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APPLICATION REF  
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# 15 Villa St, Annerley QLD 4103

## ENGINEERING REPORT & STORMWATER MANAGEMENT PLAN

June 2026

Project No.: 25401 | Revision No.: D

ENGINEERING MADE EASY.

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## Engineering Report & Stormwater Management Plan

Date: 05/06/26 Document No.: 25401-ENG-D  
By: AAS Revision No.: D

### Document Status:

REVISION	PREPARED BY	REVIEWED BY	DATE
A	R. Tarrant A. Shaw	A. van Tonder RPEQ 16132	13 March 2026
B	A. Shaw	A. van Tonder RPEQ 16132	16 March 2026
C	A. Shaw	A. van Tonder RPEQ 16132	17 March 2026
D	A. Shaw	A. van Tonder RPEQ 16132	05 June 2026

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Report provided in accordance with the vT Consulting Engineers terms of engagement.

# 1. Introduction

vT Consulting Engineers has been commissioned by Insight Planning & Development to prepare this engineering services report and stormwater management plan. The development is located at 15 Villa St, Annerley QLD 4103. The site locality is illustrated in Figure 1.1. This report is being submitted to support the Development Approval for the proposed residential subdivision development for Brisbane City Council's consideration.

The proposed development is for a multi-residential development with carpark area on site.

Refer attached Appendix A for proposed layout plans and details.

The following report will detail civil engineering requirements for the development.

Street Address	15 Villa St, Annerley QLD 4103
Real Property Description	Lot 100 RP37801
Total Site Area	1012 m <sup>2</sup>
Proposed Use	Proposed Material Change of use
Local Authority	Brisbane City Council



Figure 1.1 Site Layout Plan (Queensland Globe)

## a) Existing Land Use

The site is situated in a low-medium density residential zone, fronting Villa St and currently occupied by a large single residential dwelling at the front of the block. It is bounded by residential properties on all other sides and rest of site is predominately grassed with a few trees and shrubs.

The existing house and structures are to be demolished and removed.

## 2. Erosion and Sediment Control

Using the Brisbane City Council Sediment and Erosion Control Hazard Assessment form in Appendix B, it is considered that the erosion risk proposed by the site is **medium**. The proposed site will only be exposed for a minimal amount of time during the earthworks required for service trenching and constructing the building platforms. The trenches will only be exposed while the services are being installed and then will be covered by the proposed building works. Appendix C shows the International Erosion Control Association Australasia standard drawings and control notes applicable to this development.

The construction contractor is responsible for ensuring that soil and debris does not leave the site as well as the confines of the construction zone and is not deposited on external roads or existing in-use areas due to the proposed earthworks and construction activity.

### Acid Sulphate Soils

The local council is listed in the Glossary (Acid Sulphate soil affected area) in State Planning Policy July 2017, indicating that this development application may require compliance with the State Planning Policy July 2017 acid sulphate soils development objectives.

Acid sulphate soil testing is typically conducted in areas with reduced levels of less than 5.0m Australian Height Datum (AHD) as stated in State Planning Policy July 2017. This policy also states that developments below 20.0m AHD that involve a Material Change of Use or operational works are required to be assessed against the State Planning Policy July 2017 acid sulphate soils development objectives. As the lowest point on this site is an approximate level of RL 40, we believe that there no possibility of acid sulphate soil being present and therefore testing would be unlikely.

Figure 2.1 provides a visual aid to determining assessable development.

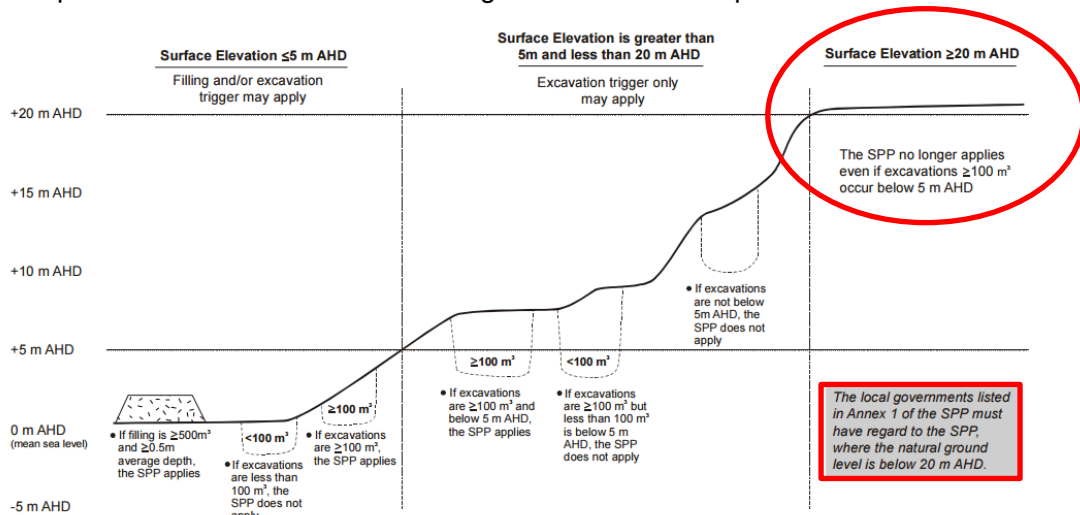


Figure 2.1 Acid Sulphate Soils assessment diagram (Adapted from SPP Water Quality State Interest Guideline 2016)

As the proposed excavations are not expected to be below RL5.0m AHD, the State Planning Policy does not apply. The requirements for Acid Sulphate Testing will be confirmed by a geotechnical engineer prior to the detailed design stage of this proposed development.

## Land Disturbing Activities

Important causes/issues of erosion for this site would consist of the following:

- Precipitation and consequent run-off
- Stripping and removal of topsoil
- Removal of fill
- Other earthwork operations
- Heavy vehicle use on site
- Wind erosion

The proposed development will be programmed so that the shortest period of time elapses between ground cover removal and restoration.

## Erosion and Sediment Control Measures

Sediment control filter fabric will be securely placed around the downstream boundaries of the construction site. This will ensure sediment is trapped before being released into the catchment. Refer Appendix C.

An ESC measure will be provided at any vehicular access points to the site. Construction and maintenance details are given in Appendix C. A temporary construction entrance will be provided from the adjacent roads for access during construction.

A filter sock sediment trap will be utilized on all downstream stormwater inlets. Refer Appendix C for construction and maintenance details.

No clearing will be undertaken unless preceded or accompanied by installation of adequate run-off and sediment control measures, as described above.

Following practical completion of the project a minimum of 70% coverage of all soil with ground cover (i.e. topsoiling and seeding) will be provided within 30 calendar days.

During the demolition and construction phases, spraying of water will be used with care to act as a dust suppression method.

## Monitoring and Maintenance Programs

Water discharge from the site will adhere to a total suspended solid content of less than 50 milligrams per litre and a pH range of between 6.5 and 8.5 at all times. If the pH of the flocculated water is not achieved, then pH adjustments will be required. This could possibly be done by a dosing of lime.

Site personnel will inspect all erosion and control measures at least at the following frequencies:

- Daily during construction works,
- Weekly when construction works are not happening,
- Within 24 hours of expected rain, and
- Within 18 hours of an impacting rainfall event.

All erosion and sediment control measures that have an order of efficiency below 75% will be corrected by the end of that working day.

### 3. Earthworks

For the purpose of this proposed development, earthworks will be conducted for constructing the new proposed building platform and retaining wall along all sides of the site. Excavation on site will be required for the service trenches. Any excess cut will need to be removed from the site by the contractor.

A geotechnical report will be prepared for the site during the detailed design stage.

### 4. Roadworks

The proposed development fronts onto Villa St. A new crossover will be provided as shown on the proposed layout plans. Existing crossover will be demolished, with kerb and channel to be reinstated to match existing profile.

A land dedication is provided along the frontage of the site for the future road widening of Villa Street. The extent of the future road widening is in accordance with Council's Road Widening Plan - "15 Villa Street - RC16145, - Issue 1, dated 12 December 2023.

Refer attached Appendix A for proposed layout plans and details.

## 5. Stormwater Drainage

### A. Existing Stormwater Drainage

Figure 5.1 below shows the stormwater mapping on the site. Council GIS mapping shows an existing roofwater drainage that runs across lots 98, 99, and 100 RP37801 (subject site), and down across lots 951 and 952 SP306479. However, a utility map report provided for the development site suggests that the roofwater line shown on GIS is not located on site.

#### Catchment 1

The existing stormwater from roof and landscape areas of the development site flow towards the rear as a sheet flow. It has been determined that the legal point of discharge for the site is the rear properties, which eventually discharges towards the stormwater line along Waverley Street.

Refer to Appendix A, P400- A for the pre-development catchment layout plan.

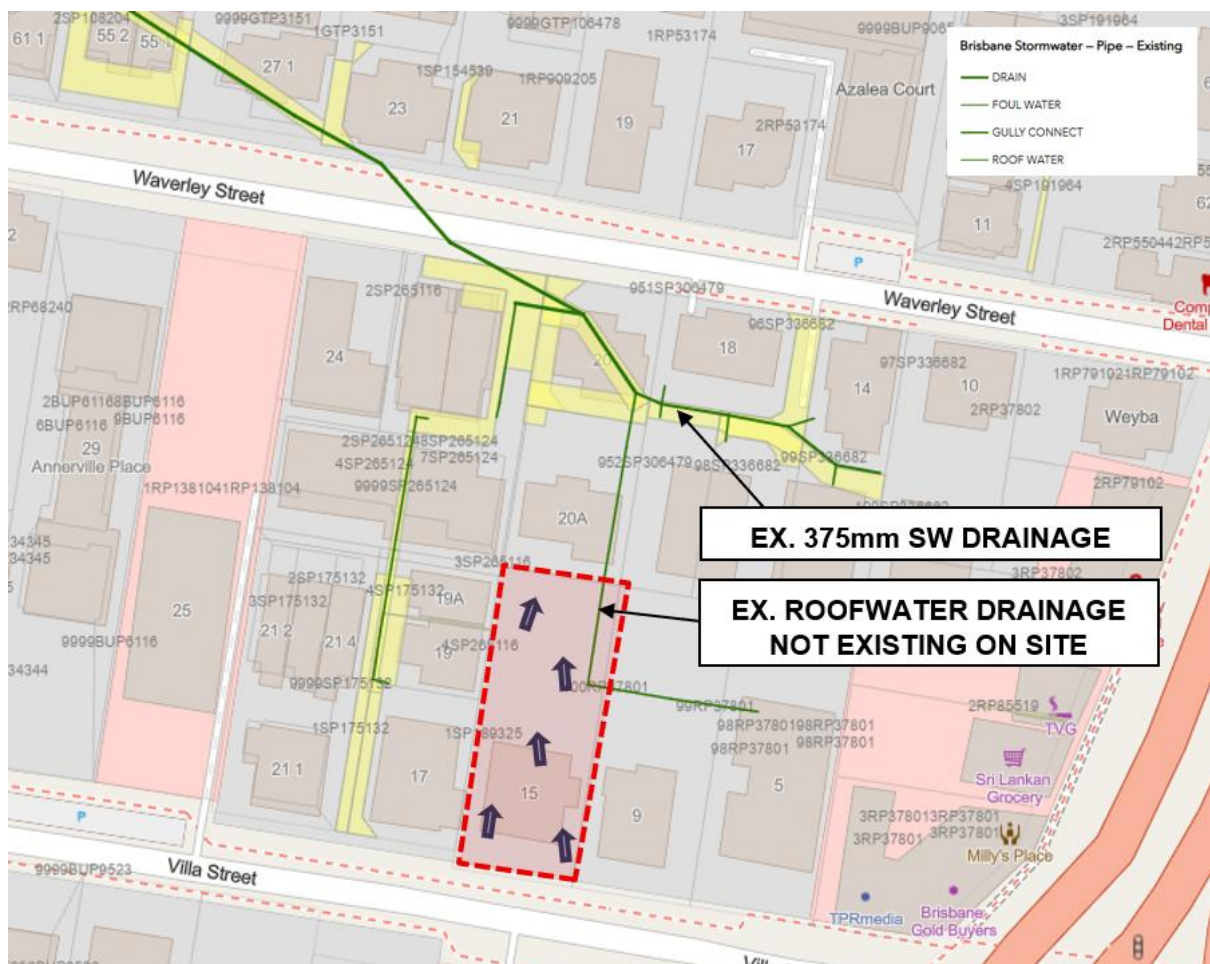


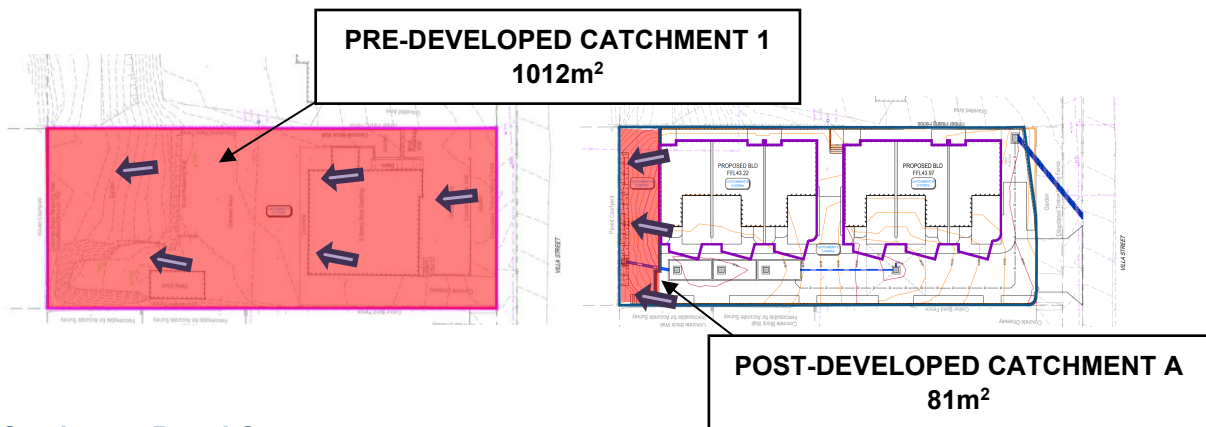
Figure 5.1 Brisbane Stormwater - GIS Layout Map

## B. Proposed Stormwater Drainage

Due to the topography and existing records on site, it is proposed that stormwater runoff from the proposed development will be directed towards two lawful points of discharge.

### Catchment A

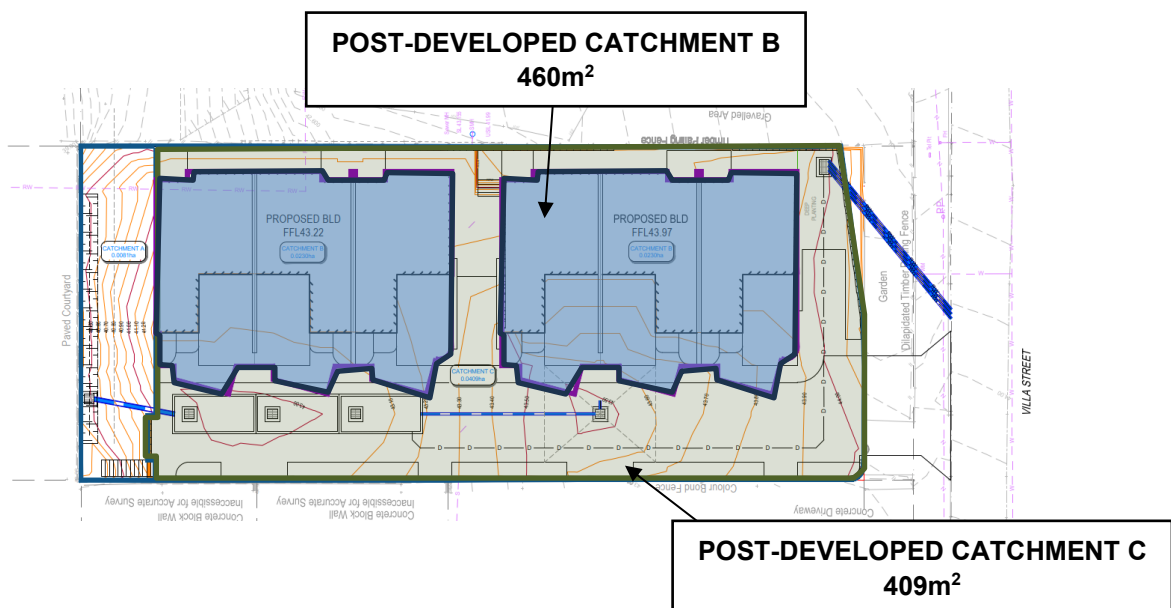
The proposed deep planting area at the rear of the site will be discharged in a similar manner as the existing stormwater flows, towards the rear as a sheet flow less than pre-developed flows to ensure no worsening is caused at the rear proper.



### Catchment B and C

The proposed roof, pavement, and landscape areas (excluding the deep planting rear of the site) from the development will be discharged towards a detention tank that will mitigate flows prior discharge. These developed flows are proposed to be pump out from the detention tank and discharge towards Villa Street via kerb and channel at less than 30L/s. The proposed pump design solution is in accordance with Brisbane City Council Planning Scheme Section 7.6.6.2 Pump and storage design.

Refer to Appendix A, P401- A for the post-development catchment layout plan.



## C. Stormwater quality management

### State Planning Policy

The State Planning Policy (SPP) applies for stormwater quality management and management of new or expanded non-tidal artificial waterways applies to development that is outlined below in Table 5.2.

<b>SPP Part E: Interim development assessment requirements. State Interest – Water Quality</b>	<b>YES / NO</b>
<i>Material change of use for urban purposes that involves a land area greater than 2500m<sup>2</sup> that:</i>	NO
<i>will result in an impervious area greater than 25% of the net developable area</i>	NO
<i>Will result in 6 or more dwellings</i>	NO
<i>Reconfiguring a lot for urban purposes that involves a land area greater than 2500m<sup>2</sup> and will result in six or more lots:</i>	NO
<i>Operational works for urban purposes that involve disturbing more than 2500m<sup>2</sup> of land</i>	NO

Table 5.12 Water Quality Objectives

The proposed development does not trigger any applicable items in the above Table 5.1, therefore, the SPP is not applicable, and compliance is not expected by the local government authority.

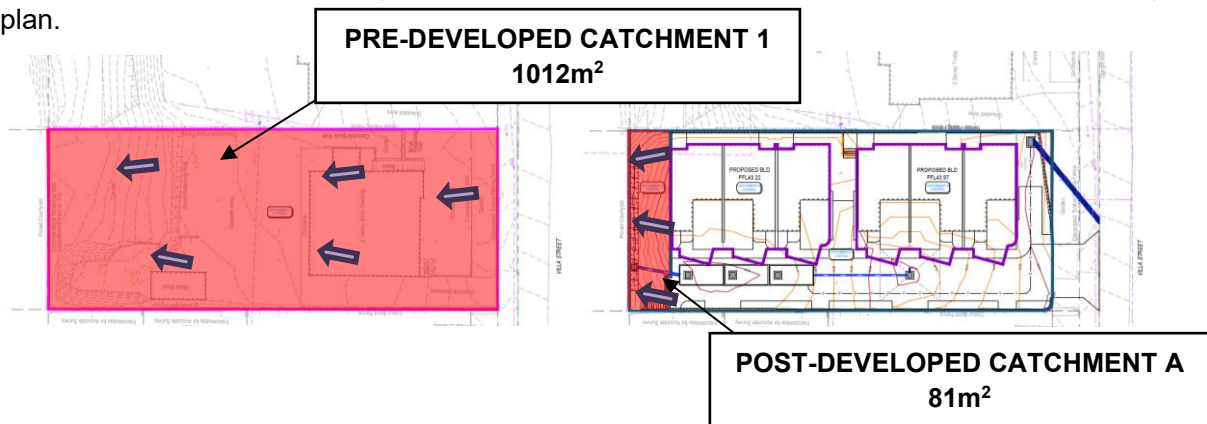
## D. MUSIC Model

The site area is under 2500m<sup>2</sup> and so a MUSIC model has not been prepared.

## E. Stormwater quantity management

### Catchment 1 and Catchment A - Discharge as a sheet flow towards the rear of the site

The entire site for existing scenario is assumed to sheet flow towards the rear. This includes impervious areas, roof and pavement, which makes up about 40% impervious area of the pre-developed site. The flows for the post-developed scenario, the proposed deep planting at the rear of the site will be discharged towards the rear as a sheet flow at less than pre-developed rates to ensure no worsening is caused to neighbouring properties. Refer to Appendix A, P400- A for the pre-development catchment layout plan and P401- A for the post-development catchment layout plan.



### Time of Concentration

The time of concentration for the pre-developed flows adopted 8-minute time of concentration where the ground flows are traversing from front to rear of the site. Post-developed site flows adopted a 5-minute time of concentration in accordance with QUDM Table 4.6.3. Detailed calculations of the flow from the site are summarised in the table below:

PARAMETERS			
Catchment A - Developed	81 m <sup>2</sup>	Fraction Impervious (f <sub>i</sub> )	0.0 (Deep Planting area)
Catchment 1 - Undeveloped	1012 m <sup>2</sup>	Fraction Impervious (f <sub>i</sub> )	0.40
Runoff Coefficient (C <sub>10</sub> ) - Developed:	0.60	Time of concentration, t <sub>c</sub> =	5 min.
Runoff Coefficient (C <sub>10</sub> ) - Undeveloped:	0.73	Time of concentration, t <sub>c</sub> =	8 min.

