategy has been developed to support the RAL application for Precinct B. The strategy has been developed to meet the requirements of the *New Bieth Stormwater IMP*, State Planning Policy (SPP, 2017) and Council objectives for stormwater quality management.

The treatment strategy has been consolidated at the main drainage discharges from the development to avoid numerous small treatments. The strategy focusses on end of pipe bioretention systems. Site topography supports end of pipe bioretention in all locations to treat catchments. Locations have been chosen to integrate with the layout and minimise the impact to vegetation areas and target flatter zones above the waterway.

Appendix A provides a preliminary earthworks and functional layout for the proposed systems to demonstrate the treatments are functionally feasible within the site constraints.

The above strategy provides an integrated best management approach to stormwater quality management and meets the requirements of the *New Bieth Stormwater IMP*, State Planning Policy and Council planning scheme.

Flood and stormwater quantity management is outlined in the following:

- *New Beith, Flagstone Creek Flood Study* (DesignFlow, March 2024)
- *New Beith Precinct A Northern Tributary Stormwater Quantity Management Plan* (DesignFlow, June 2024)

# 7 REFERENCES

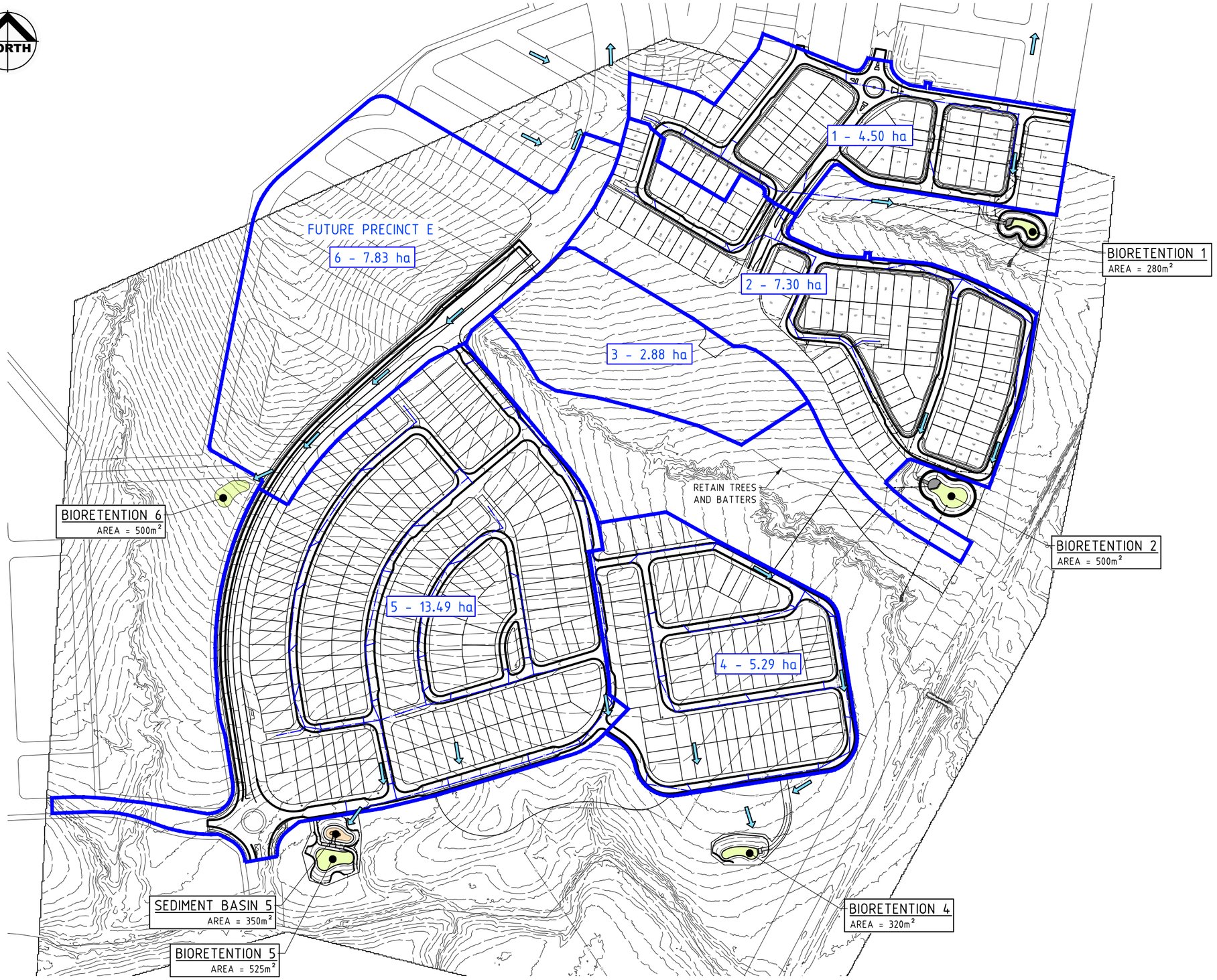
DesignFlow (2021). *New Beith Development – Preliminary Flood Impact Assessment*.