ARI			2yr	5yr	10yr	20yr	50yr	100yr
Rainfall Intensity	5 min	mm/hr	141	177	205	236	276	307
Rainfall Intensity	8 min	mm/hr	125	156	180	207	241	267
Frequency Factor		F <sub>y</sub> =	0.85	0.95	1.00	1.05	1.15	1.20
Developed C		C <sub>u</sub> =	0.51	0.57	0.60	0.63	0.69	0.72
Undeveloped C		C <sub>u</sub> =	0.62	0.69	0.73	0.77	0.84	0.88

SUMMARY FLOWS									
Developed Flows	Q <sub>u</sub> =	C*I*A	l/s	2	2	3	3	4	5
Undeveloped Flows	Q <sub>u</sub> =	C*I*A	l/s	22	30	37	45	57	66
Increase in runoff flows				-20	-28	-34	-41	-53	-61

Table 5.3 Quantity Summary using Rational Method – Catchment 1

### Catchment B and C - Discharge towards Villa Street via kerb and channel at less than 30L/s

The proposed roof, pavement, and landscape areas (excluding the deep planting rear of the site) from the development will be discharged towards a detention tank that will mitigate flows prior discharge. These developed flows are proposed to be pump out from the detention tank and discharge towards Villa Street via kerb and channel no more than 30L/s at Q10 storm event for the development.

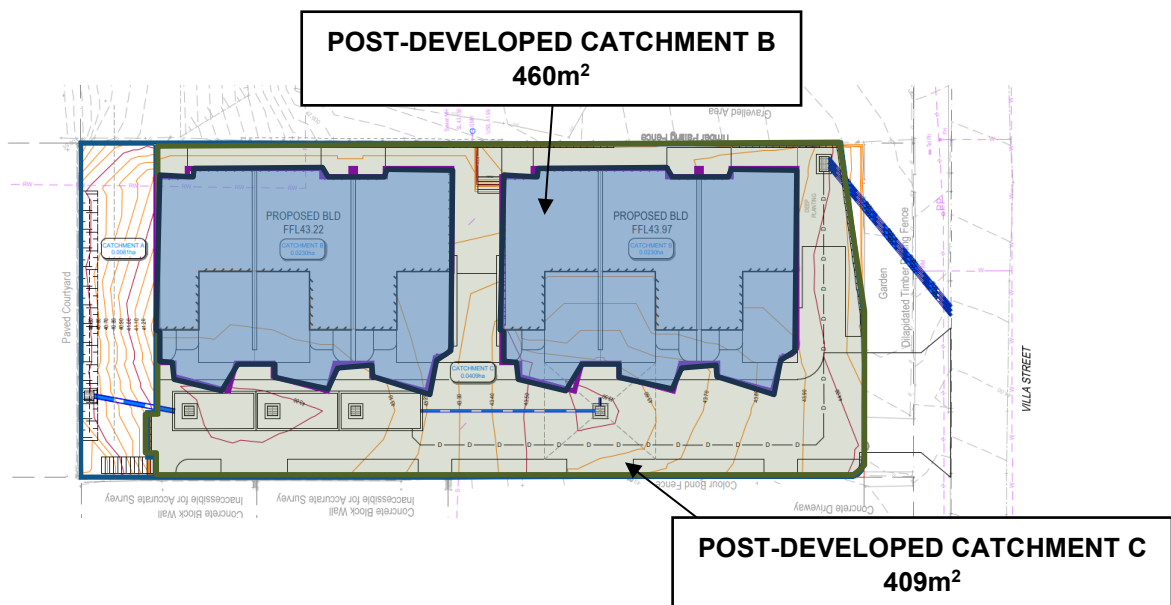
The proposed pump design solution is in accordance with Brisbane City Council Planning Scheme Section 7.6.6.2 Pump and storage design which indicates about 43.70kL of pump storage (approximately 9,500L of storage per 100m<sup>2</sup> of roof area) for the proposed development.

The proposed 43.70kL of tank storage has well enough capacity to mitigate flows no more than 30L/s at Q10 storm event for the development. The proposed pump system will allow the mitigated flows to be discharged towards Villa Street via kerb and channel.

A soakage trench is also proposed as part of the emergency overflow for the pump out system. The proposed trench is design in accordance with Brisbane City Council Planning Scheme Section 7.6.8 Soakage Systems.

It should be noted that a total of 950m<sup>2</sup> is considered for the post-developed scenario in comparison to the total site area of 1012m<sup>2</sup>. This is in consideration of the land dedication provided along the frontage of the site for the future road widening of Villa Street.

Refer to Appendix A, P300-C for the preliminary services layout plan showing the stormwater intent for the development. catchment layout plan.



## F. Maintenance

### Construction Phase Management Plan

Potential construction phase impacts include Sedimentation and erosion, and Management of contaminated soils and materials on the site Construction Material (such as cement).

#### General

The objective of the Construction Phase Management Plan is to comply with the requirements of the Queensland Environmental Protection Act 1994 and Environmental Protection (Water) Policy 2009 so that the environmental values of effected receiving waters are maintained or enhanced. In essence the purpose of the Plan is to prevent polluted stormwater being discharged to the local waterways.

#### Performance Indicators

The management is not being effective when any of the following occur during the construction phase of the project.

- The required water quality objectives are not achieved,
- Contaminated water is released off site.

#### Construction Phase Management of Sedimentation and Erosion

Existing vegetation from site will be removed in stages as required to reduce the likelihood of surface erosion. A sediment and siltation fence will be erected around the property boundary to ensure that sediment is not washed off site and onto adjacent properties or roads. Entry and exit from the site will be restricted to a single stabilised location to minimise the rise of onsite transport of silt sediment or mud. It is anticipated that a layer of crushed rock will provide the necessary stabilisation of the access route. If required a specific bunded wash down area will be provided for the cleaning of plant before leaving the site and all wash down wastewater will be collected. In the event that debris or sediment leaves the site it will be cleaned.

#### Management of Imported Materials

Any material imported to the site including construction materials will be stockpiled in a location where it cannot contaminate the stormwater system or stormwater runoff.

#### Complaint Response

The contractor will erect signage at the entrance to the works with contact information, including afterhours contact numbers. The contractor will properly deal with all complaints.

#### Monitoring and Reporting

All sediment and erosion control devices will be checked daily and after rainfall events by the construction site supervisor. Defective or full devices will be cleaned and repaired as required. Regular inspections and maintenance of the storm water system will be carried out by the property owner. The civil components (structural and erosion) are to be assessed by a suitably qualified engineer as required.

#### Lifecycle cost assessment

There will be no abnormal capital or recurrent costs for the proposed stormwater strategy.

## 6. Flood Planning and Overland Flow

Figure 6.1 below shows the extent of flooding in relation to the site. As shown, the site is not impacted by river, creek or waterway, no overland flow sources, and there are currently no Coastal Hazard Overlays that apply this property. It is anticipated that development complies with Brisbane City Council's flooding requirements.

vT Consulting Engineers have not been commissioned to complete a flood assessment report for this development.

Please refer to Appendix D for a copy of the Brisbane City Council's Floodwise Property Report for 15 Villa St, Annerley QLD 4103.



Figure 6.1 Brisbane City Council Interactive Mapping – Flood Planning Areas

## 7. Sewer and Water

Figure 7.1 below shows the Urban Utilities sewer and water infrastructure plan.

The existing 150mm sewer main with asset ID LS123891 runs across properties on the west through to the subject site as shown in Figure 7.1. There are currently two existing 100mm sewer property connections with asset ID PC212735 and PC212736 within the subject site. These existing connections will be confirmed on site prior construction.

It is proposed to provide a new sewer property connection that will suit the proposed development in accordance with UU and SEQ Code design standards.

Internal house drainage design for this proposed development will be by others.

For more details refer to the engineering plans in Appendix A.

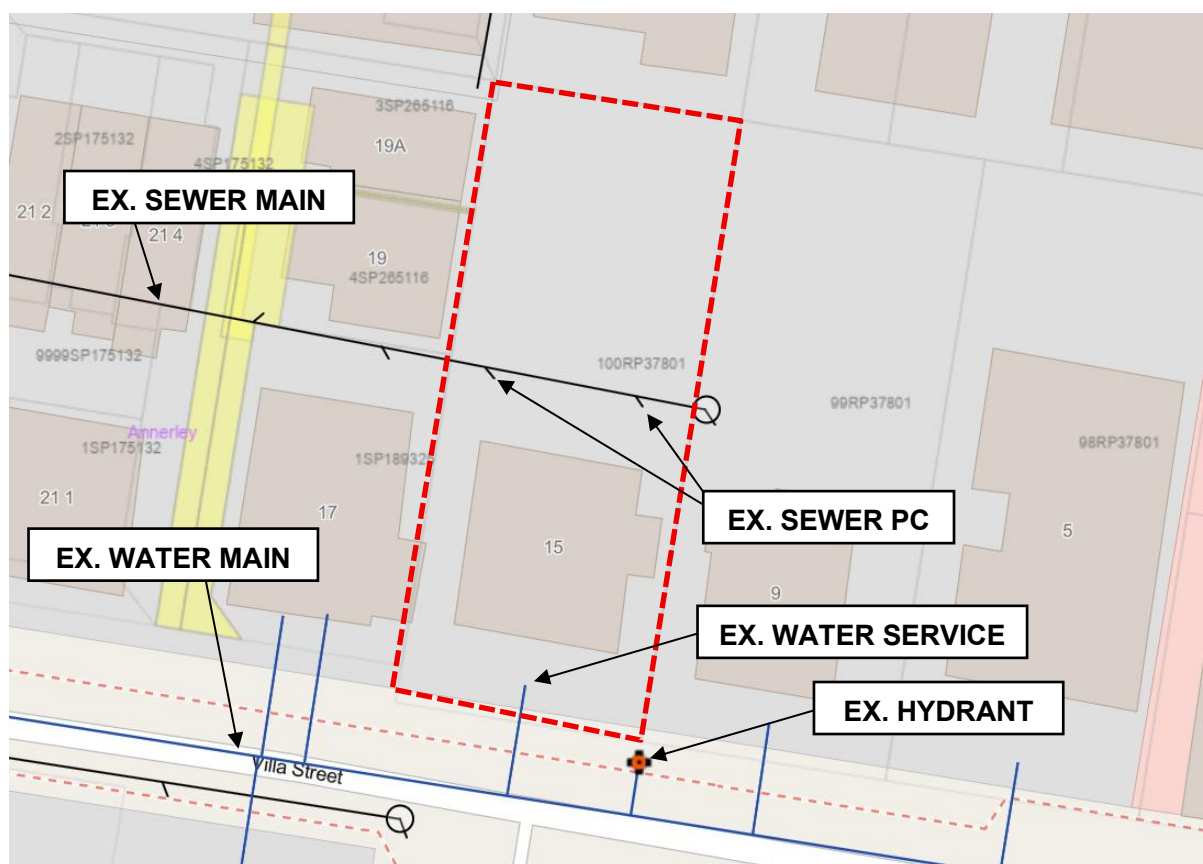


Figure 7.1 UU GIS sewer and reticulated water infrastructure plan

The existing 150mm watermain with asset ID RS259760 runs in front of the site along Villa Street as shown in Figure 7.1. There is an existing water connection currently servicing the site to be confirmed prior construction. It is proposed to provide a new water connection and meter that will be sized to suit the proposed development.

The Internal water supply design for this proposed development will be by others.

There is a hydrant in front of the site that will be available to service the proposed development. No new fire hydrant is to be installed.

For more details refer to the engineering plans in Appendix A.

## 8. Electrical and Telecommunication

The electrical supply and communications supply for this proposed development will be by others.

## 9. Development Codes

The following applicable Local Codes have been completed to address the proposed development and are included in Appendix E:

- Brisbane City Council Stormwater Code
- Brisbane City Council Infrastructure Code
- Brisbane City Council Filling and Excavation Code

## 10. Safety in Design

At the time of preparing this report, it is considered that there is no atypical safety in design issues for a project of this type and use. Typical issues to be reviewed include but are not limited to construction activities, falls, confined spaces, excavations, and hazardous materials.

A full review of and preparation of a Safety In Design report will be conducted during the detailed design of the project by the project design engineer. The ongoing implementation, review and amendments to the Safety in Design register is to be by the property owner or users.

## 11. Conclusions

vT Consulting Engineers has undertaken a preliminary review of civil engineering services required for the proposed development located at 15 Villa St, Annerley QLD 4103.

Based on all the findings outlined in this report, vT Consulting Engineers believes that, should the recommendation contained within the report be implemented, there are no significant engineering issues in relation to this development.

## Appendix A - Proposed Preliminary Design Drawings

LEGEND		
EXISTING	PROPOSED	
---	---	PROPERTY BOUNDARY
---	---	EASEMENT BOUNDARY
---	---	CONTOUR - MAJOR
---	---	CONTOUR - MINOR
---	---	BUILDING
---	---	KERB AND CHANNEL
---	---	KERB
---	---	RTW RETAINING WALL
---	---	SW STORMWATER DRAINAGE
---	---	D STORMWATER RISING MAIN
---	---	RW ROOFWATER DRAINAGE
---	---	SUBSOIL DRAIN
---	---	S SEWER
---	---	W WATER
---	---	E ELECTRICAL
---	---	ELEC. OVERHEAD
---	---	T COMMUNICATIONS
---	---	TOP OF BATTER
---	---	BOTTOM OF BATTER
---	---	ABANDON SERVICE
	+ RL0.00	SURFACE LEVEL (RL)

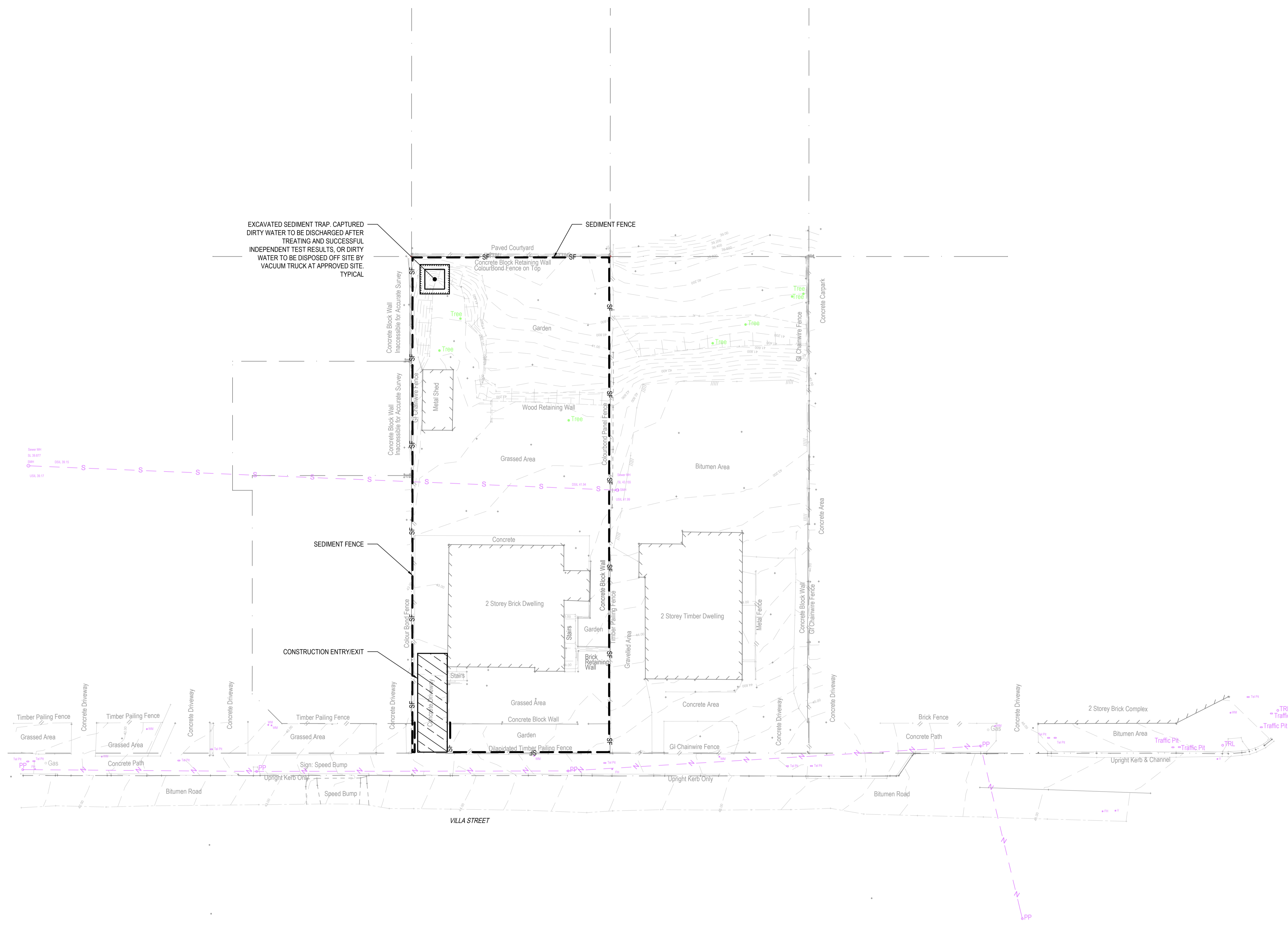
LEGEND - EROSION AND SEDIMENT CTRL	
---	SF SEDIMENT FENCE
---	ESC TOP OF SEDIMENT TRAP
---	ESC BOTTOM OF SEDIMENT TRAP

CONTRACTOR TO ENSURE SURROUNDING ROADS ARE KEPT CLEAN AND FREE OF DEBRIS DURING CONSTRUCTION. TYPICAL

CONTRACTOR TO PROVIDE TRAFFIC CONTROL (AS REQUIRED) AND ENSURE WORK ZONES ARE SAFE DURING CONSTRUCTION. TYPICAL

PROVIDE KERB INLET SEDIMENT PROTECTION AT ALL DOWNSTREAM GULLIES UPTO 50m FROM SITE. TYPICAL

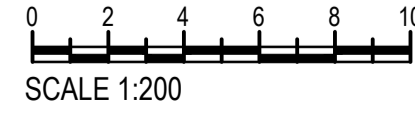
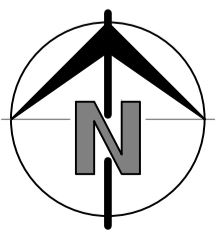
SITE TO BE CLEARED IN PREPARATION FOR BUILDING CONSTRUCTION. ALL EXISTING STRUCTURES (INCLUDING ANY PILES) AND SITE IMPROVEMENTS TO BE DEMOLISHED AND REMOVED, UNLESS NOTED OTHERWISE.



LAYOUT PLAN  
SCALE 1:200

PRELIMINARY

PLOTTED: 05/05/2025



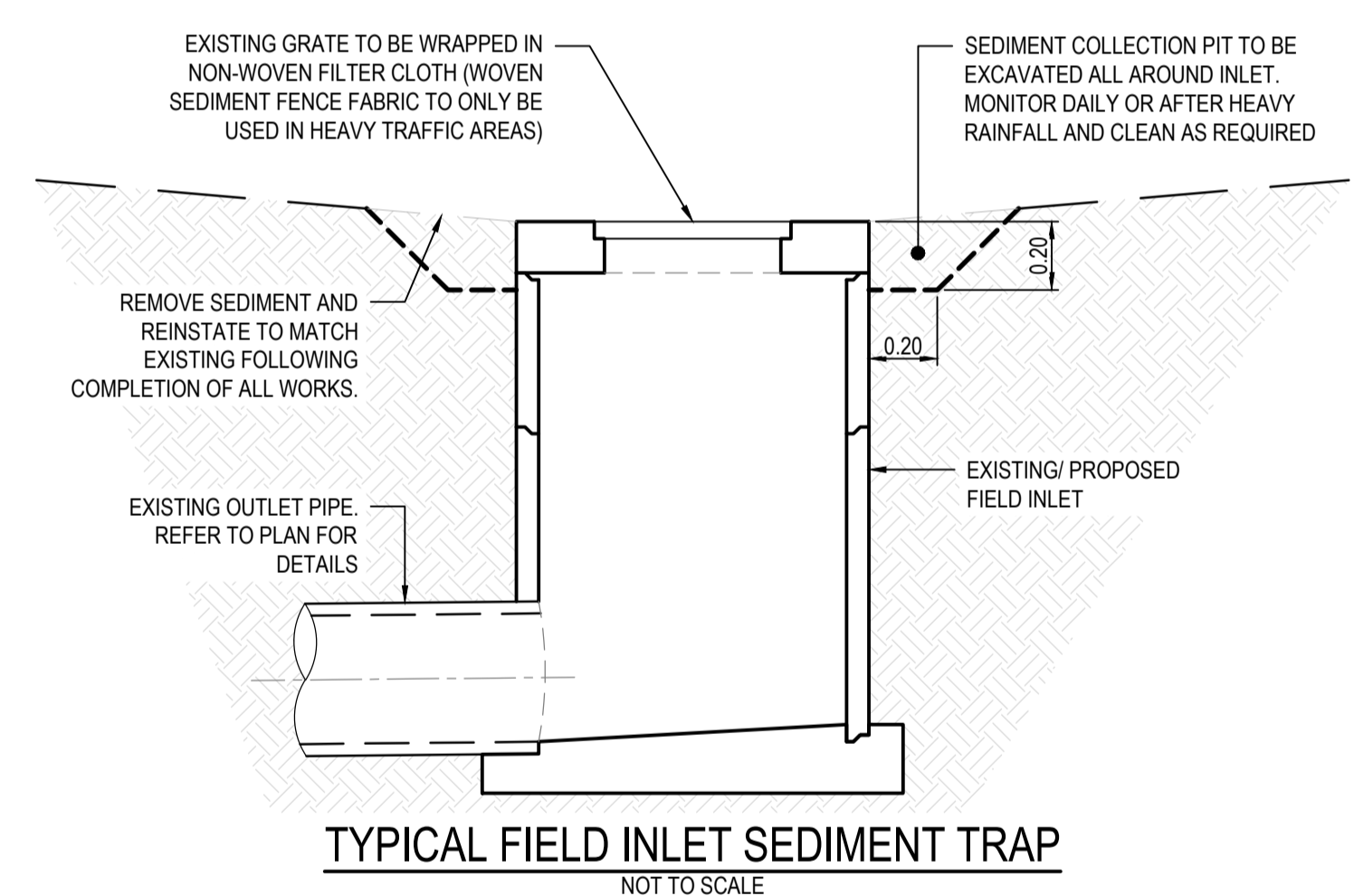
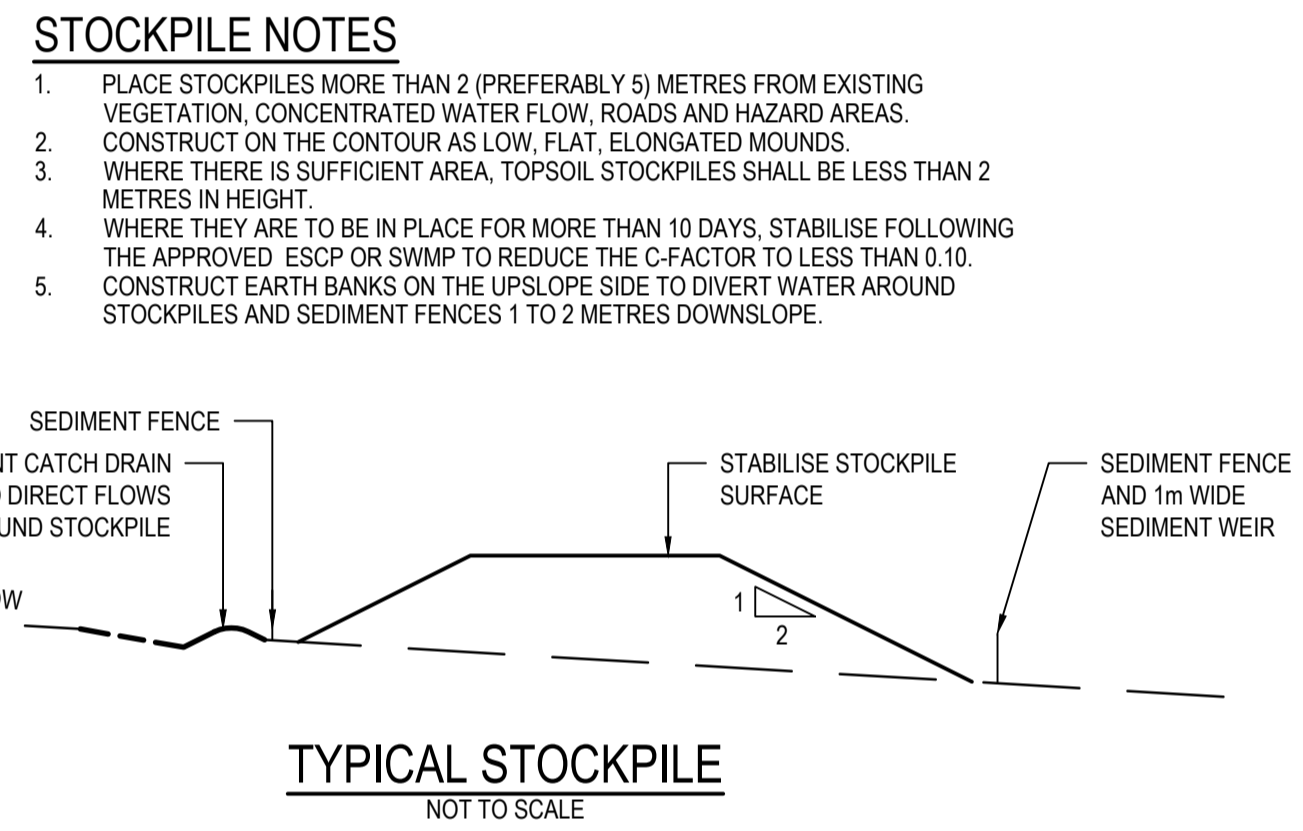
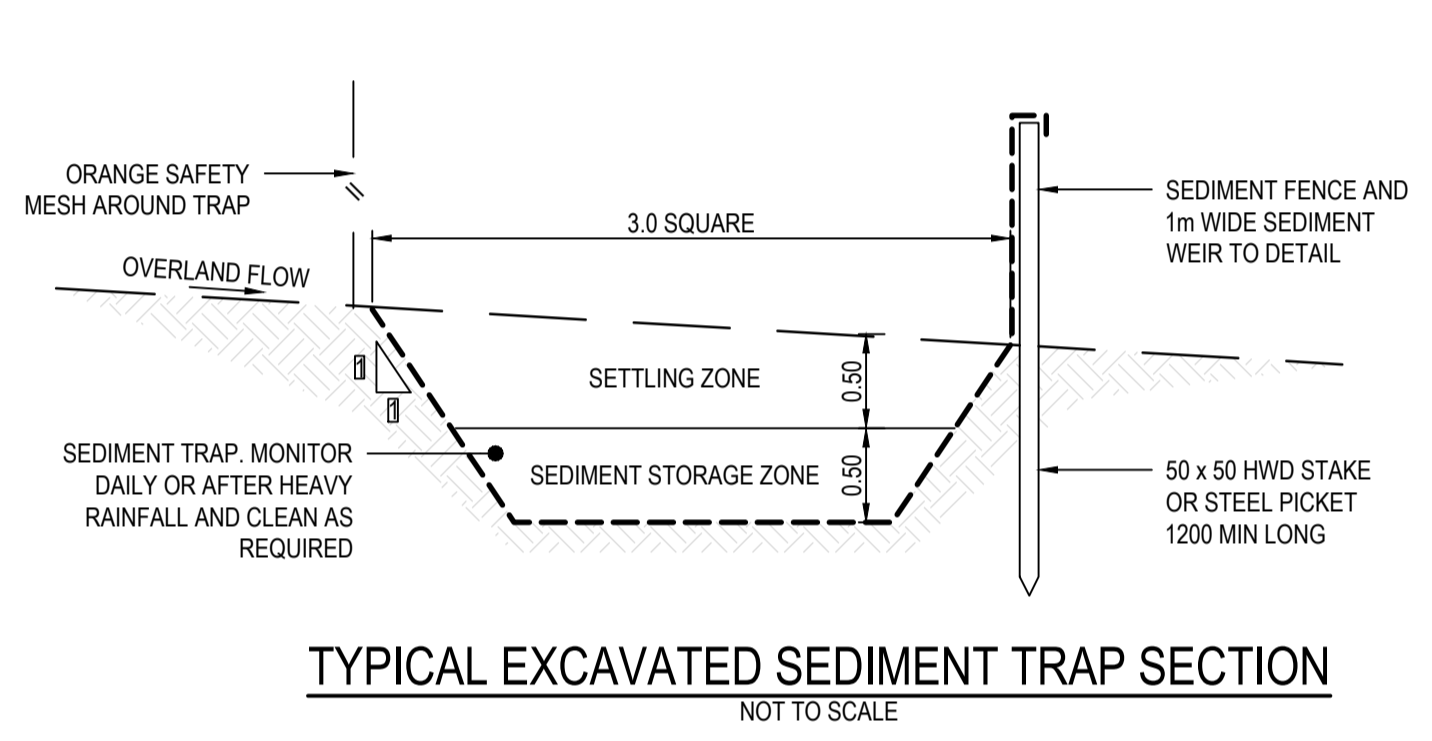
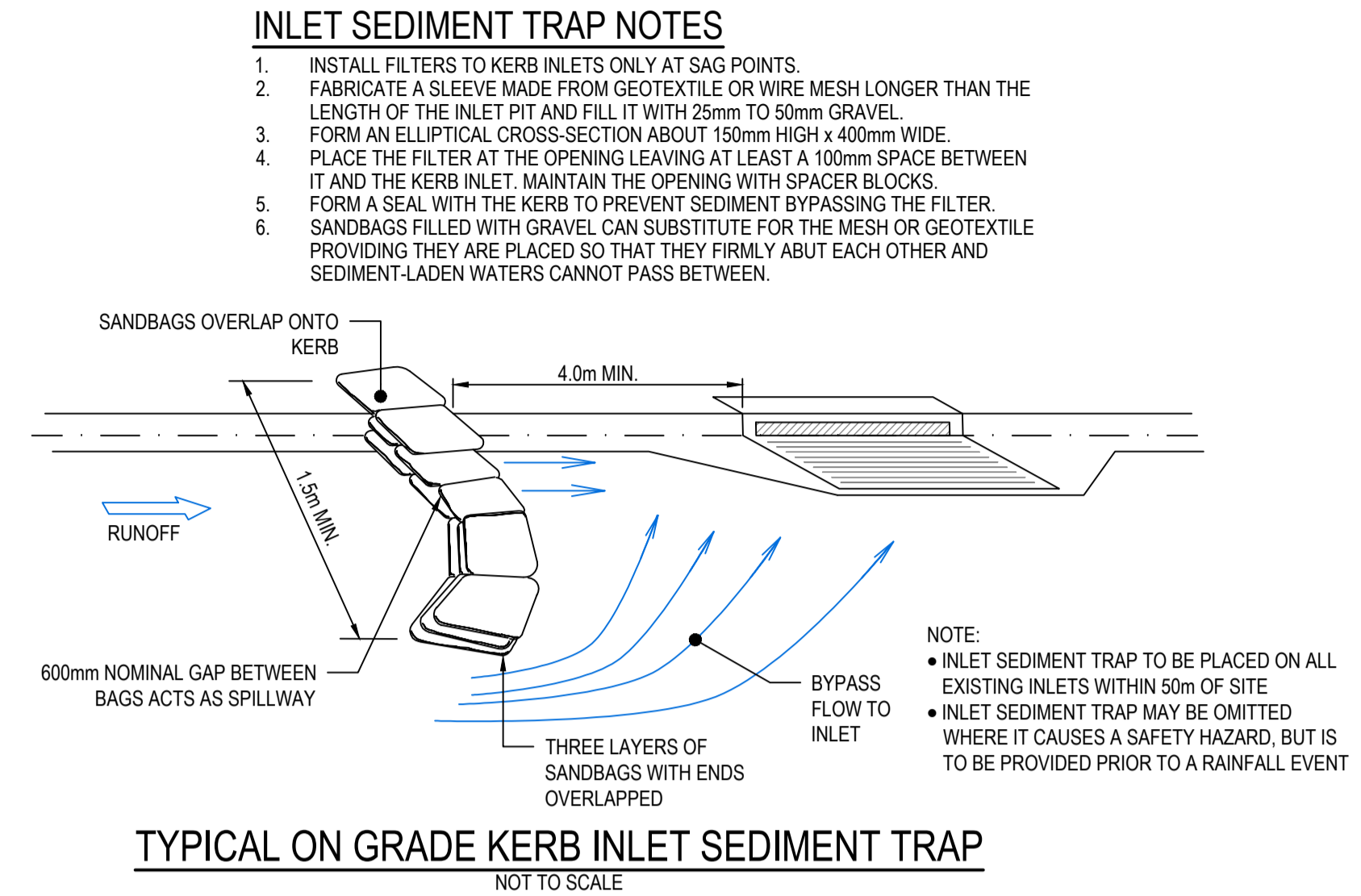
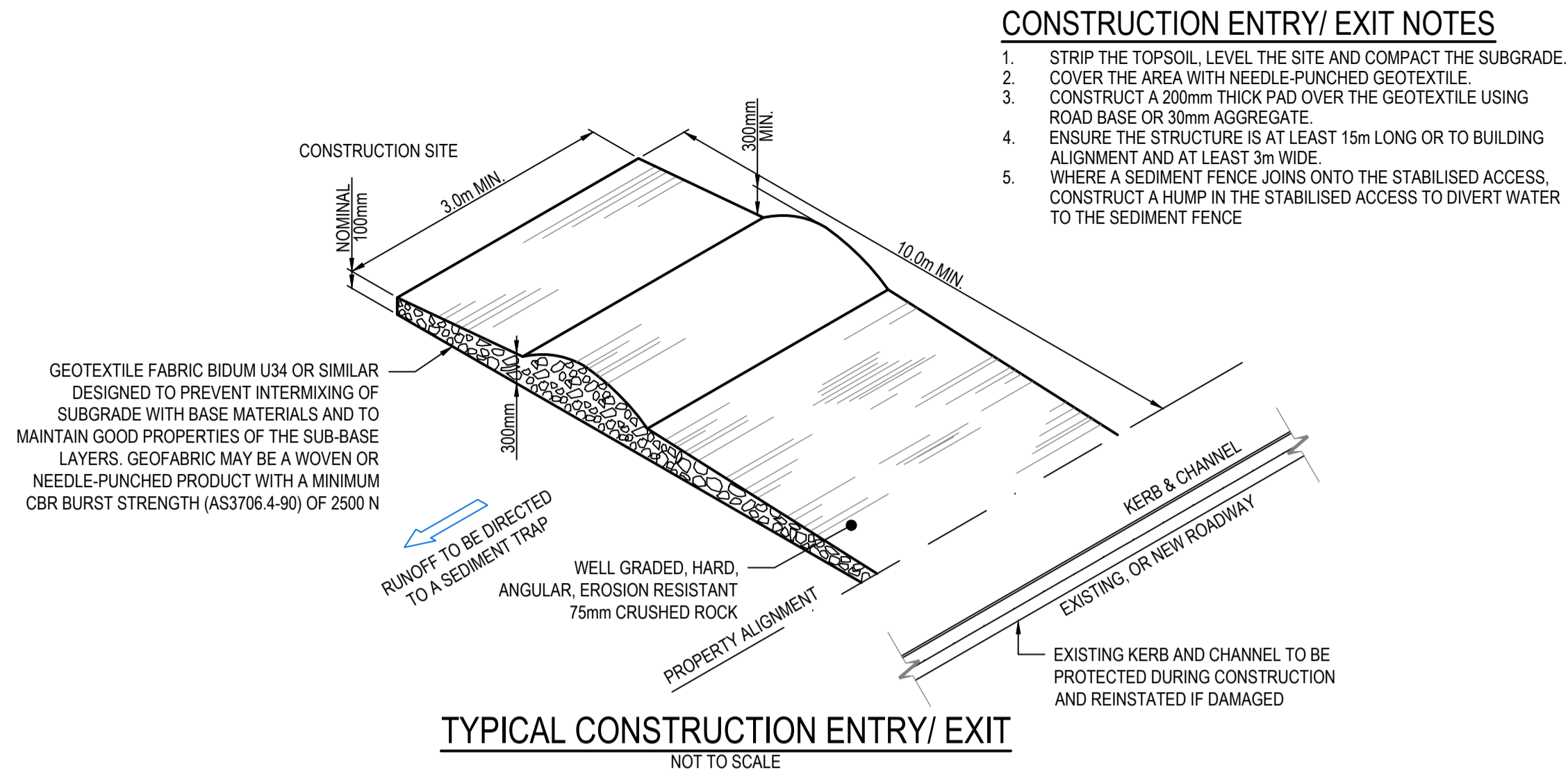
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C	05.06.26	GENERAL AMENDMENTS	BAJ	AAS
B	17.03.26	GENERAL AMENDMENTS	ZK	AAS
A	13.03.26	ORIGINAL ISSUE	BAJ	AAS

**VT CONSULTING ENGINEERS**  
 A: PO Box 26, Cairns QLD 4152  
 E: admin@vtce.com.au  
 P: 1300 165 737  
 W: vtce.com.au

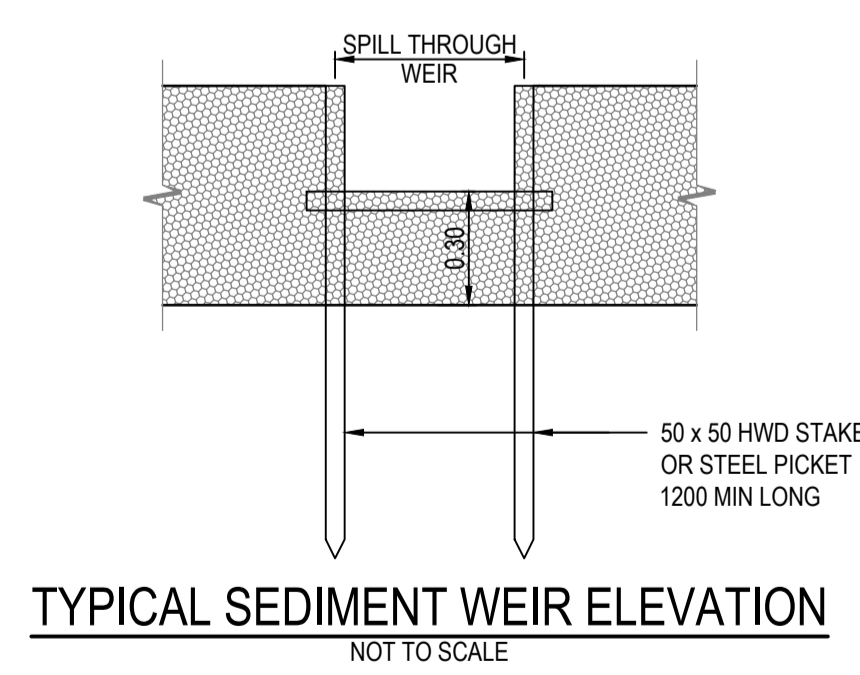
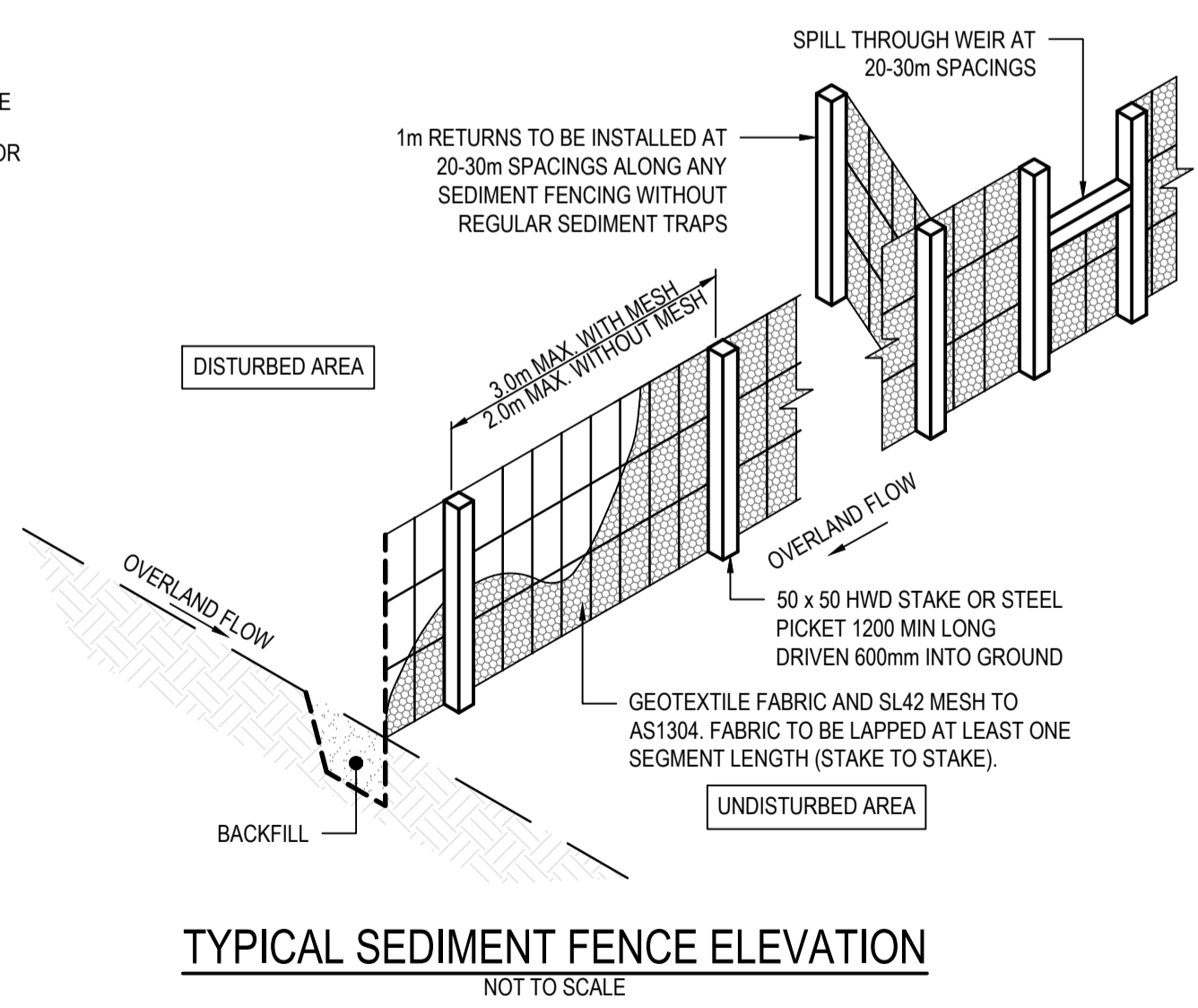
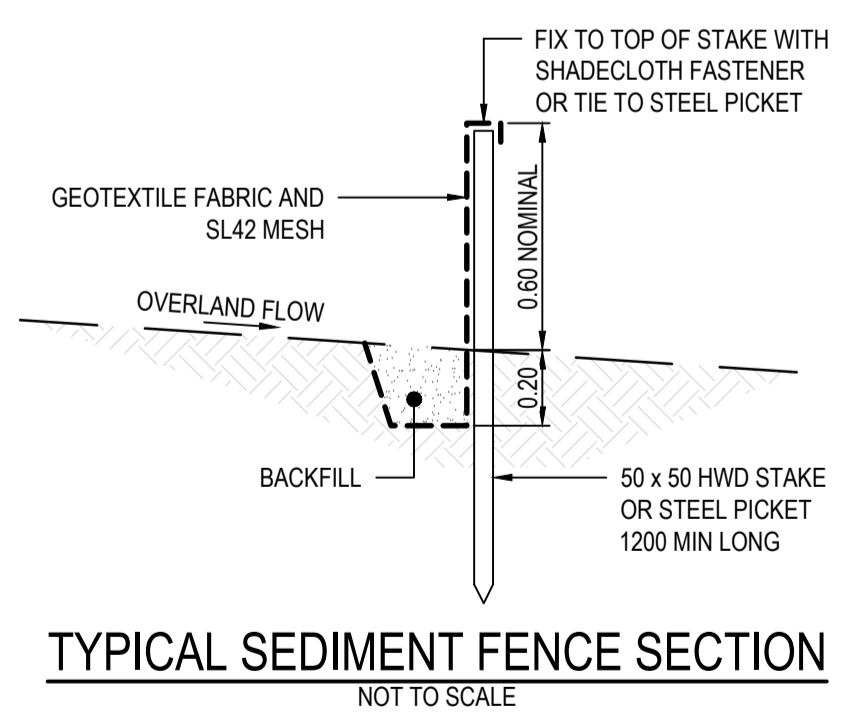
CLIENT: **IP&D INSIGHT** PLANNING • DEVELOPMENT  
 SCALE: AS SHOWN  
 SHEET SIZE: A1  
 DRAFTER: BAJ  
 DESIGNER: EG  
 DATUM: AHD  
 ENGINEER: AAS  
 APPROVED:

PROJECT:	RESIDENTIAL DEVELOPMENT 15 VILLA STREET, ANNERLEY, QLD 4103	PROJECT No.:	25401
DRAWING TITLE:	PRELIMINARY EROSION & SEDIMENT CONTROL LAYOUT PLAN	DRAWING No.:	P100
		REV.:	C

THIS PLAN MUST BE PLOTTED IN COLOUR FOR CORRECT DESIGN PRESENTATION



- ### SEDIMENT FENCE NOTES
- CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50L/s IN THE DESIGN STORM EVENT, USUALLY THE 10-YEAR EVENT.
  - CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
  - DRIVE 1.5m LONG STAR PICKETS INTO GROUND AT INTERVALS EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
  - FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
  - JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
  - BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

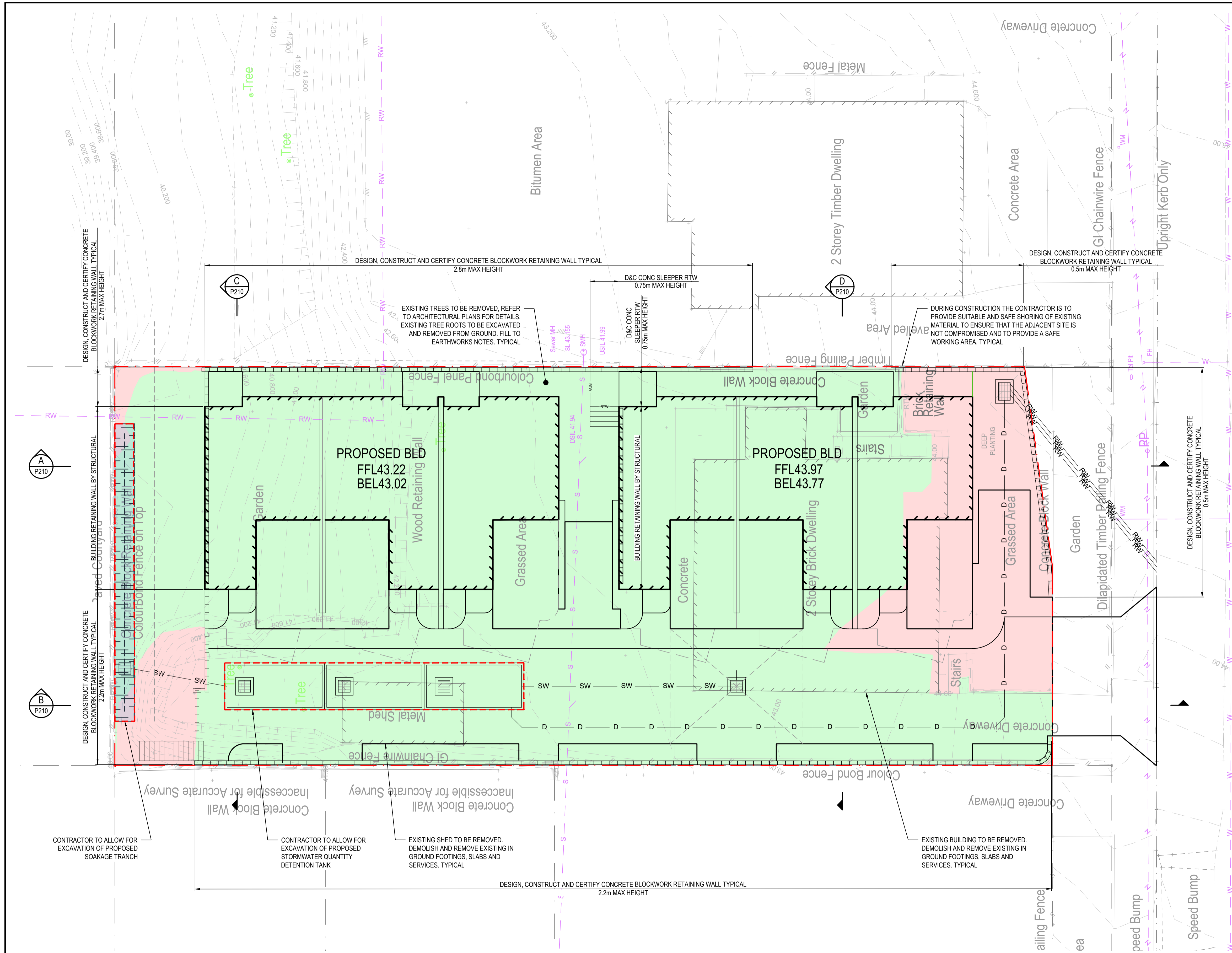


PRELIMINARY

<table border="1"> <tr> <td>C</td> <td>05.06.26</td> <td>GENERAL AMENDMENTS</td> <td>BAJ</td> <td>AAS</td> </tr> <tr> <td>B</td> <td>17.03.26</td> <td>GENERAL AMENDMENTS</td> <td>ZK</td> <td>AAS</td> </tr> <tr> <td>A</td> <td>13.03.26</td> <td>ORIGINAL ISSUE</td> <td>BAJ</td> <td>AAS</td> </tr> <tr> <td>REV.</td> <td>DATE:</td> <td>AMENDMENT:</td> <td>BY:</td> <td>CHK:</td> </tr> </table>		C	05.06.26	GENERAL AMENDMENTS	BAJ	AAS	B	17.03.26	GENERAL AMENDMENTS	ZK	AAS	A	13.03.26	ORIGINAL ISSUE	BAJ	AAS	REV.	DATE:	AMENDMENT:	BY:	CHK:	<p>VT CONSULTING ENGINEERS</p> <p>P.O. Box 26, Cairns QLD 4152 E: admin@vtce.com.au Ph: 1300 165 737 W: vtce.com.au</p>	<p>CLIENT:</p> <p>IP&amp;D INSIGHT PLANNING • DEVELOPMENT</p>	<table border="1"> <tr> <td>SCALE:</td> <td>AS SHOWN</td> <td>DRAFTER:</td> <td>BAJ</td> </tr> <tr> <td>SHEET SIZE:</td> <td>A1</td> <td>DESIGNER:</td> <td>EG</td> </tr> <tr> <td>DATUM:</td> <td>AHD</td> <td>ENGINEER:</td> <td>AAS</td> </tr> <tr> <td colspan="4">APPROVED:</td> </tr> </table>	SCALE:	AS SHOWN	DRAFTER:	BAJ	SHEET SIZE:	A1	DESIGNER:	EG	DATUM:	AHD	ENGINEER:	AAS	APPROVED:				<p>PROJECT:</p> <p>RESIDENTIAL DEVELOPMENT 15 VILLA STREET, ANNERLEY, QLD 4103</p> <p>DRAWING TITLE:</p> <p>PRELIMINARY EROSION &amp; SEDIMENT CONTROL DETAILS</p>	<p>PROJECT No.:</p> <p>25401</p> <p>DRAWING No.:</p> <p>P105</p> <p>REV.:</p> <p>C</p>
C	05.06.26	GENERAL AMENDMENTS	BAJ	AAS																																						
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DATUM:	AHD	ENGINEER:	AAS																																							
APPROVED:																																										

PLOTTED: 05/06/2026

THIS PLAN MUST BE PLOTTED IN COLOUR FOR CORRECT DESIGN PRESENTATION



### LEGEND

EXISTING	PROPOSED	
---	---	PROPERTY BOUNDARY
---	---	EASEMENT BOUNDARY
---	---	CONTOUR - MAJOR
---	---	CONTOUR - MINOR
---	---	BUILDING
---	---	KERB AND CHANNEL
---	---	KERB
---	---	RETAINING WALL
---	---	STORMWATER DRAINAGE
---	---	STORMWATER RISING MAIN
---	---	ROOFWATER DRAINAGE
---	---	SUBSOIL DRAIN
---	---	SEWER
---	---	WATER
---	---	ELECTRICAL
---	---	ELEC. OVERHEAD
---	---	COMMUNICATIONS
---	---	TOP OF BATTER
---	---	BOTTOM OF BATTER
---	---	ABANDON SERVICE

+ RL.00 SURFACE LEVEL (RL)

### EARTHWORKS VOLUMES

AN ALLOWANCE OF 150mm HAS BEEN MADE FOR STRIPPING OF TOPSOIL AND LATENTS. STRIP DEPTH TO BE CONFIRMED ON SITE. TRIMMING TOLERANCE +0mm/-20mm. APPROXIMATE INSITU EARTHWORKS VOLUMES FROM STRIPPED SURFACE LEVEL TO BULK EARTHWORKS LEVEL HAVE BEEN CALCULATED AS:

CUT: 59m <sup>3</sup>
FILL: 619m <sup>3</sup>

VOLUMES PROVIDED ARE INDICATIVE ONLY AND THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE VOLUMES PRIOR TO TENDERING AND CONSTRUCTION. REFER TO STRUCTURAL ENGINEERS DETAILS FOR SAFE BEARING CAPACITY REQUIREMENTS. NO ALLOWANCE HAS BEEN MADE FOR EXCAVATION OF UNSUITABLE MATERIAL, STRUCTURAL FOOTINGS, SERVICE TRENCHES, STORMWATER TANKS OR PITS.

### LEGEND - BULK EARTHWORKS

---	RETAINING WALL PART OF BUILDING STRUCTURE WALL
---	DESIGN, CONSTRUCT AND CERTIFY CONCRETE BLOCK RETAINING WALL
---	DESIGN, CONSTRUCT AND CERTIFY SLEEPER RETAINING WALL

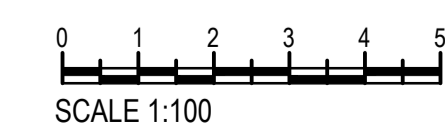
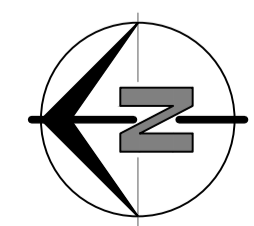
### SERVICES CONDUITS NOTE

CONTRACTOR TO PROVIDE SERVICES AND CONDUITS BEHIND RETAINING WALLS PRIOR TO BACKFILLING

LAYOUT PLAN  
SCALE 1:100

PRELIMINARY NOT FOR CONSTRUCTION

PLOTTED: 05/05/2025



REV.	DATE	DESCRIPTION	BY	CHK
C	05.06.26	GENERAL AMENDMENTS	BAJ	AAS
B	17.03.26	GENERAL AMENDMENTS	ZK	AAS
A	13.03.26	ORIGINAL ISSUE	BAJ	AAS

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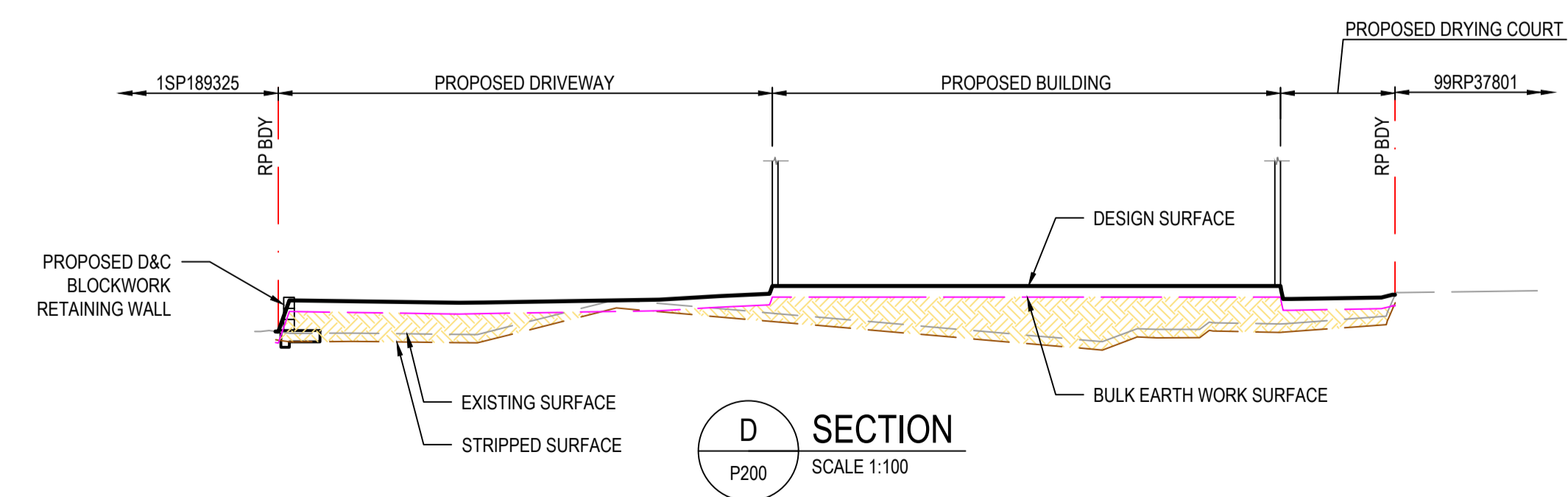
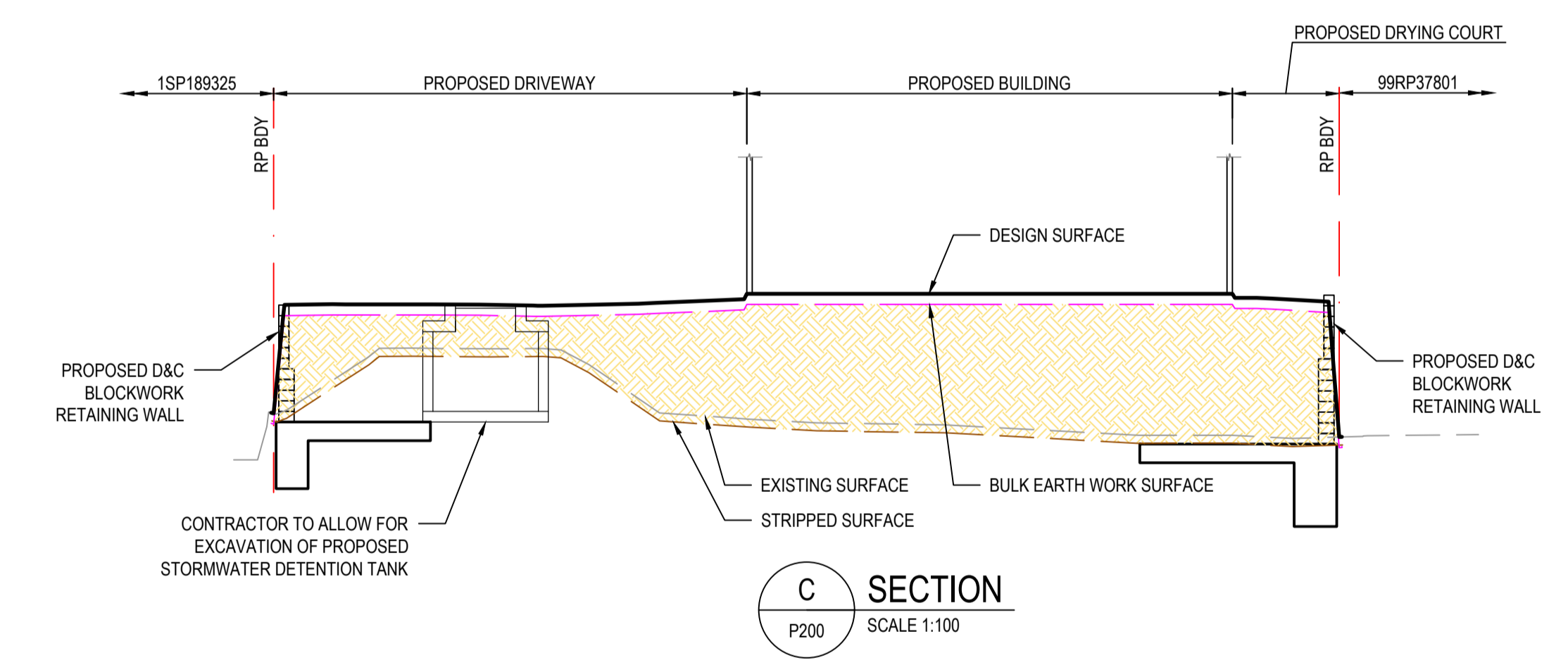
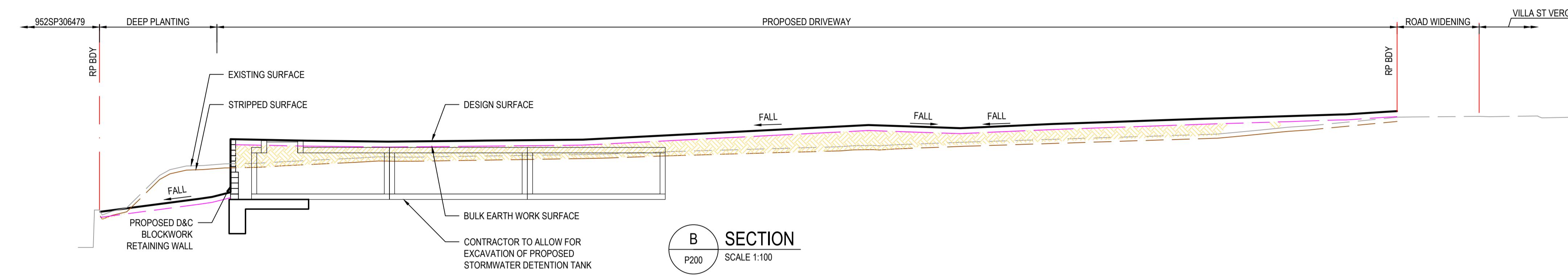
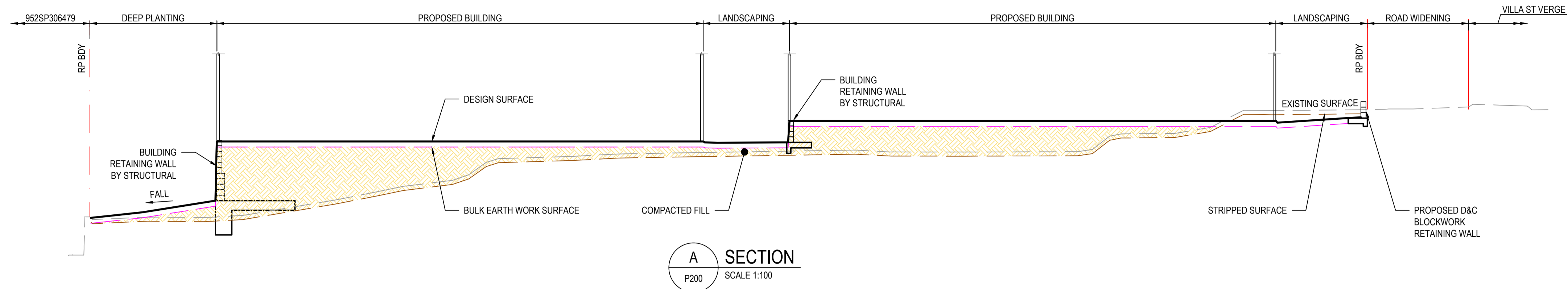
**IP&D INSIGHT**  
 PLANNING • DEVELOPMENT

SCALE: AS SHOWN	DRAFTER: BAJ
SHEET SIZE: A1	DESIGNER: EG
DATUM: AHD	ENGINEER: AAS
APPROVED:	

PROJECT:	RESIDENTIAL DEVELOPMENT 15 VILLA STREET, ANNERLEY, QLD 4103
DRAWING TITLE:	PRELIMINARY BULK EARTHWORKS LAYOUT PLAN

PROJECT No.:	25401
DRAWING No.:	P200
REV.:	C

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REV.	DATE	AMENDMENT	BY	CHK
C	05.06.26	GENERAL AMENDMENTS	BAJ	AAS
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 P.O. Box 26, Cairns QLD 4152  
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PROJECT:	RESIDENTIAL DEVELOPMENT 15 VILLA STREET, ANNERLEY, QLD 4103
DRAWING TITLE:	PRELIMINARY BULK EARTHWORKS SECTIONS