DILGP (2017) *State Planning Policy*

Healthy Land and Water (2018) *MUSIC Modelling Guidelines Version 3*

QUDM, (2007). *Queensland Urban Drainage Manual*. Second Edition 2007. Department of Natural Resources and Water

## APPENDIX A: TREATMENT CONCEPTUAL EARTHWORKS




LAYOUT PLAN
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40 0 40 80 120 160 200m
SCALE 1:2000 @ A1 SCALE 1:4000 @ A3

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|---|---|---|---|---|---|
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| | | | | | |
| B | FOR DEVELOPMENT APPROVAL | S.B.Y. | 17.03.25 | S.L. | 17.03.25 |
| A | CONCEPT ONLY | S.B.Y. | 08.06.24 | S.L. | 08.06.24 |
| | | DRAFTED | | APPROVED | |

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DesignFlow
7 BAUER STREET, SOUTHPORT QLD 4215
P.O. BOX 1250 SOUTHPORT BC, SOUTHPORT QLD 4215
Ph: (07) 5528 1148
www.designflow.net.au

Approved RPEQ 15637
Date 17.03.2025

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| CLIENT | FRASERS DEVELOPMENT |
| DRAWN | S.B.Y. — DATE 17.03.2025 |
| DESIGNED | S.L. — DATE 17.03.2025 |
| SCALE | 1 : 2,000 — A1 |
| PROJECT | NEW BEITH PRECINCT A & B |
| DRAWING TITLE | FIGURE 4 - STORMWATER QUALITY MANAGEMENT STRATEGY PRECINCTS A & B |
| PROJECT No | 4488 |
| DRAWING No | SK1 |
| REVISION | A |

NORTH

BATTER STEEPENED TO 1 IN 3.5

A SK7

SEWER EASEMENT

3.0m WIDE ACCESS ROAD

ACCESS AND SEDIMENT FOREBAY

RETAINING WALL MAX. 1.2m HEIGHT

I.L.41.00

1.0m WIDE BUND AT R.L.43.50

MANHOLE TO DROP PIPE LEVEL

I.L.40.50

I.L.35.00

FINAL LOCATION AND SCOUR PROTECTION TO BE CONFIRMED AS PART OF DETAILED DESIGN

B SK7

I.L.34.50

ROCK ESCARPMENT

25m WATERWAY BUFFER

50m WATERWAY BUFFER

**BIORETENTION 4**
AREA = 320m²
SURFACE = R.L.42.50
BASE = R.L.41.50
1 IN 4 BATTERS

LEGEND:

- 39.0 — SURFACE CONTOURS
- REINFORCED CONCRETE 3m WIDE
- BIORETENTION SURFACE
- ROCK SCOUR PROTECTION
- SW — STORMWATER DRAINAGE PIPE
- EXISTING TREE TO BE RETAINED
- EXISTING TREE TO BE REMOVED