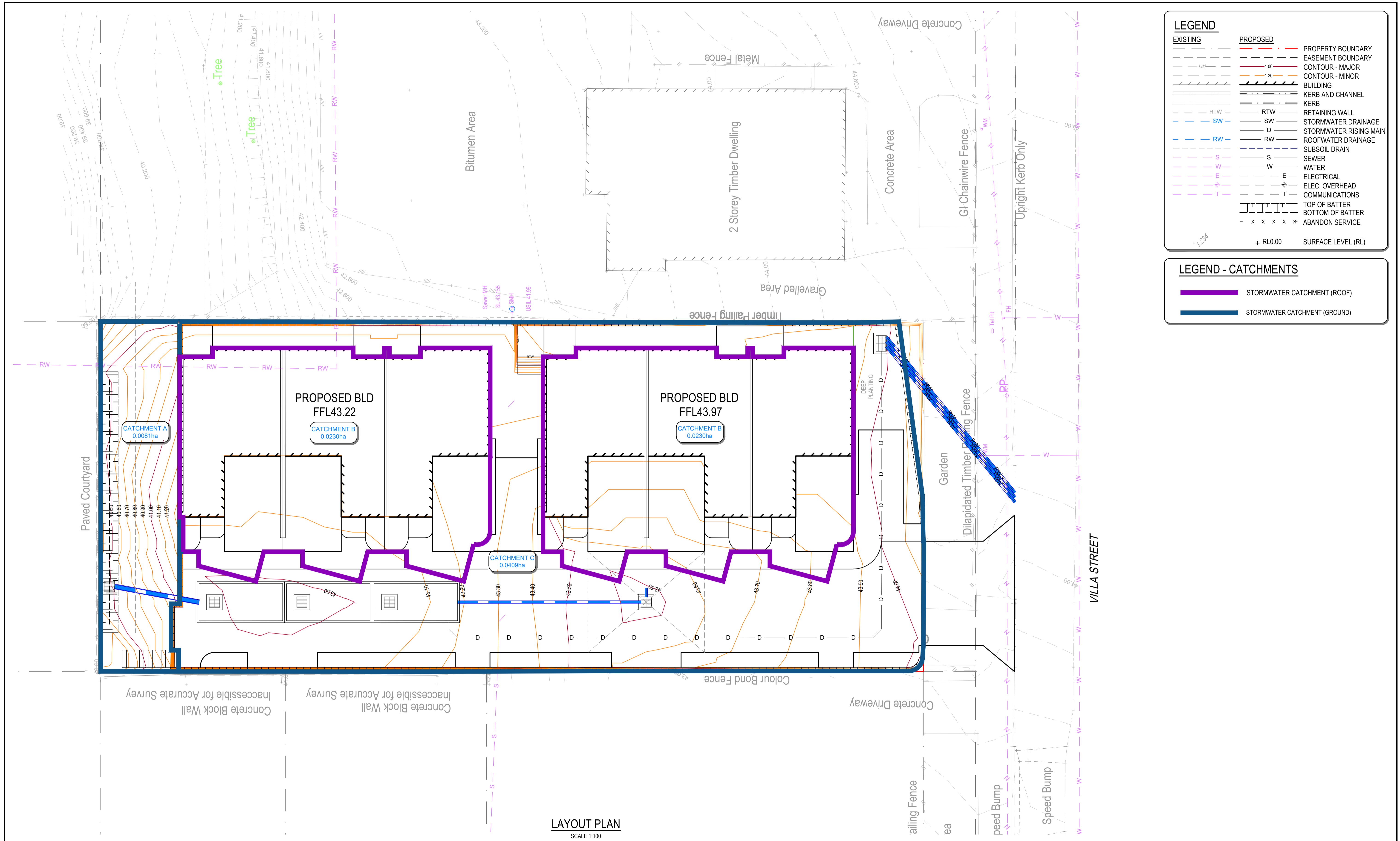
PROJECT No.:	25401
DRAWING No.:	P210
REV.:	C

PLOTTED: 05/06/2026

THIS PLAN MUST BE PLOTTED IN COLOUR FOR CORRECT DESIGN PRESENTATION







LAYOUT PLAN  
SCALE 1:100

LEGEND		
EXISTING	PROPOSED	
---	---	PROPERTY BOUNDARY
---	---	EASEMENT BOUNDARY
---	---	CONTOUR - MAJOR
---	---	CONTOUR - MINOR
---	---	BUILDING
---	---	KERB AND CHANNEL
---	---	KERB
---	---	RETAINING WALL
---	---	STORMWATER DRAINAGE
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---	---	WATER
---	---	ELECTRICAL
---	---	ELEC. OVERHEAD
---	---	COMMUNICATIONS
---	---	TOP OF BATTER
---	---	BOTTOM OF BATTER
---	---	ABANDON SERVICE
	+ RL0.00	SURFACE LEVEL (RL)

LEGEND - CATCHMENTS	
---	STORMWATER CATCHMENT (ROOF)
---	STORMWATER CATCHMENT (GROUND)

PRELIMINARY

PLOTTED: 05/06/2025

SCALE 1:100

REV.	DATE	DESCRIPTION	BY	CHK
A	05.06.26	ORIGINAL ISSUE	BAJ	AAS
		AMENDMENT:		

**000**  
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P.O. Box 26, Cairns  
QLD 4115  
E: admin@vtce.com.au  
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W: vtce.com.au

CLIENT:

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PROJECT:	RESIDENTIAL DEVELOPMENT 15 VILLA STREET, ANNERLEY, QLD 4103
DRAWING TITLE:	PRELIMINARY STORMWATER POST-DEVELOPMENT CATCHMENT PLAN

PROJECT No.:	25401
DRAWING No.:	P401
REV.:	A

THIS PLAN MUST BE PLOTTED IN COLOUR FOR CORRECT DESIGN PRESENTATION

## **Appendix B - Erosion and Sediment Control Hazard Assessment Form**



# Erosion Hazard Assessment

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

## What is an Erosion Hazard Assessment?

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

## When is the EHA required?

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

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

## Privacy Statement

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

## Assessment Details

1 Please turn over and complete the erosion hazard assessment.

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

**A 'low' risk site**

*Best practice erosion and sediment control (ESC) must be implemented but no erosion and sediment control plans need to be submitted with the development application. Factsheets outlining best practice ESC can be found at <https://waterbydesign.com.au/download/erosion-sediment-control-for-small-construction-sites>*

**A 'medium' risk site**

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

**A 'high' risk site**

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

## 3 Site Information and Certification

Application number (if known)

Site address

15 Villa St, Annerly QLD

Postcode **4103**

I certify that:

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

Certified by (Print name)

A. SHAW

Certifier's signature

A S Shaw

Date

13 / 03 / 2026

## Assessment Table

**Table 1: Low Risk Test**

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

If you answered '**No**' to **ALL** of these questions, then the site is **low risk** with respect to erosion and sediment control.  
(Do not continue to Table 2)

If you answered '**Yes**' to **ANY** of these questions, then proceed to **Table 2**

**Table 2: Medium Risk Test**

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

If '**No**' then the site is **medium risk** with respect to erosion and sediment control.  
(Do not continue to Table 3)

If '**Yes**' then proceed to **Table 3**

**Table 3: High Risk Test**

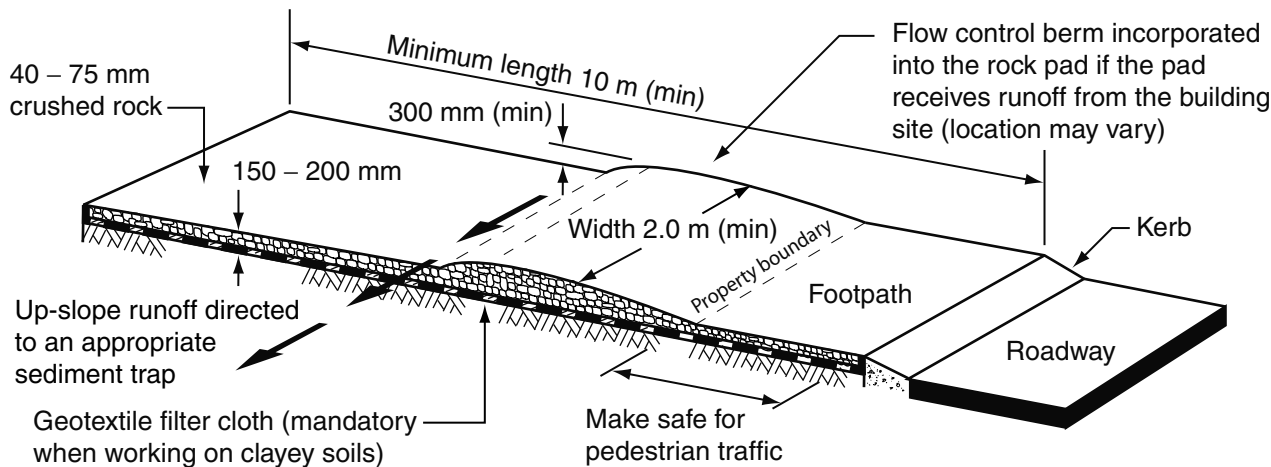
		<b>Yes</b>	<b>No</b>
<b>3.1</b>	is there an upstream catchment passing through the site > 1 hectare?	<input type="checkbox"/>	<input type="checkbox"/>
<b>3.2</b>	does any land disturbance occurs in a BCC mapped waterway corridor?	<input type="checkbox"/>	<input type="checkbox"/>
<b>3.3</b>	is there any slope on site (longer than three metres in length) before, during or after construction that is steeper than 15%?	<input type="checkbox"/>	<input type="checkbox"/>

If you answered '**No**' to **ALL** of these questions, then the site is also **medium risk** with respect to erosion and sediment control.

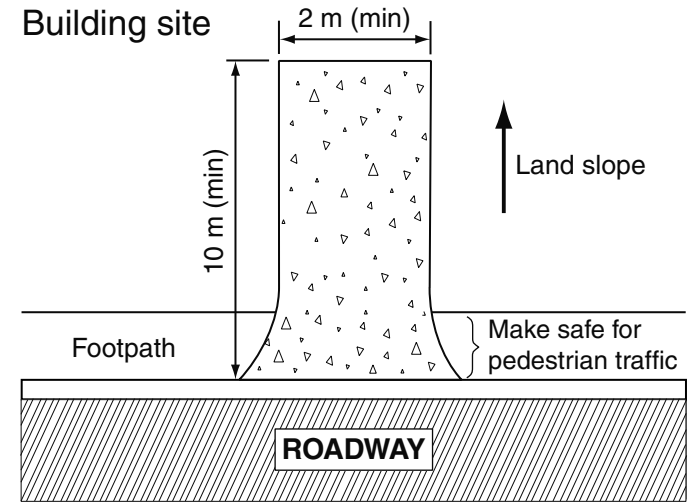
If you answered '**Yes**' to **ANY** of these questions, then the site is **high risk** with respect to erosion and sediment control.

## Appendix C - IECA (Australasia) Standard Drawings

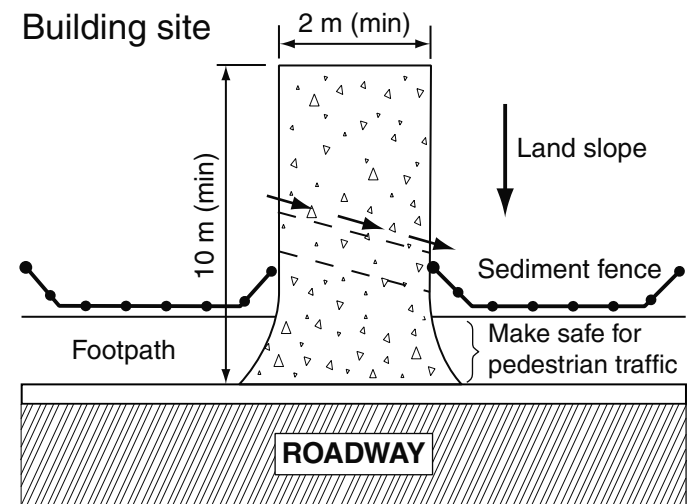
Available from: <http://www.austieca.com.au/publications/book-6-standard-drawings>



**(a) Rock entry/exit pad for building sites**



**(b) Rock pad sloping away from road**



**(c) Rock pad sloping towards the road**

**CONSTRUCTION NOTES:**

**MATERIALS**

**ROCK:** WELL GRADED, HARD, ANGULAR, EROSION RESISTANT ROCK, NOMINAL DIAMETER OF 40 TO 75mm.

**FOOTPATH STABILISING AGGREGATE:** 25 TO 50mm GRAVEL OR AGGREGATE (IF REQUIRED).

**GEOTEXTILE FABRIC:** HEAVY-DUTY, NEEDLE-PUNCHED, NON-WOVEN FILTER CLOTH ('BIDIM' A24 OR EQUIVALENT).

**INSTALLATION**

1. INSPECT ALL SITE ENTRY AND EXIT POINTS PRIOR TO FORECAST RAIN, DAILY DURING EXTENDED PERIODS OF RAINFALL, AFTER RUNOFF-PRODUCING RAINFALL, OR OTHERWISE AT FORTNIGHTLY INTERVALS.

2. IF SAND, SOIL, SEDIMENT OR MUD IS TRACKED OR WASHED ONTO THE ADJACENT SEALED ROADWAY, THEN SUCH MUST BE PHYSICALLY REMOVED, FIRST USING A SQUARE-EDGED SHOVEL, AND THEN A

STIFF-BRISTLED BROOM, AND THEN BY A MECHANICAL VACUUM UNIT, IF AVAILABLE.

3. IF NECESSARY FOR SAFETY REASONS, THE ROADWAY SHALL ONLY BE WASHED CLEAN AFTER ALL REASONABLE EFFORTS HAVE BEEN TAKEN TO SHOVEL AND SWEEP THE MATERIAL FROM THE ROADWAY.

4. WHEN THE VOIDS BETWEEN THE ROCK BECOMES FILLED WITH MATERIAL AND THE EFFECTIVENESS OF THE ROCK PAD IS REDUCED TO A POINT WHERE SEDIMENT IS BEING TRACKED OFF THE SITE, A NEW 100mm LAYER OF ROCK MUST BE ADDED AND/OR THE ROCK PAD MUST BE EXTENDED.

5. ENSURE ANY ASSOCIATED DRAINAGE CONTROL MEASURES (e.g. FLOW CONTROL BERM) ARE MAINTAINED IN ACCORDANCE WITH THEIR DESIRED OPERATIONAL CONDITION.

6. DISPOSE OF SEDIMENT AND DEBRIS IN A MANNER THAT WILL NOT CREATE AN EROSION OR POLLUTION HAZARD.

Drawn:	Date:		
GMW	May-10	Rock Pads for Building Sites	ESC-01

## MATERIALS

### FABRIC (LIGHT TRAFFIC AREAS):

HEAVY-DUTY, NEEDLE-PUNCHED, NON-WOVEN FILTER CLOTH ('BIDIM' A34 OR EQUIVALENT).

### FABRIC (HEAVY TRAFFIC AREAS):

POLY-PROPYLENE, POLYAMIDE, NYLON, POLYESTER, OR POLYETHYLENE WOVEN OR NON-WOVEN REINFORCED FABRIC. THE FABRIC WIDTH SHOULD BE AT LEAST 700mm, WITH A MINIMUM UNIT WEIGHT OF 140g/m<sup>2</sup>. FABRICS SHOULD CONTAIN ULTRAVIOLET INHIBITORS AND STABILISERS TO PROVIDE A MINIMUM OF 6 MONTHS OF USEABLE CONSTRUCTION LIFE (ULTRAVIOLET STABILITY EXCEEDING 70%).

## INSTALLATION

1. REFER TO APPROVED PLANS FOR LOCATION AND DIMENSIONAL DETAILS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION, DIMENSIONS OR METHOD OF INSTALLATION CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.

2. ENSURE THAT THE INSTALLATION OF THE SEDIMENT TRAP WILL NOT CAUSE UNDESIRABLE SAFETY OR FLOODING ISSUES.

3. SELECT THE APPROPRIATE FABRIC FOR THE SITE CONDITIONS.

4. WRAP THE FABRIC AROUND OR OVER THE STORMWATER INLET GRATE IN SUCH A MANNER THAT PREVENTS ANY WATER ENTERING THE STORMWATER INLET WITHOUT PASSING THROUGH THE FABRIC.

5. ENSURE ALL OTHER FLOW ENTRY POINTS ARE COVERED WITH FABRIC SUCH THAT WATER CANNOT ENTER THE STORMWATER INLET WITHOUT PASSING THROUGH A SUITABLE FILTER.

6. TAKE ALL NECESSARY MEASURE TO MINIMISE SAFETY OR FLOODING RISK CAUSED BY OPERATION OF THE SEDIMENT TRAP.

## MAINTENANCE

1. INSPECT THE BARRIER AFTER EACH RUNOFF-PRODUCING RAINFALL EVENT AND MAKE REPAIRS AS NEEDED TO THE SEDIMENT TRAP.

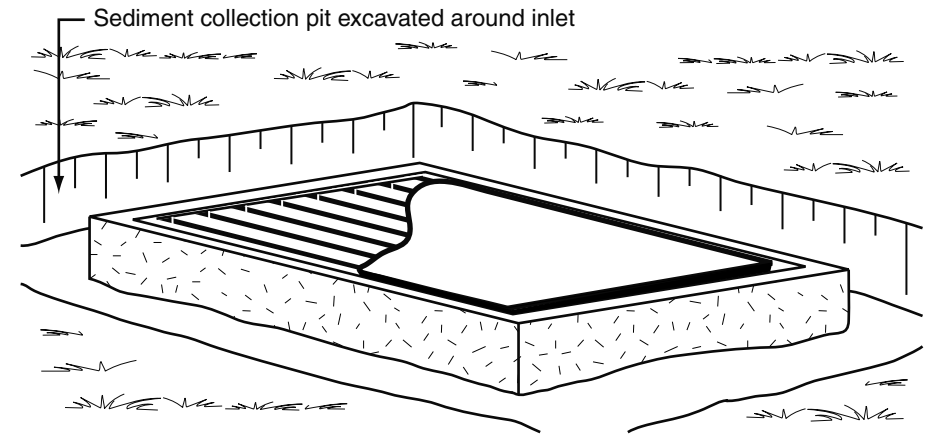
2. REMOVE COLLECTED SEDIMENT AND DISPOSE OF IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.

3. REPLACE THE FABRIC IF IT IS TORN OR DAMAGED.

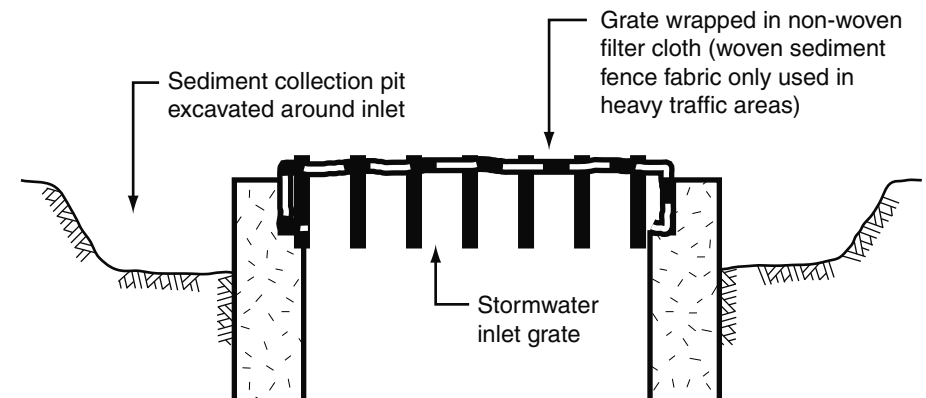
4. SEDIMENT DEPOSITS SHOULD BE REMOVED IMMEDIATELY IF THEY REPRESENT A SAFETY RISK.

## REMOVAL

1. WHEN THE UP-SLOPE DRAINAGE AREA HAS BEEN STABILISED, REMOVE ALL MATERIALS INCLUDED DEPOSITED SEDIMENT AND DISPOSE OF IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.



(a) Fabric wrap drop inlet protection with trench



(b) Typical details of excavated sediment collection trench

Drawn: GMW	Date: May-10	Grated Stormwater (Field) Inlet Sediment Trap	ESC-02
---------------	-----------------	--	--------

**MATERIALS**

**SOCKS:** MINIMUM 200mm DIAMETER SYNTHETIC OR BIODEGRADABLE TUBES MANUFACTURED FROM NON-WOVEN OR COMPOSITE FABRIC SUITABLE FOR THE 'FILTRATION' OF COARSE SEDIMENTS.

**FILL MATERIAL:** STRAW, CANE MULCH, COMPOSTED MATERIAL (AS4454), COARSE SAND, OR CLEAN AGGREGATE.

**STAKES:** MINIMUM 25 x 25mm TIMBER.

**INSTALLATION**

1. REFER TO APPROVED PLANS FOR LOCATION AND INSTALLATION DETAILS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION, DIMENSIONS OR METHOD OF INSTALLATION CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.

2. ENSURE THE SOCKS ARE PLACED INDIVIDUALLY OR COLLECTIVELY (AS A SINGLE SEDIMENT TRAP) SUCH THAT:  
 (i) LEAKAGE AROUND OR UNDER THE SOCKS IS MINIMISED;  
 (ii) ADJOINING SOCKS ARE TIGHTLY BUTTED OR OVERLAPPED AT LEAST 450mm;  
 (iii) THE SURFACE AREA OF POTENTIAL WATER PONDING UP-SLOPE OF EACH SEDIMENT TRAP IS MAXIMISED;  
 (iv) TO THE MAXIMUM DEGREE PRACTICAL, ALL SEDIMENT-LADEN WATER WILL PASS THROUGH THE FORMED POND BEFORE FLOWING OVER THE DOWN-SLOPE END OF THE SEDIMENT TRAP.

3. WHEN PLACED ACROSS THE INVERT OF MINOR DRAINS, ENSURE THE SOCKS ARE PLACED SUCH THAT:  
 (i) THE CREST OF THE DOWNSTREAM SOCK IS LEVEL WITH THE CHANNEL INVERT AT THE IMMEDIATE UPSTREAM SOCK (IF ANY);

(ii) EACH SOCK EXTENDS UP THE CHANNEL BANKS SUCH THAT THE CREST OF THE SOCK AT ITS LOWEST POINT IS LOWER THAN GROUND LEVEL AT EITHER END OF THE SOCK.

4. IF STAKES ARE REQUIRED TO ANCHOR THE SOCKS, THEIR SPACING DOES NOT EXCEEDING 1.2m OR SIX TIMES THE SOCK DIAMETER (WHICHEVER IS THE LESSER). A MAXIMUM STAKE SPACING OF 0.3m APPLIES WHEN USED TO FORM CHECK DAMS.

**MAINTENANCE**

1. INSPECT ALL FILTER SOCKS PRIOR TO FORECAST RAIN, DAILY DURING EXTENDED PERIODS OF RAINFALL, AFTER SIGNIFICANT RUNOFF PRODUCING STORMS OR OTHERWISE AT WEEKLY INTERVALS.