## LAYOUT PLAN
SCALE 1 : 250 (A1)

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 |
|---|---|---|---|---|---|
| B | FOR DEVELOPMENT APPROVAL | S.B.Y. | 17.03.25 | S.L. | 17.03.25 |
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7 BAUER STREET, SOUTHPORT QLD 4215
P.O. BOX 1250 SOUTHPORT BC, SOUTHPORT QLD 4215
Ph: (07) 5528 1148
www.designflow.net.au

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| CLIENT | FRASERS DEVELOPMENT |
| PROJECT | NEW BEITH PRECINCT A & B |
| DRAWN | S.B.Y. — DATE 17.03.2025 |
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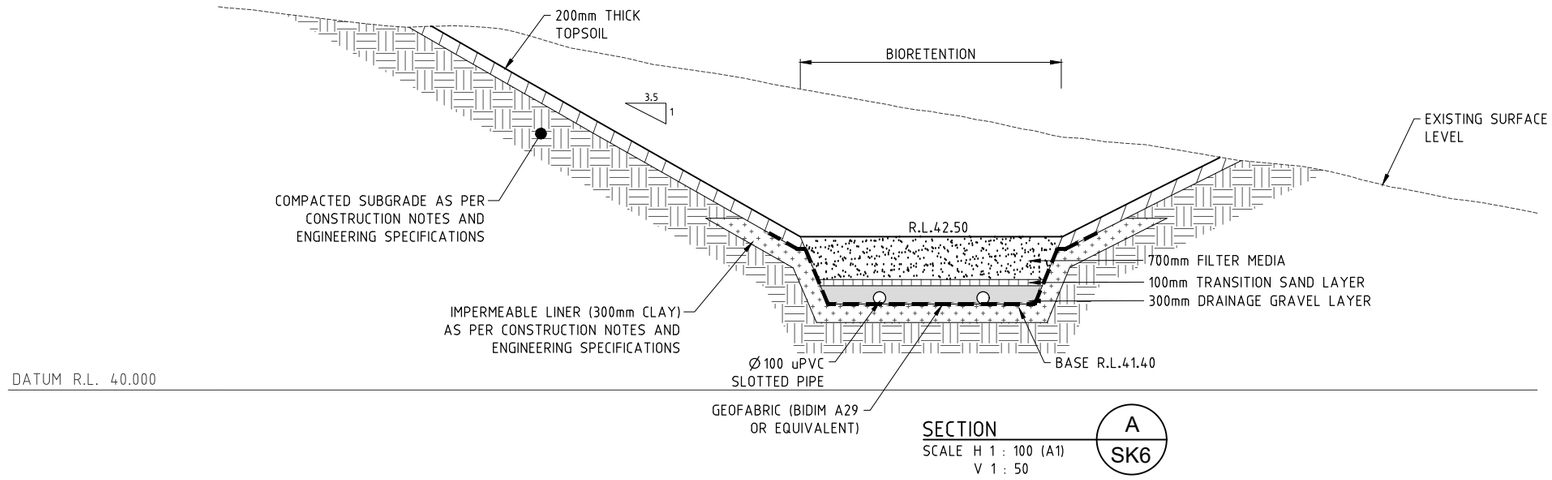
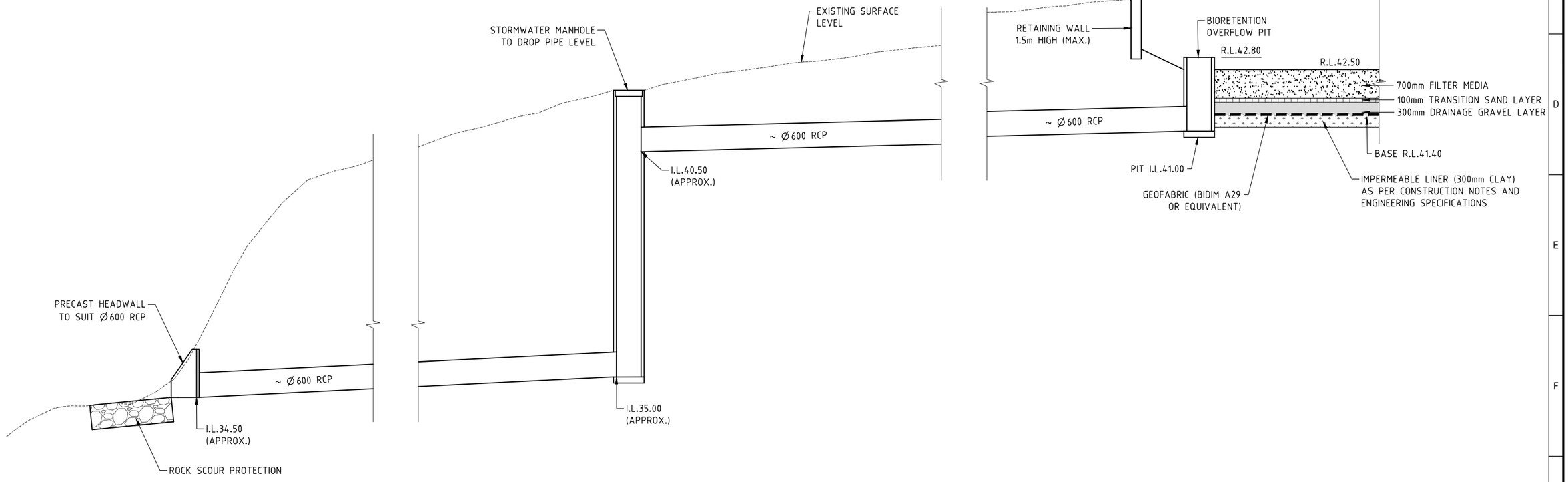
| DESIGNED | S.L. — DATE 17.03.2025 |
| SCALE | 1 : 250 — A1 |
| PROJECT No | 4488 |
| DRAWING No | SK6 |
| REVISION | A |




SECTION A
SCALE H 1 : 100 (A1)
V 1 : 50
SK6




SECTION B
SCALE H 1 : 100 (A1)
V 1 : 50
SK6

NOTE:
1. ALL EARTHWORKS, EMBANKMENTS AND CLAY LINER TO MEET ENGINEERING SPECIFICATIONS. LEVEL 1 GEOTECHNICAL CERTIFICATION REQUIRED.

SCALE 1:50 @ A1 — SCALE 1:100 @ A3
SCALE 1:100 @ A1 — SCALE 1:200 @ A3

| REVISION | DESCRIPTION | DRAFTED INITS | DRAFTED DATE | APPROVED INITS | APPROVED DATE |
|---|---|---|---|---|---|
| B | FOR DEVELOPMENT APPROVAL | S.B.Y. | 17.03.25 | S.L. | 17.03.25 |
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7 BAUER STREET, SOUTHPORT QLD 4215
P.O. BOX 1250 SOUTHPORT BC, SOUTHPORT QLD 4215
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www.designflow.net.au
RPEQ 15637

DF JOB No. - 4488
Approved (S. LEINSTER) Date 17.03.2025

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| CLIENT | FRASERS DEVELOPMENT |
| DRAWN | S.B.Y. — DATE 17.03.2025 |
| DESIGNED | S.L. — DATE 17.03.2025 |
| SCALE | A1 |
| PROJECT | NEW BEITH PRECINCT A & B |
| DRAWING TITLE | BIORETENTION 4 SECTIONS |
| PROJECT No | 4488 |
| DRAWING No | SK7 |
| REVISION | A |