2. REPAIR OR REPLACE DAMAGED SOCKS.

3. THE BULK OF THE SEDIMENT COLLECTED BEHIND THE FILTER SOCKS SHOULD BE REMOVED BY SHOVEL AFTER EACH STORM EVENT.

4. REMOVE COLLECTED SEDIMENT AND DISPOSE OF IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.

**REMOVAL**

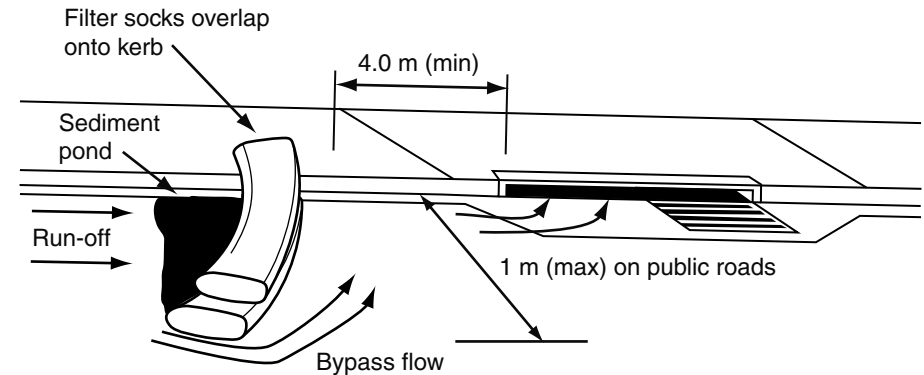
1. ALL SAND, SOIL, SEDIMENT OR MUD MUST BE PHYSICALLY REMOVED FROM SEALED SURFACES, FIRST USING A SQUARE-EDGED SHOVEL, AND THEN A STIFF-BRISTLED BROOM, AND THEN BY A MECHANICAL VACUUM UNIT, IF AVAILABLE.

2. IF NECESSARY FOR SAFETY REASONS, THE SEALED SURFACE SHALL ONLY BE

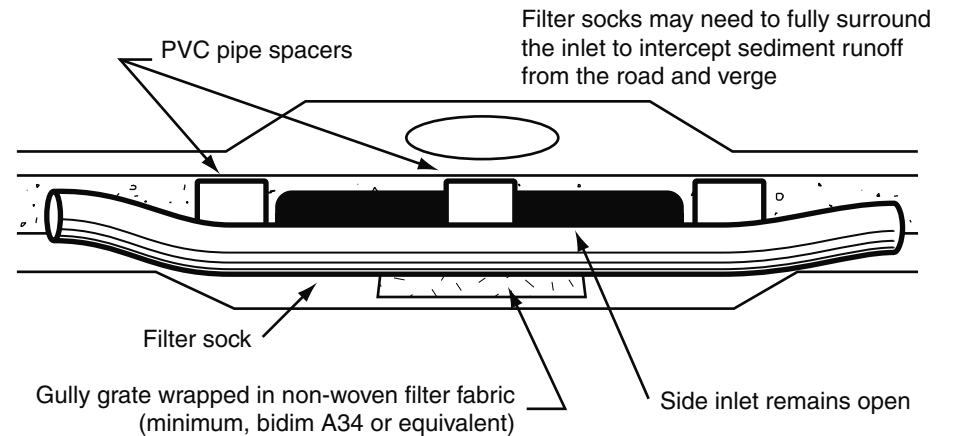
WASHED CLEAN AFTER ALL REASONABLE EFFORTS HAVE BEEN TAKEN TO SHOVEL AND SWEEP THE MATERIAL FROM THE SURFACE.

3. DISPOSE OF COLLECTED SEDIMENT IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.

4. ALL SYNTHETIC (PLASTIC) MESH OR OTHER NON READILY BIODEGRADABLE MATERIAL MUST BE REMOVED FROM THE SITE ONCE THE SLOPE OR DRAIN IS STABILISED, OR THE SOCKS HAVE DETERIORATED TO A POINT WHERE THEY ARE NO LONGER PROVIDING THEIR INTENDED DRAINAGE OR SEDIMENT CONTROL FUNCTION.

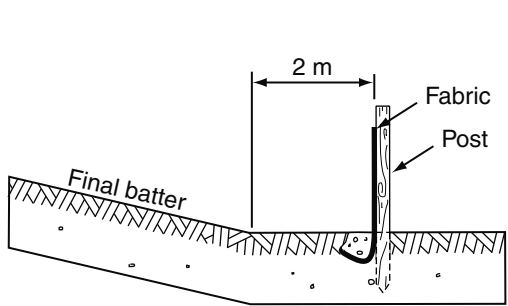


**(a) On-grade kerb inlet sediment trap**

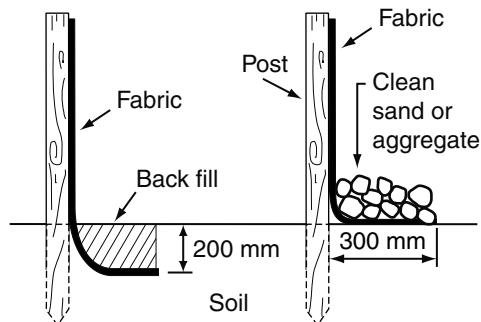


**(b) Sag inlet sediment trap**

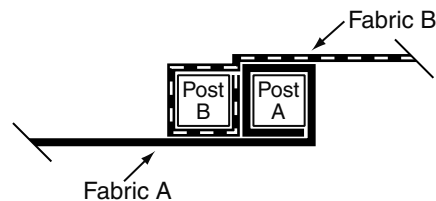
Drawn: <b>GMW</b>	Date: <b>Dec-09</b>	<b>Kerb Inlet Sediment Traps</b>	<b>ESC-03</b>
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(a) Location of fence relative to base of slope

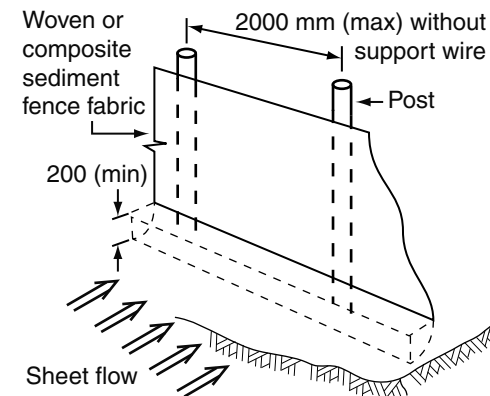


(b) Anchoring base of fabric

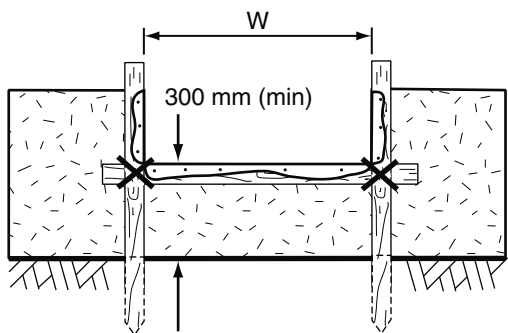


Fabric to fold around each stake one full turn.  
Stake B to be drive tightly against Stake A.  
The tops of both stakes to be secured with wire.

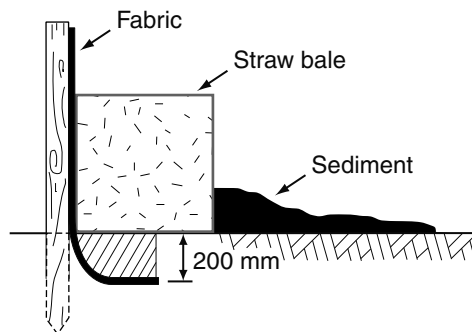
(c) Joining fabric - Method 1



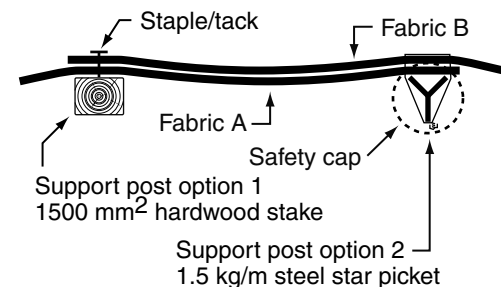
(d) Installation without backing support



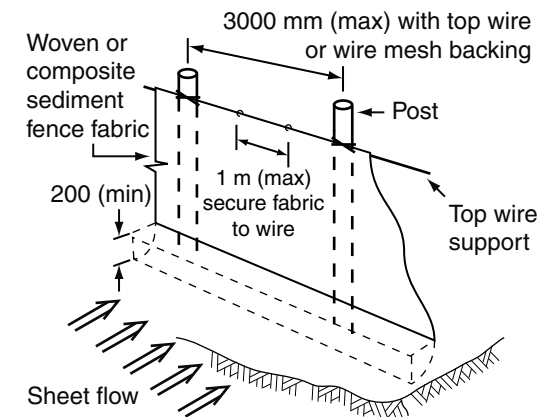
(e) Spill-through weir



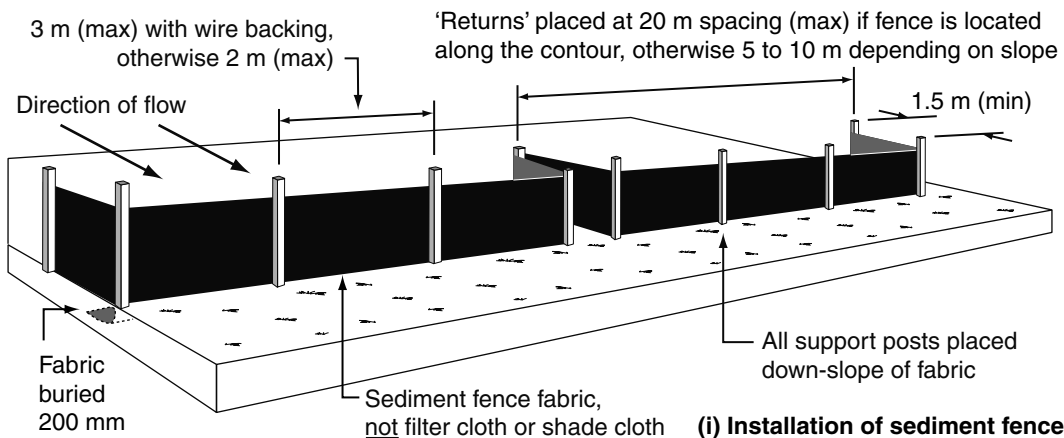
(f) Placement of up-slope straw bale



(g) Joining fabric - Method 2



(h) Installation with top wire support



(i) Installation of sediment fence

**Notes:**

1. Sediment fence to be installed along a line of constant ground elevation wherever practical.
2. Both end of the sediment fence to extend up the slope at least 1m.
3. Support post to be spaced a maximum 2m unless the fence is supported by a top wire or wire mesh backing, in which case 3m maximum spacing.
4. Fence 'returns' shall be installed at maximum 20m spacing if fence is installed along the contour, otherwise 5 to 10m maximum spacing.
5. Minimum 4 staples or tie wires per stake.

Drawn:	Date:		
GMW	Dec-09	Sediment Fence	ESC-04

**MATERIALS**

**FABRIC:** POLYPROPYLENE, POLYAMIDE, NYLON, POLYESTER, OR POLYETHYLENE WOVEN OR NON-WOVEN FABRIC, AT LEAST 700mm IN WIDTH AND A MINIMUM UNIT WEIGHT OF 140g/m<sup>2</sup>. ALL FABRICS TO CONTAIN ULTRAVIOLET INHIBITORS AND STABILISERS TO PROVIDE A MINIMUM OF 6 MONTHS OF USEABLE CONSTRUCTION LIFE (ULTRAVIOLET STABILITY EXCEEDING 70%).

**FABRIC REINFORCEMENT:** WIRE OR STEEL MESH MINIMUM 14-GAUGE WITH A MAXIMUM MESH SPACING OF 200mm.

**SUPPORT POSTS/STAKES:** 1500mm<sup>2</sup> (MIN) HARDWOOD, 2500mm<sup>2</sup> (MIN) SOFTWOOD, OR 1.5kg/m (MIN) STEEL STAR PICKETS SUITABLE FOR ATTACHING FABRIC.

**INSTALLATION**

1. REFER TO APPROVED PLANS FOR LOCATION, EXTENT, AND REQUIRED TYPE OF FABRIC (IF SPECIFIED). IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION, EXTENT, FABRIC TYPE, OR METHOD OF INSTALLATION CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.

2. TO THE MAXIMUM DEGREE PRACTICAL, AND WHERE THE PLANS ALLOW, ENSURE THE FENCE IS LOCATED:

- (i) TOTALLY WITHIN THE PROPERTY BOUNDARIES;
- (ii) ALONG A LINE OF CONSTANT ELEVATION WHEREVER PRACTICAL;
- (iii) AT LEAST 2m FROM THE TOE OF ANY FILLING OPERATIONS THAT MAY RESULT IN SHIFTING SOIL/FILL DAMAGING THE FENCE.

3. INSTALL RETURNS WITHIN THE FENCE AT MAXIMUM 20m INTERVALS IF THE FENCE IS INSTALLED ALONG THE CONTOUR, OR 5 TO 10m MAXIMUM SPACING (DEPENDING ON SLOPE) IF THE FENCE IS INSTALLED AT AN ANGLE TO THE CONTOUR. THE 'RETURNS' SHALL CONSIST OF EITHER:

- (i) V-SHAPED SECTION EXTENDING AT LEAST 1.5m UP THE SLOPE; OR
- (ii) SANDBAG OR ROCK/AGGREGATE CHECK

DAM A MINIMUM 1/3 AND MAXIMUM 1/2 FENCE HEIGHT, AND EXTENDING AT LEAST 1.5m UP THE SLOPE.

4. ENSURE THE EXTREME ENDS OF THE FENCE ARE TURNED UP THE SLOPE AT LEAST 1.5m, OR AS NECESSARY, TO MINIMISE WATER BYPASSING AROUND THE FENCE.

5. ENSURE THE SEDIMENT FENCE IS INSTALLED IN A MANNER THAT AVOIDS THE CONCENTRATION OF FLOW ALONG THE FENCE, AND THE UNDESIRABLE DISCHARGE OF WATER AROUND THE ENDS OF THE FENCE.

6. IF THE SEDIMENT FENCE IS TO BE INSTALLED ALONG THE EDGE OF EXISTING TREES, ENSURE CARE IS TAKEN TO PROTECT THE TREES AND THEIR ROOT SYSTEMS DURING INSTALLATION OF THE FENCE. DO NOT ATTACH THE FABRIC TO THE TREES.

7. UNLESS DIRECTED BY THE SITE SUPERVISOR OR THE APPROVED PLANS, EXCAVATE A 200mm WIDE BY 200mm DEEP TRENCH ALONG THE PROPOSED FENCE LINE, PLACING THE EXCAVATED MATERIAL ON THE UP-SLOPE SIDE OF THE TRENCH.

8. ALONG THE LOWER SIDE OF THE TRENCH, APPROPRIATELY SECURE THE STAKES INTO THE GROUND SPACED NO GREATER THAN 3m IF SUPPORTED BY A TOP SUPPORT WIRE OR WEIR MESH BACKING, OTHERWISE NO GREATER THAN 2m.

9. IF SPECIFIED, SECURELY ATTACH THE SUPPORT WIRE OR MESH TO THE UP-SLOPE SIDE OF THE STAKES WITH THE MESH EXTENDING AT LEAST 200mm INTO THE EXCAVATED TRENCH. ENSURE THE MESH AND FABRIC IS ATTACHED TO THE UP-SLOPE SIDE OF THE STAKES EVEN WHEN DIRECTING A FENCE AROUND A CORNER OR SHARP CHANGE OF DIRECTION.

10. WHEREVER POSSIBLE, CONSTRUCT THE SEDIMENT FENCE FROM A CONTINUOUS ROLL OF FABRIC. TO JOIN FABRIC EITHER:

- (i) ATTACH EACH END TO TWO OVERLAPPING STAKES WITH THE FABRIC FOLDING AROUND THE ASSOCIATED STAKE ONE TURN, AND WITH

THE TWO STAKES TIED TOGETHER WITH WIRE; OR  
(ii) OVERLAP THE FABRIC TO THE NEXT ADJACENT SUPPORT POST.

11. SECURELY ATTACH THE FABRIC TO THE SUPPORT POSTS USING 25 X 12.5mm STAPLES, OR TIE WIRE AT MAXIMUM 150mm SPACING.

12. SECURELY ATTACH THE FABRIC TO THE SUPPORT WIRE/MESH (IF ANY) AT A MAXIMUM SPACING OF 1m.

13. ENSURE THE COMPLETED SEDIMENT FENCE IS AT LEAST 450mm, BUT NOT MORE THAN 700mm HIGH. IF A SPILL-THROUGH WEIR IS INSTALLED, ENSURE THE CREST OF THE WEIR IS AT LEAST 300mm ABOVE GROUND LEVEL.

14. BACKFILL THE TRENCH AND TAMP THE FILL TO FIRMLY ANCHOR THE BOTTOM OF THE FABRIC AND MESH TO PREVENT WATER FROM FLOWING UNDER THE FENCE.

**ADDITIONAL REQUIREMENTS FOR THE INSTALLATION OF A SPILL-THROUGH WEIR**

1. LOCATE THE SPILL-THROUGH WEIR SUCH THAT THE WEIR CREST WILL BE LOWER THAN THE GROUND LEVEL AT EACH END OF THE FENCE.

2. ENSURE THE CREST OF THE SPILL-THROUGH WEIR IS AT LEAST 300mm THE GROUND ELEVATION.

3. SECURELY TIE A HORIZONTAL CROSS MEMBER (WEIR) TO THE SUPPORT POSTS/ STAKES EACH SIDE OF THE WEIR. CUT THE FABRIC DOWN THE SIDE OF EACH POST AND FOLD THE FABRIC OVER THE CROSS MEMBER AND APPROPRIATELY SECURE THE FABRIC.

4. INSTALL A SUITABLE SPLASH PAD AND/OR CHUTE IMMEDIATELY DOWN-SLOPE OF THE SPILL-THROUGH WEIR TO CONTROL SOIL EROSION AND APPROPRIATELY DISCHARGE THE CONCENTRATED FLOW PASSING OVER THE WEIR.

**MAINTENANCE**

1. INSPECT THE SEDIMENT FENCE AT LEAST WEEKLY AND AFTER ANY SIGNIFICANT RAIN. MAKE NECESSARY REPAIRS IMMEDIATELY.

2. REPAIR ANY TORN SECTIONS WITH A CONTINUOUS PIECE OF FABRIC FROM POST TO POST.

3. WHEN MAKING REPAIRS, ALWAYS RESTORE THE SYSTEM TO ITS ORIGINAL CONFIGURATION UNLESS AN AMENDED LAYOUT IS REQUIRED OR SPECIFIED.

4. IF THE FENCE IS SAGGING BETWEEN STAKES, INSTALL ADDITIONAL SUPPORT POSTS.

5. REMOVE ACCUMULATED SEDIMENT IF THE SEDIMENT DEPOSIT EXCEEDS A DEPTH OF 1/3 THE HEIGHT OF THE FENCE.

6. DISPOSE OF SEDIMENT IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.

7. REPLACE THE FABRIC IF THE SERVICE LIFE OF THE EXISTING FABRIC EXCEEDS 6-MONTHS.

**REMOVAL**

1. WHEN DISTURBED AREAS UP-SLOPE OF THE SEDIMENT FENCE ARE SUFFICIENTLY STABILISED TO RESTRAIN EROSION, THE FENCE MUST BE REMOVED.

2. REMOVE MATERIALS AND COLLECTED SEDIMENT AND DISPOSE OF IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.

3. REHABILITATE/REVEGETATE THE DISTURBED GROUND AS NECESSARY TO MINIMISE THE EROSION HAZARD.

Drawn:	Date:		
GMW	May-10	Sediment Fence	ESC-05

## Appendix D - Brisbane City Council Flood Report


## THE PURPOSE OF THIS REPORT IS FOR BUILDING AND DEVELOPMENT

Brisbane City Council's FloodWise Property Report provides technical flood planning information including estimated flood levels, habitable floor level requirements and more. This report uses the adopted flood planning information in Brisbane City Plan 2014, that guides how land in Brisbane is used and developed for the future. Find out more about [planning and building](#). To understand how to be resilient and prepare for floods, visit Council's [Be Prepared](#) webpage. Find more information about [how to read a FloodWise Property Report](#).

### This property has no flood levels

Brisbane City Council has not assigned flood level information for this property however it may be affected by one or more flood or property development flags. Please refer to the Flood Planning and Development Information below for details. The property may have 0.2% AEP flood level which will appear on the Flood Planning Information table if applicable. For professional advice or detailed assessment of a property contact a Registered Professional Engineer of Queensland.

Visit the [Be Prepared](#) page to find more information on how to prepare your home or business for potential flooding.

 **Combined** 1% AEP for river, creek and storm tide flood extent (if applicable) from the adopted Brisbane City Plan 2014. Read more about [Brisbane City Plan 2014](#).



# Are you resilient and ready for flood?

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

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

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

## Technical Summary

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

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

## Flood Planning and Development Information

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

### Flood overlay code

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

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

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

### Coastal hazard overlay code

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

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

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

### Property development flags

**Large allotment** - This property is either a Large Allotment of over 1000 square metres or is located within a Large Allotment. Flood levels may vary significantly across allotments of this size. Further investigations may be warranted in determining the variation in flood levels and the minimum habitable floor level across the site.

For more information or advice, please consult a Registered Professional Engineer of Queensland (RPEQ).

## Useful Flood Information Definitions

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

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

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

### Data quality

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

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

**Flood planning area (FPA)** - Council has developed five Flood planning areas (FPAs) as part of Brisbane City Plan 2014 Flood overlay mapping for Brisbane River, Creek/waterway flooding and Overland flow to guide future building and development in flood prone areas. Storm tide flooding is mapped separately. The FPAs are designed to recognise the flood hazard for different flooding types. Flood hazard is a combination of frequency of flooding, the flood depth, and the speed at which the water is travelling. [Find more information here.](#)

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

**Minimum habitable floor level (dwelling house)** - The minimum level in metres AHD at which habitable areas of development (generally including bedrooms, living rooms, kitchen, study, family, and rumpus rooms) must be constructed as required by the Brisbane City Plan 2014.