NORTH

C SK9

D SK9

SEDIMENT BASIN 5
AREA = 350m²
NWL = R.L.37.50
1 IN 4 BATTERS

BIORETENTION 5
AREA = 525m²
SURFACE = R.L.37.50
BASE = R.L.36.40
1 IN 4 BATTERS

6m WIDE WEIR AT R.L.37.55
WITH 1 IN 8 TRANSITION

3.0m WIDE ACCESS
TO ROAD

RETAINING WALL
MAX. 1.0m HEIGHT

RETAINING WALL
MAX. 2.0m HEIGHT

1 IN 4 BATTERS BETWEEN
WALL AND BIORETENTION

RETAINING WALLS
MAX. 1.5m HEIGHT

RETAINING WALL
MAX. 1.2m HEIGHT

50m WATERWAY BUFFER

25m WATERWAY BUFFER

PROPOSED
MANHOLE

PIPE OUTFALL TO CROSSING INVERT
TO SHARE OUTLET SCOUR PROTECTION

LEGEND:

- SURFACE CONTOURS
- REINFORCED CONCRETE 3m WIDE
- BIORETENTION SURFACE
- ROCK SCOUR PROTECTION
- SW — STORMWATER DRAINAGE PIPE
- EXISTING TREE TO BE RETAINED
- EXISTING TREE TO BE REMOVED

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

## LAYOUT PLAN
SCALE 1 : 250 (A1)

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|---|---|---|---|---|---|
| | | | | | |
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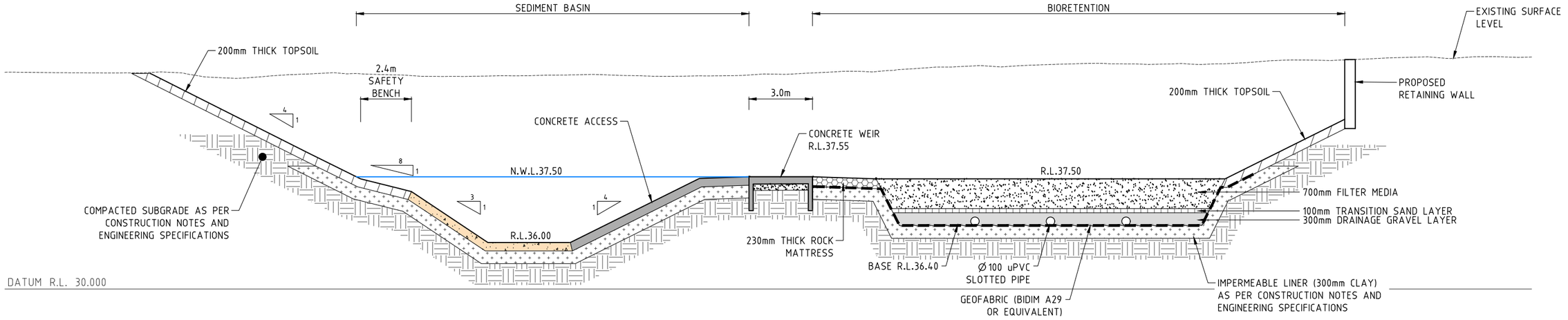
P.O. BOX 1250 SOUTHPORT BC, SOUTHPORT QLD 4215
Ph: (07) 5528 1148
www.designflow.net.au

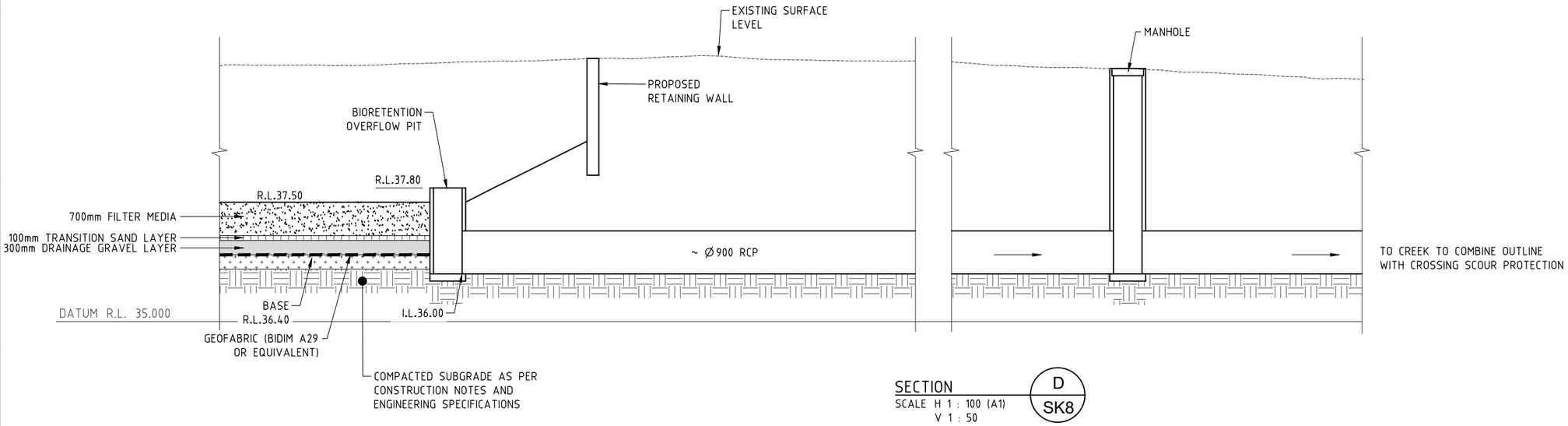
Approved RPEQ 15637
Date 17.03.2025

| | |
|---|---|
| CLIENT | FRASERS DEVELOPMENT |
| PROJECT | NEW BEITH PRECINCT A & B |
| DRAWN | S.B.Y. — DATE 17.03.2025 |
| DESIGNED | S.L. — DATE 17.03.2025 |
| DRAWING TITLE | BIORETENTION 5 LAYOUT PLAN |
| SCALE | 1 : 250 — A1 |
| PROJECT No | 4488 |
| DRAWING No | SK8 |
| REVISION | A |

XREF:
FILE: C:\PROJECTS\DF - 4488 NEW BEITH\CONCEPT\PRECINCT A & B\4488-SK8.DWG




SECTION C
SCALE H 1 : 100 (A1)
V 1 : 50
SK8




SECTION D
SCALE H 1 : 100 (A1)
V 1 : 50
SK8

NOTE:
1. ALL EARTHWORKS, EMBANKMENTS AND CLAY LINER TO MEET ENGINEERING SPECIFICATIONS. LEVEL 1 GEOTECHNICAL CERTIFICATION REQUIRED.

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

2 0 2 4 6 8 10m
SCALE 1:100 @ A1 SCALE 1:200 @ A3

| REVISION | DESCRIPTION | DRAFTED INITS | DRAFTED DATE | APPROVED INITS | APPROVED DATE |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| B | FOR DEVELOPMENT APPROVAL | S.B.Y. | 17.03.25 | S.L. | 17.03.25 |
| A | CONCEPT ONLY | S.B.Y. | 08.06.24 | S.L. | 08.06.24 |

ISSUED FOR
CONCEPT
NOT FOR CONSTRUCTION



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DF JOB No. - 4488
Approved (S. LEINSTER) RPEQ 15637 Date 17.03.2025

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| CLIENT | FRASERS DEVELOPMENT |
| DRAWN | S.B.Y. DATE 17.03.2025 |
| DESIGNED | S.L. DATE 17.03.2025 |
| SCALE | A1 |
| PROJECT | NEW BEITH PRECINCT A & B |
| DRAWING TITLE | BIORETENTION 5 SECTIONS |
| PROJECT No | 4488 |
| DRAWING No | SK9 |
| REVISION | A |