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

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

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

To learn more, visit [Brisbane City Council's Flood Information Hub](#)

## Brisbane City Council's Online Flood Tools

Council provides several online flood tools:

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

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

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

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

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

- visit [brisbane.qld.gov.au/planning-building](https://brisbane.qld.gov.au/planning-building)

Council's Planning Scheme - The Brisbane City Plan 2014 (planning scheme) has been prepared in accordance with the Sustainable Planning Act as a framework for managing development in a way that advances the purpose of the Act. In seeking to achieve this purpose, the planning scheme sets out the Council's intention for future development in the planning scheme area, over the next 20 years.

### Disclaimer

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



### Planning to build or renovate?

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

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

## Appendix E - Brisbane City Council Development Codes

# 15 Villa St, Annerley QLD 4103

Stormwater Management Code

## Stormwater Management Code

### 9.4.9.3 Assessment criteria

**Table 9.4.9.3.A—Stormwater Code**

Table 9.4.9.3.A—Stormwater Code		
Performance outcomes	Acceptable outcomes	Response
<p><b>Section A—If for a material change of use, reconfiguring a lot, operational work or building work</b></p> <p>Note—Compliance with the performance outcomes and acceptable outcomes in this section should be demonstrated by the submission of a site-based stormwater management plan for high risk development only.</p>		
<p><b>PO1</b></p> <p>Development provides a stormwater management system which achieves the integrated management of stormwater to:</p> <ul style="list-style-type: none"> <li>(a) minimise flooding;</li> <li>(b) protect environmental values of receiving waters;</li> <li>(c) maximise the use of water sensitive urban design;</li> <li>(d) minimise safety risk to all persons;</li> <li>(e) maximise the use of natural waterway corridors and natural channel design principles.</li> </ul> <p>Editor's note—The stormwater management system to be developed to address PO1 is not intended to require management of stormwater quality.</p>	<p><b>AO1</b></p> <p>Development provides a stormwater management system designed in compliance with the Infrastructure design planning scheme policy.</p>	<p>The design of the proposed stormwater drainage system complies with the infrastructure design planning scheme policy.</p>
<p><b>PO2</b></p> <p>Development ensures that the stormwater management system and site work does not adversely impact flooding or drainage characteristics of premises which are up slope, down slope or adjacent to the site.</p>	<p><b>AO2.1</b></p> <p>Development does not result in an increase in flood level or flood hazard on up slope, down slope or adjacent premises.</p>	<p>The development will not result in an increase in flood level or flood hazard on up-slope, down-slope or adjacent premises.</p>
	<p><b>AO2.2</b></p> <p>Development provides a stormwater management system which is designed in compliance with the standards in the Infrastructure design planning scheme policy.</p>	<p>The design of the proposed stormwater drainage system complies with the infrastructure design planning scheme policy.</p>

# 15 Villa St, Annerley QLD 4103

## Stormwater Management Code

Table 9.4.9.3.A—Stormwater Code		
Performance outcomes	Acceptable outcomes	Response
<b>PO3</b> Development ensures that the stormwater management system does not direct stormwater run-off through existing or proposed lots and property where it is likely to adversely affect the safety of, or cause nuisance to properties.	<b>AO3.1</b> Development ensures that the location of the stormwater drainage system is contained within a road reserve, drainage reserve, public pathway, park or waterway corridor.	Not applicable for this development.
	<b>AO3.2</b> Development provides a stormwater management system which is designed in compliance with the standards in the Infrastructure design planning scheme policy.	The design of the proposed stormwater drainage system complies with the infrastructure design planning scheme policy.
	<b>AO3.3</b> Development obtains a lawful point of discharge in compliance with the standards in the Infrastructure design planning scheme policy.	The design of the proposed stormwater drainage system complies with the infrastructure design planning scheme policy. Where flows are discharged towards the existing legal point of discharge, it is ensured that no worsening is caused. Where flows are discharged towards kerb and channel, it is ensured that this will be no more than 30L/s at Q10 storm event.
	<b>AO3.4</b> Where on private land, all underground stormwater infrastructure is secured by a drainage easement.	Not applicable for this development.
<b>PO4</b> Development provides a stormwater management system which has sufficient capacity to safely convey run-off taking into account increased run-off from impervious surfaces and flooding in local catchments.	<b>AO4.1</b> Development provides a stormwater conveyance system which is designed to safely convey flows in compliance with the standards in the Infrastructure design planning scheme policy.	The design of the proposed stormwater drainage system complies with the infrastructure design planning scheme policy.
	<b>AO4.2</b> Development provides sufficient area to convey run-off which will comply with the standards in the Infrastructure design planning scheme policy.	The design of the proposed stormwater drainage system complies with the infrastructure design planning scheme policy.

# 15 Villa St, Annerley QLD 4103

## Stormwater Management Code

Table 9.4.9.3.A—Stormwater Code		
Performance outcomes	Acceptable outcomes	Response
<p><b>PO5</b></p> <p>Development designs stormwater channels, creek modification works, bridges, culverts and major drains to protect and enhance the value of the waterway corridor or drainage path for fauna movement.</p>	<p><b>AO5</b></p> <p>Development ensures the design of stormwater channels, creek modifications or other infrastructure, permits terrestrial and aquatic fauna movement.</p>	Not applicable for this development.
<p><b>PO6</b></p> <p>Development ensures that location and design of stormwater detention and water quality treatment:</p> <p>(a) minimises risk to people and property;</p> <p>(b) provides for safe access and maintenance;</p> <p>(c) minimises ecological impacts to creeks and waterways.</p>	<p><b>AO6.1</b></p> <p>Development locates stormwater detention and water quality treatment:</p> <p>(a) outside of a waterway corridor;</p> <p>(b) offline to any catchment not contained within the development.</p>	Stormwater detention will be located so as to minimise risk to people and property and provide safe access and maintenance.
	<p><b>AO6.2</b></p> <p>Development providing for stormwater detention and water quality treatment devices are designed in compliance with the standards in the Infrastructure design planning scheme policy.</p>	<p>Proposed stormwater detention and pump out system are designed in compliance with Council Planning Scheme.</p> <p>Water quality treatment is not applicable for this development.</p>
<p><b>PO7</b></p> <p>Development is designed, including any car parking areas and channel works to:</p> <p>(a) reduce property damage;</p> <p>(b) provide safe access to the site during the defined flood event.</p>	<p><b>AO7.1</b></p> <p>Development (including any ancillary structures and car parking areas) is located above minimum flood immunity levels in Table 9.4.9.3.B, Table 9.4.9.3.C, Table 9.4.9.3.D, Table 9.4.9.3.E and Table 9.4.9.3.F.</p> <p><small>Note—Compliance with this acceptable outcome can be demonstrated by the submission of a hydraulic and hydrology report identifying flood levels and development design levels (as part of a site-based stormwater management plan).</small></p>	The property has no flood levels or flags for building or development purposes according to the BCC Floodwise Property Report.
	<p><b>AO7.2</b></p> <p>Development including the road network provides a stormwater management system that provides safe pedestrian and vehicle access in accordance with the standards in the Infrastructure design planning scheme policy.</p>	Not applicable for this development.
<p><b>PO8</b></p> <p>Development designs stormwater channels, creek modification works and the drainage network to protect</p>	<p><b>AO8.1</b></p> <p>Development ensures natural waterway corridors and drainage paths are retained.</p>	Not applicable for this development.

# 15 Villa St, Annerley QLD 4103

## Stormwater Management Code

Table 9.4.9.3.A—Stormwater Code		
Performance outcomes	Acceptable outcomes	Response
and enhance the environmental values of the waterway corridor or drainage path.	<p><b>AO8.2</b></p> <p>Development provides the required hydraulic conveyance of the drainage channel and floodway, while maximising its potential to maximise environmental benefits and minimise scour.</p> <p><small>Editor's note—Guidance on natural channel design principles can be found in the Council's publication Natural channel design guidelines.</small></p>	Not applicable for this development.
	<p><b>AO8.3</b></p> <p>Development provides stormwater outlets into waterways, creeks, wetlands and overland flow paths with energy dissipation to minimise scour in compliance with the standards in the Infrastructure design planning scheme policy.</p>	Not applicable for this development.
	<p><b>AO8.4</b></p> <p>Development ensures that the design of modifications to the existing design of new stormwater channels, creeks and major drains is in compliance with the standards in the Infrastructure design planning scheme policy.</p>	Not applicable for this development.
<p><b>PO9</b></p> <p>Development is designed to manage run-off and peak flows by minimising large areas of impervious material and maximising opportunities for capture and re-use.</p>	<p><b>AO9</b></p> <p>No acceptable outcome is prescribed.</p>	Not applicable for this development.
<p><b>PO10</b></p> <p>Development ensures that there is sufficient site area to accommodate an effective stormwater management system.</p> <p><small>Note—Compliance with the performance outcome should be demonstrated by the submission of a site-based stormwater management plan for high-risk development only.</small></p>	<p><b>AO10</b></p> <p>No acceptable outcome is prescribed.</p>	Not applicable for this development.

# 15 Villa St, Annerley QLD 4103

Stormwater Management Code

Table 9.4.9.3.A—Stormwater Code		
Performance outcomes	Acceptable outcomes	Response
<p><b>PO11</b></p> <p>Development provides for the orderly development of stormwater infrastructure within a catchment, having regard to the:</p> <p>(a) existing capacity of stormwater infrastructure within and external to the site, and any planned stormwater infrastructure upgrades;</p> <p>(b) safe management of stormwater discharge from existing and future up-slope development;</p> <p>(c) implication for adjacent and down-slope development.</p>	<p><b>AO11.1</b></p> <p>Development with up-slope external catchment areas provides a drainage connection sized for ultimate catchment conditions that is directed to a lawful point of discharge.</p>	Not applicable for this development.
	<p><b>AO11.2</b></p> <p>Development ensures that existing stormwater infrastructure that is undersized is upgraded in compliance with the Priority infrastructure plan and the standards in the Infrastructure design planning scheme policy.</p>	The existing stormwater infrastructure is to be retained and is suitably sized.
<p><b>PO12</b></p> <p>Development provides stormwater infrastructure which:</p> <p>(a) remains fit for purpose for the life of the development and maintains full functionality in the design flood event;</p> <p>(b) can be safely accessed and maintained cost effectively;</p> <p>(c) ensures no structural damage to existing stormwater infrastructure.</p>	<p><b>AO12.1</b></p> <p>The stormwater management system is designed in compliance with the Infrastructure design planning scheme policy.</p>	Proposed stormwater detention and pump out system are designed in compliance with Council Planning Scheme.
	<p><b>AO12.2</b></p> <p>Development provides a clear area with a minimum of 2m radius from the centre of an existing manhole cover and with a minimum height clearance of 2.5m.</p>	Not applicable for this development.
<p><b>PO13</b></p> <p>Development ensures that all reasonable and practicable measures are taken to manage the impacts of erosion, turbidity and sedimentation, both within and external to the development site from construction activities, including vegetation clearing, earthworks, civil construction, installation of services, rehabilitation, revegetation and landscaping to protect:</p> <p>(a) the environmental values and water quality objectives of waters;</p> <p>(b) waterway hydrology;</p> <p>(c) the maintenance and serviceability of stormwater infrastructure.</p>	<p><b>AO13</b></p> <p>No acceptable outcome is prescribed.</p>	The proposed stormwater management system has been designed in accordance with the Infrastructure design planning scheme policy. Refer to the preliminary erosion and sediment control plan and engineering report for details.

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Stormwater Management Code

Table 9.4.9.3.A—Stormwater Code		
Performance outcomes	Acceptable outcomes	Response
Note—The Infrastructure design planning scheme policy outlines the appropriate measures to be taken into account to achieve the performance outcome.		
<p><b>PO14</b></p> <p>Development ensures that:</p> <p>(a) unnecessary disturbance to soil, waterways or drainage channels is avoided;</p> <p>(b) all soil surfaces remain effectively stabilised against erosion in the short and long term.</p>	<p><b>AO14</b></p> <p>No acceptable outcome is prescribed.</p>	<p>Minimal soil disturbance is proposed. Refer to SMP for erosion control details.</p>
<p><b>PO15</b></p> <p>Development does not increase:</p> <p>(a) the concentration of total suspended solids or other contaminants in stormwater flows during site construction;</p> <p>(b) run-off which causes erosion either on site or off site.</p>	<p><b>AO15</b></p> <p>No acceptable outcome is prescribed.</p>	<p>Please refer to the Construction Phase management Plan of the SMP.</p>
<p><b>Section B—Additional criteria which apply to high-risk development, being one or more of the following:</b></p> <p>(a) a material change of use for an urban purpose which involves greater than 2,500m<sup>2</sup> of land that:</p> <p>(i) will result in an impervious area greater than 25% of the net developable area; or</p> <p>(ii) will result in 6 or more dwellings.</p> <p>(b) reconfiguring a lot for an urban purpose that involves greater than 2,500m<sup>2</sup> of land and will result in 6 or more lots;</p> <p>(c) operational work for an urban purpose which involves disturbing greater than 2,500m<sup>2</sup> of land.</p>		

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## Stormwater Management Code

Table 9.4.9.3.A—Stormwater Code		
Performance outcomes	Acceptable outcomes	Response
<p><b>PO16</b></p> <p>Development ensures that the entry and transport of contaminants into stormwater is avoided or minimised to protect receiving water environmental values.</p> <p>Note—Prescribed water contaminants are defined in the Environmental Protection Act 1994.</p> <p>Note—Compliance with the performance outcome should be demonstrated by the submission of a site-based stormwater management plan for high-risk development only.</p>	<p><b>AO16</b></p> <p>Development provides a stormwater management system which is designed in compliance with the standards in the Infrastructure design planning scheme policy.</p>	Not applicable for this development.
<p><b>PO17</b></p> <p>Development ensures that:</p> <p>(a) the discharge of wastewater to a waterway or external to the site is avoided; or</p> <p>(b) if the discharge cannot practicably be avoided, the development minimises wastewater discharge through re-use, recycling, recovery and treatment.</p> <p>Note—The preparation of a wastewater management plan can assist in demonstrating achievement of this performance outcome.</p> <p>Editor's note—This code does not deal with sewerage which is the subject of the Wastewater code.</p>	<p><b>AO17</b></p> <p>No acceptable outcome is prescribed.</p>	Not applicable for this development.
Section C – Additional performance outcomes and acceptable outcomes for assessable development for a material change of use or reconfiguration of a lot		
<p><b>PO18</b></p> <p>Development protects stormwater infrastructure to ensure the following are not compromised:</p> <p>(a) the long-term infrastructure for the stormwater network in the long-term infrastructure plans;</p> <p>(b) the existing and planned infrastructure for the stormwater network in the Local government infrastructure plan;</p> <p>(c) the provision of long term, existing and planned infrastructure for the stormwater network which:</p>	<p><b>AO18</b></p> <p>Development protects stormwater infrastructure in compliance with the following:</p> <p>(a) for long term infrastructure for the stormwater network, the long-term infrastructure plans;</p> <p>(b) for existing and planned infrastructure for the stormwater network, the Local government infrastructure plan;</p> <p>(c) the standards for stormwater drainage in</p>	<p>Proposed stormwater detention and pump out system are designed in compliance with Council Planning Scheme.</p> <p>Water quality treatment is not applicable for this development.</p>

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Stormwater Management Code

Table 9.4.9.3.A—Stormwater Code		
Performance outcomes	Acceptable outcomes	Response
<p>(i) is required to service the development or an existing and future urban development in the planning scheme area; or</p> <p>(ii) is in the interests of rational development or the efficient and orderly planning of the general area in which the site is situated.</p> <p>Editor's note—A condition which requires a proposed development to keep permanent improvements and structures associated with the approved development clear of the area of long term infrastructure, may be imposed.</p>	<p>the Infrastructure design planning scheme policy.</p>	
<p><b>PO19</b></p> <p>Development provides for the payment of extra trunk infrastructure costs for the following:</p> <p>(a) for development completely or partly outside the priority infrastructure area in the Local government infrastructure plan;</p> <p>(b) for development completely inside the priority infrastructure area in the Local government infrastructure plan involving:</p> <p>(i) trunk infrastructure that is to be provided earlier than planned in the Local government infrastructure plan;</p> <p>(ii) long term infrastructure for the stormwater network which is made necessary by development that is not assumed future urban development;</p> <p>(iii) other infrastructure for the stormwater network associated with development that is not assumed future urban development which is made necessary by the development.</p> <p>Editor's note—The payment of extra trunk infrastructure costs for development completely inside the priority infrastructure area in the Local government</p>	<p><b>AO19</b></p> <p>No acceptable outcome is prescribed.</p>	<p>Costs of proposed services and costs of trunk infrastructure are at the expense of the developer and council, respectively. Where applicable, development will provide for payment of extra trunk infrastructure costs in accordance with the Charges Resolution.</p>

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Stormwater Management Code

Table 9.4.9.3.A—Stormwater Code		
Performance outcomes	Acceptable outcomes	Response
infrastructure plan is to be worked out in accordance with the Charges Resolution. Editor's note—See section 130 Imposing Development conditions (Conditions for extra trunk infrastructure costs) of the Planning Act 2016.		

# 15 Villa St, Annerley QLD 4103

Filling and Excavation Code

## Filling and Excavation Code

### 9.4.3.3 Assessment criteria

**Table 9.4.3.3.A—Filling and Excavation Code**

Table 9.4.3.3.A—Filling and Excavation Code		
Performance outcomes	Acceptable outcomes	Response
<p><b>PO1</b> Development for filling or excavation minimises visual impacts from retaining walls and earthworks.</p>	<p><b>AO1</b> Development ensures that the total height of any cut and fill, whether or not retained, does not exceed: (a) 2.5m in a zone in the Industry zones category; (b) 1m in all other zones, or if adjoining a sensitive zone.</p>	<p>The proposed development minimises visual impacts from earthworks. Further confirmation will be provided prior construction on site.</p>
<p><b>PO2</b> Development of a retaining wall proposed as a result of filling or excavation: (a) is designed and constructed to be fit for purpose; (b) does not impact adversely on significant vegetation; (c) is capable of easy maintenance.</p> <p>Editor's note—A retaining wall also needs to comply with the Building Regulation and embankment gradients will need to comply with the Building Regulation.</p> <p>Note—Guidance on the protection of native vegetation is included in the Biodiversity areas planning scheme policy.</p>	<p><b>AO2.1</b> Development of a retaining structure, including footings, surface drainage and subsoil drainage: (a) is wholly contained within the site; (b) if the total height to be retained is greater than 1m, then: (i) the retaining wall at the property boundary is no greater than 1m above the ground level; (ii) all further terracing from the 1m high boundary retaining wall is 1 vertical unit:1 horizontal unit; (iii) the distance between each successive retaining wall (back of lower wall to face of higher wall) is no less than 1m horizontally to incorporate planting areas.</p>	<p>The proposed development will involve construction of retaining walls and all structures are contained within the site. Further confirmation will be provided prior construction on site.</p>

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Filling and Excavation Code

Table 9.4.3.3.A—Filling and Excavation Code		
Performance outcomes	Acceptable outcomes	Response
	<p><b>AO2.2</b> Development of a retaining wall over 1m in height protects significant vegetation on the site and on adjoining land and is designed and constructed in accordance with the structures standards in the Infrastructure design planning scheme policy and certified by a Registered Professional Engineer Queensland.</p>	The proposed development will involve construction of retaining walls and all structures are contained within the site. Further confirmation will be provided prior construction on site.
	<p><b>AO2.3</b> Development provides a retaining wall finish that presents to adjoining land that is maintenance free if the setback is less than 750mm from the boundary.</p>	The proposed development will involve construction of retaining walls and all structures are contained within the site. Further confirmation will be provided prior construction on site.
	<p><b>AO2.4</b> Development for filling only uses clean fill that does not include any construction rubble or debris, weed seed or viable parts of plant species listed as an undesirable plant species in the Planting species planning scheme policy.</p>	The proposed development ensures clean fill is used for all filling works, free from construction rubble, debris, weed seed, or undesirable plant species.
<p><b>PO3</b> Development ensures that a rock anchor is designed and constructed to be fit for purpose.</p>	<p><b>AO3</b> Development ensures that a rock anchor:</p> <ul style="list-style-type: none"> <li>(a) is constructed in accordance with the standards in the Infrastructure design planning scheme policy;</li> <li>(b) where it extends beyond the property boundary, is supported by a letter of consent from the adjoining land and building owners.</li> </ul>	Not applicable.

# 15 Villa St, Annerley QLD 4103

Filling and Excavation Code

Table 9.4.3.3.A—Filling and Excavation Code		
Performance outcomes	Acceptable outcomes	Response
<p><b>PO4</b> Development protects all services and public utilities.</p>	<p><b>AO4</b> Development protects services and public utilities and ensures that any alteration or relocation of services or public utilities meets the standard design specifications of the responsible service authorities.</p>	<p>The proposed development ensures the protection of services and public utilities and ensures that any alteration or relocation of services or public utilities meet the standards specifications of the responsible service authority.</p>
<p><b>PO5</b> Development provides surface and sub-surface drainage to prevent water seepage, concentration of run-off or ponding of stormwater on adjacent land.</p>	<p><b>AO5</b> Development ensures all flows and subsoil drainage are directed to a lawful point of discharge of a surface water diversion drain, including to the top or toe of a retaining wall in accordance with the stormwater drainage section of the Infrastructure design planning scheme policy.</p>	<p>The proposed development provides surface and sub-surface drainage to prevent water seepage, concentration of run-off, or ponding of stormwater on adjacent land.</p> <p>All flows and subsoil drainage are directed to a lawful point of discharge.</p>
<p><b>PO6</b> Development ensures that the design and construction of all open drainage works is undertaken in accordance with natural channel design principles, being the development of a stormwater conveyance system for major flows, by using a vegetated open channel or drain that approximates the features and functions of a natural waterway to enhance or improve riparian values of those stormwater conveyance systems.</p> <p>Editor's note—Guidance on natural channel design principles can be found in the Council's publication Natural channel design guidelines.</p>	<p><b>AO6</b> Filling or excavation does not involve the construction of open drainage.</p>	<p>The proposed development does not involve the construction of open drainage as part of the filling or excavation works, ensuring that stormwater management requirements are appropriately addressed without the need for natural channel design.</p>
<p><b>PO7</b> Development for filling or excavation: (a) does not degrade water quality or adversely affect environmental values in receiving waters;</p>	<p><b>AO7.1</b> Development for filling or excavation provides water quality treatment that complies with the stormwater drainage section of the Infrastructure design planning scheme policy.</p>	<p>The proposed development ensures filling and excavation works do not degrade water quality or impact environmental values in receiving waters. Best practice sediment and erosion control measures will be implemented.</p>

# 15 Villa St, Annerley QLD 4103

Filling and Excavation Code

Table 9.4.3.3.A—Filling and Excavation Code		
Performance outcomes	Acceptable outcomes	Response
(b) ensures site sediment and erosion control standards are best practice.		
	<b>AO7.2</b> Development provides erosion and sediment control standards that are in accordance with the stormwater drainage section of the Infrastructure design planning scheme policy.	The proposed development ensures filling and excavation works do not degrade water quality or impact environmental values in receiving waters. Best practice sediment and erosion control measures will be implemented.
<b>PO8</b> Development for filling or excavation is conducted such that adverse impacts at a sensitive use due to noise and dust are prevented or minimised.  Note—A noise and dust impact management plan prepared in accordance with the Management plans planning scheme policy can assist in demonstrating achievement of this performance outcome.	<b>AO8.1</b> Development ensures that no dust emissions extend beyond the boundary of the site, including dust from construction vehicles entering and leaving the site.	The proposed development is managed to prevent or minimise adverse impacts from noise and dust at nearby sensitive uses.
	<b>AO8.2</b> Development for filling or excavation activity only occurs between the hours of 6:30am and 6:30pm Monday to Saturday, excluding public holidays.	The proposed development is managed to minimise adverse impacts from noise and dust at nearby sensitive uses. All filling and excavation activities will comply.
<b>PO9</b> Development ensures that vibration generated by the filling or excavation operation does not exceed the vibration criteria in Table 9.4.3.3.D, Table 9.4.3.3.E, Table 9.4.3.3.F and Table 9.4.3.3.G.  Note—A noise management report prepared in accordance with the Noise impact assessment planning scheme policy can assist in demonstrating achievement of this performance outcome.	<b>AO9</b> Development involving filling or excavation does not cause a ground-borne vibration beyond the boundary of the site.	The proposed development ensures vibration from filling or excavation does not cause ground-borne vibration beyond the site boundary, maintaining amenity for surrounding properties and aligning with applicable vibration criteria.

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Filling and Excavation Code

Table 9.4.3.3.A—Filling and Excavation Code		
Performance outcomes	Acceptable outcomes	Response
<p><b>PO10</b></p> <p>Development ensures that heavy trucks hauling material to and from the site do not affect the amenity of established areas and limits environmental nuisance impact on adjacent land.</p>	<p><b>AO10</b></p> <p>Development ensures that heavy trucks hauling material to and from the site:</p> <ul style="list-style-type: none"> <li>(a) occur for a maximum of 3 weeks;</li> <li>(b) use a major road to access the site;</li> <li>(c) only use a minor road for the shortest-most-direct route that has the least amount of environmental nuisance if there is no major road alternative.</li> </ul>	<p>The proposed development ensures that heavy trucks hauling material to and from the site do not impact the amenity of established areas.</p> <p>Haulage activities will comply.</p>
<p><b>PO11</b></p> <p>Development for filling or excavation protects the environment and community health and wellbeing from exposure to contaminated land and contaminated material.</p>	<p><b>AO11</b></p> <p>Development does not involve:</p> <ul style="list-style-type: none"> <li>(a) excavation on land previously occupied by a notifiable activity or on land listed on the Environmental Management Register or the Contaminated Land Register;</li> <li>(b) filling with material containing a contaminant.</li> </ul>	<p>The proposed development protects the environment and community health by avoiding excavation on land previously used for notifiable activities or listed on the Environmental Management Register or Contaminated Land Register.</p>
<p><b>PO12</b></p> <p>Development provides for:</p> <ul style="list-style-type: none"> <li>(a) landscaping for water conservation purposes;</li> <li>(b) water sensitive urban design measures which are employed within the landscape design to maximise stormwater use;</li> <li>(c) drainage and stormwater measures to reduce and adverse impacts on the landscape;</li> <li>(d) stormwater harvesting to be maximized and any adverse impacts of stormwater minimized;</li> </ul>	<p><b>AO12.1</b></p> <p>Development provides drainage for artificial growing environments which is connected to the stormwater drain.</p>	<p>The proposed development incorporates landscaping that supports water conservation and includes water sensitive urban design features to optimise stormwater use.</p>
	<p><b>AO12.2</b></p> <p>Development ensures that the maximum site stormwater harvest capacity is utilized to meet the irrigation demand of the development before alternative irrigation sources are utilized and is in compliance with the standards in the Landscape design planning scheme policy.</p>	<p>The proposed development maximises the use of harvested stormwater to meet irrigation demands before relying on alternative sources.</p>

# 15 Villa St, Annerley QLD 4103

Filling and Excavation Code

Table 9.4.3.3.A—Filling and Excavation Code		
Performance outcomes	Acceptable outcomes	Response
<p>(e) reticulated irrigation to all artificial growing environments.</p> <p>Note—The landscape design planning scheme policy provides guidance on information to be provided to demonstrate compliance with the performance outcome and acceptable outcomes.</p>	<p><b>AO12.3</b></p> <p>Development provides areas of pavement, turf, landscaping and mulched garden beds which are drained.</p> <p>Note—This may be achieved through the provision and/or treatment of swales, spoon drains, field gullies, sub-surface drainage and stormwater connections.</p>	<p>All areas of pavement, turf, landscaping, and mulched garden beds will be appropriately drained to manage stormwater effectively.</p>
	<p><b>AO12.4</b></p> <p>Development provides a reticulated irrigation system to all landscaping areas in accordance with the Landscape design planning scheme policy.</p>	<p>Proposed development will comply.</p>
<p><b>PO13</b></p> <p>Development ensures cutting and filling for the development of canals or artificial waterways avoids adverse impacts on coastal resources and processes.</p>	<p><b>AO13</b></p> <p>Development does not involve the creation of canals or artificial waterways.</p>	<p>The proposed development does not involve the creation of canals or artificial waterways, thereby avoiding any adverse impacts on coastal resources and processes.</p>

# 15 Villa St, Annerley QLD 4103

Infrastructure Design Code

## Infrastructure Design Code

### 9.4.4.3 Assessment criteria

**Table 9.4.4.3.A—Infrastructure Design Code**

Table 9.4.4.3.A—Infrastructure Design Code		
Performance outcomes	Acceptable outcomes	Response
<p><b>PO1</b></p> <p>Development provides roads, pavement, edging and landscaping which:</p> <ul style="list-style-type: none"> <li>(a) are designed and constructed in accordance with the road hierarchy;</li> <li>(b) provide for safe travel for pedestrians, cyclists and vehicles;</li> <li>(c) provide access to properties for all modes;</li> <li>(d) provide utilities;</li> <li>(e) provide high levels of aesthetics and amenity, improved liveability and future growth;</li> <li>(f) provide for the amelioration of noise and other pollution;</li> <li>(g) provide a high-quality streetscape;</li> <li>(h) provide a low-maintenance asset with a minimal whole-of-life cost.</li> </ul> <p>Note—This can be demonstrated in an engineering report prepared and certified by a Registered Professional Engineer Queensland in accordance with the Infrastructure design planning scheme policy.</p>	<p><b>AO1</b></p> <p>Development provides roads and associated pavement, edging and landscaping which are designed and constructed in compliance with the road corridor design standards in the Infrastructure design planning scheme policy.</p>	<p>There are no new roads proposed for the development. The design of the existing road verge will comply with the infrastructure design planning scheme policy.</p>
<p><b>PO2</b></p> <p>Development provides road pavement surfaces which:</p> <ul style="list-style-type: none"> <li>(a) are well designed and constructed;</li> <li>(b) durable enough to carry the wheel loads of the intended types and numbers of travelling and parked</li> </ul>	<p><b>AO2</b></p> <p>Development provides road pavement surfaces which are designed and constructed in compliance with the road corridor design standards in the Infrastructure design planning scheme policy.</p>	<p>There are no new roads proposed for the development.</p>

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Infrastructure Design Code

Table 9.4.4.3.A—Infrastructure Design Code		
Performance outcomes	Acceptable outcomes	Response
<p>vehicles;</p> <p>(c) ensures the safe passage of vehicles, pedestrians and cyclists, the discharge of stormwater run-off and the preservation of all-weather access;</p> <p>(d) allows for reasonable travel comfort.</p>		
<p><b>PO3</b></p> <p>Development provides a pavement edge which is designed and constructed to:</p> <p>(a) control vehicle movements by delineating the carriageway for all users;</p> <p>(b) provide for people with disabilities by allowing safe passage of wheelchairs and other mobility aids.</p>	<p><b>AO3</b></p> <p>Development provides pavement edges which are designed and constructed in compliance with the road corridor design standards in the Infrastructure design planning scheme policy.</p>	<p>The design of the proposed development will comply with the infrastructure design planning scheme policy.</p>
<p><b>PO4</b></p> <p>Development provides verges which are designed and constructed to:</p> <p>(a) provide safe access for pedestrians clear of obstructions and access areas for vehicles onto properties;</p> <p>(b) provide a sufficient area for public utility services;</p> <p>(c) be maintainable by the Council.</p>	<p><b>AO4</b></p> <p>Development provides verges which are designed and constructed in compliance with the road corridor design and streetscape locality advice standards in the Infrastructure design planning scheme policy.</p>	<p>The design of the proposed development will comply with the infrastructure design planning scheme policy.</p>
<p><b>PO5</b></p> <p>Development provides a lane or laneway identified in a neighbourhood plan which:</p> <p>(a) allows equitable access for all modes;</p> <p>(b) is safe and secure;</p> <p>(c) has 24-hour access;</p> <p>(d) is a low-speed shared zone environment;</p> <p>(e) has a high-quality streetscape.</p>	<p><b>AO5</b></p> <p>Development provides a lane or laneway identified on the Streetscape hierarchy overlay map or in a neighborhood plan which is embellished in compliance with the streetscape locality advice standards in the Infrastructure design planning scheme policy.</p>	<p>Not applicable for this development.</p>

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Infrastructure Design Code

**Table 9.4.4.3.A—Infrastructure Design Code**

Performance outcomes	Acceptable outcomes	Response
<p><b>PO6</b></p> <p>Development of an existing premises provides at the frontage to the site, if not already provided, the following infrastructure to an appropriate urban standard:</p> <ul style="list-style-type: none"> <li>(a) an effective, high-quality paved roadway;</li> <li>(b) an effective, high-quality roadway kerb and channel;</li> <li>(c) safe, high-quality vehicle crossings over channels and verges;</li> <li>(d) safe, accessible, high-quality verges compatible and integrated with the surrounding environment;</li> <li>(e) safe vehicle access to the site that enables ingress and egress in a forward gear;</li> <li>(f) provision of and required alterations to public utilities;</li> <li>(g) effective drainage;</li> <li>(h) appropriate conduits to facilitate the provision of required street-lighting systems and traffic signals.</li> </ul>	<p><b>AO6</b></p> <p>Development of an existing premises provides at the frontage of the site, if not already existing, the following infrastructure to the standard that would have applied if the development involved new premises as stated in the road corridor design standards in the Infrastructure design planning scheme policy:</p> <ul style="list-style-type: none"> <li>(a) concrete kerb and channel;</li> <li>(b) forming and grading to verges;</li> <li>(c) crossings over channels and verges;</li> <li>(d) a constructed bikeway;</li> <li>(e) a constructed verge or reconstruction of any damaged verge;</li> <li>(f) construction of the carriageway;</li> <li>(g) payment of costs for required alterations to public utility mains, services or installations;</li> <li>(h) construction of and required alterations to public utility mains, services or installations;</li> <li>(i) drainage works;</li> <li>(j) installation of electrical conduits.</li> </ul>	<p>The design of the proposed development will comply with the infrastructure design planning scheme policy.</p>
<p><b>PO7</b></p> <p>Development provides both cycle and walking routes which:</p> <ul style="list-style-type: none"> <li>(a) are located, designed and constructed to their network classification (where applicable);</li> <li>(b) provide safe and attractive travel routes for pedestrians and cyclists for commuter and recreational purposes;</li> <li>(c) provide safe and comfortable access to properties for pedestrians and cyclists;</li> <li>(d) incorporate water sensitive urban design into stormwater drainage;</li> </ul>	<p><b>AO7</b></p> <p>Development provides cycle and walking routes which are located, designed and constructed in compliance with the road corridor design and off-road pathway design standards in the Infrastructure design planning scheme policy.</p>	<p>The design of the proposed development will comply with the infrastructure design planning scheme policy.</p>

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Infrastructure Design Code

Table 9.4.4.3.A—Infrastructure Design Code		
Performance outcomes	Acceptable outcomes	Response
<p>(e) provide for utilities;</p> <p>(f) provide for a high level of aesthetics and amenity, improved liveability and future growth;</p> <p>(g) are a low-maintenance asset with a minimal whole-of-life cost;</p> <p>(h) minimise the clearing of significant native vegetation.</p> <p>Note—This can be demonstrated in an engineering report prepared and certified by a Registered Professional Engineer Queensland in accordance with the Infrastructure design planning scheme policy.</p>		
<p><b>PO8</b></p> <p>Development provides refuse and recycling collection, separation and storage facilities that are located and managed so that adverse impacts on building occupants, neighbouring properties and the public realm are minimised.</p>	<p><b>AO8.1</b></p> <p>Development provides refuse and recycling collection and storage facilities in accordance with the Refuse planning scheme policy.</p>	<p>The design of the proposed development will comply with the infrastructure design planning scheme policy. Refuse collection has been provided on site, refer to the architectural drawings for details.</p>
	<p><b>AO8.2</b></p> <p>Development ensures that refuse and recycling collection and storage location and design do not have any adverse impact including odour, noise or visual impacts on the amenity of land uses within or adjoining the development.</p> <p>Note—Refer to the Refuse planning scheme policy for further guidance.</p>	<p>The design of the proposed development will comply with the infrastructure design planning scheme policy. Refuse collection has been provided on site, refer to the architectural drawings for details.</p>
<p><b>PO9</b></p> <p>Development ensures that:</p> <p>(a) land used for an urban purpose is serviced adequately with regard to water supply and waste disposal;</p> <p>(b) the water supply meets the stated standard of service for the intended use and fire-fighting purposes.</p>	<p><b>AO9.1</b></p> <p>Development ensures that the reticulated water and sewerage distribution system for all services is in place before the first use is commenced.</p>	<p>Sewer and water infrastructure will be provided in accordance with Queensland Urban Utilities and the SEQ Code standards.</p>
	<p><b>AO9.2</b></p> <p>Development provides the lot with reticulated water supply and sewerage to a standard acceptable to the distributor—retailer.</p>	<p>Sewer and water infrastructure will be provided in accordance with Queensland Urban Utilities and the SEQ Code standards.</p>
<p><b>PO10</b></p> <p>Development provides public utilities and street lighting which are the best current or alternative technology and</p>	<p><b>AO10.1</b></p> <p>Development provides public utilities and street lighting which are located and aligned to:</p>	<p>There are no new roads proposed for the development. Existing street lighting and public utilities are proposed to remain and be</p>

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Performance outcomes	Acceptable outcomes	Response
facilitate accessibility, easy maintenance, minimal whole-of-life costs, and minimal adverse environmental impacts.	(a) avoid significant native vegetation and areas identified within the Biodiversity areas overlay map; (b) minimise earthworks; (c) avoid crossing waterways, waterway corridors and wetlands or if a crossing is unavoidable, tunnel-boring techniques are used to minimise disturbance, and a disturbed area is reinstated and restored on completion of the work.  Note—Guidance on the restoration of habitat is included in the Biodiversity areas planning scheme policy.	utilised by the proposed development.
	<b>AO10.2</b> Development provides compatible public utility services and street-lighting services which are co-located in common trenching for underground services.	There are no new roads proposed for the development. Existing street lighting and public utilities are proposed to remain and be utilised by the proposed development.
	<b>AO10.3</b> Development provides public utilities and street lighting which are designed and constructed in compliance with the public utilities standards in the Infrastructure design planning scheme policy.	There are no new roads proposed for the development. Existing street lighting and public utilities are proposed to remain and be utilised by the proposed development.
<b>PO11</b> Development ensures that land used for urban purposes is serviced adequately with telecommunications and energy supply.	<b>AO11</b> Development provides land with the following services to the standards of the approved supplier: (a) electricity; (b) telecommunications services; (c) gas service where practicable.	There are no new services proposed for the development. Existing street lighting and public utilities are proposed to remain and be utilised by the proposed development.
<b>PO12</b> Development ensures that major public projects promote the provision of affordable, high-bandwidth telecommunications services throughout the city.	<b>AO12</b> Development provides conduits which are provided in all major Council and government works projects to enable the future provision of fibre optic cabling, if: (a) the additional expense is unlikely to be prohibitive; or (b) further major work is unlikely or disruption would be a major concern, such as where there is a limited	Not applicable for this development.

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

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Table 9.4.4.3.A—Infrastructure Design Code		
Performance outcomes	Acceptable outcomes	Response
<p><b>PO15</b></p> <p>Development that provides community facilities which form part of the development is functional, safe, low maintenance, and fit for purpose.</p>	<p><b>AO15</b></p> <p>Development that provides community facilities which form part of the development is designed in compliance with the community facilities standards in the Infrastructure design planning scheme policy.</p>	Not applicable for this development.
<p><b>PO16</b></p> <p>Development provides public toilets which:</p> <ul style="list-style-type: none"> <li>(a) are required as part of a community facility or park;</li> <li>(b) are located, designed and constructed to be: <ul style="list-style-type: none"> <li>(i) safe;</li> <li>(ii) durable;</li> <li>(iii) resistant to vandalism;</li> <li>(iv) able to service expected demand;</li> <li>(v) fit for purpose.</li> </ul> </li> </ul>	<p><b>AO16</b></p> <p>Development that provides public toilets is designed and constructed in compliance with the public toilets standards in the Infrastructure design planning scheme policy.</p>	Not applicable for this development.
<p><b>PO17</b></p> <p>Development provides bridges, tunnels, elevated structures and water access structures that are designed and constructed using proven methods, materials and technology to provide for:</p> <ul style="list-style-type: none"> <li>(a) safe movement of intended users;</li> <li>(b) an attractive appearance appropriate to the general surroundings and any adjacent structures;</li> <li>(c) functionality and easy maintenance;</li> <li>(d) minimal whole-of-life cost;</li> <li>(e) longevity;</li> <li>(f) current and future services.</li> </ul> <p>Note—All bridges and elevated and associated elements must be designed and certified by a Registered Professional Engineer Queensland in accordance with the Infrastructure design planning scheme policy.</p>	<p><b>AO17</b></p> <p>Development that provides bridges, tunnels, elevated structures and water access structures is designed and constructed in compliance with the standards in the Infrastructure design planning scheme policy.</p>	Not applicable for this development.

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Table 9.4.4.3.A—Infrastructure Design Code		
Performance outcomes	Acceptable outcomes	Response
<p><b>PO18</b></p> <p>Development provides culverts which are designed and constructed using proven methods, materials and technology to provide for:</p> <ul style="list-style-type: none"> <li>(a) safety;</li> <li>(b) an attractive appearance appropriate to the general surroundings;</li> <li>(c) functionality and easy maintenance;</li> <li>(d) minimal whole-of-life cost;</li> <li>(e) longevity;</li> <li>(f) future widening;</li> <li>(g) current and future services;</li> <li>(h) minimal adverse impacts, such as increase in water levels or flow velocities, and significant change of flood patterns.</li> </ul> <p>Note—All culverts and associated elements are to be designed and certified by a Registered Professional Engineer Queensland in accordance with the applicable design standards.</p>	<p><b>AO18</b></p> <p>Development that provides culverts is designed and constructed in compliance with the structures standards in the Infrastructure design planning scheme policy.</p>	<p>Not applicable for this development.</p>
<p><b>PO19</b></p> <p>Development provides batters, retaining walls, and seawalls and river walls which are designed and constructed using proven methods, materials and technology to provide for:</p> <ul style="list-style-type: none"> <li>(a) safety;</li> <li>(b) an attractive appearance appropriate to the surrounding area;</li> <li>(c) easy maintenance;</li> <li>(d) minimal whole-of-life cost;</li> <li>(e) longevity;</li> <li>(f) minimal water seepage.</li> </ul> <p>Note—All retaining walls and associated elements are to</p>	<p><b>AO19</b></p> <p>Development that provides batters, retaining walls, seawalls and river walls is designed and constructed in compliance with the structures standards in the Infrastructure design planning scheme policy.</p>	<p>Retaining walls will be safe, built with an attractive appearance and easily maintained.</p> <p>Design and construction shall comply with the structures standards in the infrastructure design planning scheme policy. All retaining walls will be designed and certified by an RPEQ at Detailed Design stage.</p>

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Performance outcomes	Acceptable outcomes	Response
be designed and certified by a Registered Professional Engineer Queensland in accordance with the applicable design standards.		
<b>If for development with a gross floor area greater than 1,000m<sup>2</sup></b>		
<p><b>PO20</b></p> <p>Development ensures that construction is managed so that use of public spaces and movement on pedestrian, cyclist and other traffic routes is not unreasonably disrupted and existing landscaping is adequately protected from short- and long-term impacts.</p> <p>Note—The preparation of a construction management plan can assist in demonstrating achievement of this performance outcome.</p> <p>Note—The Transport, access, parking and servicing planning scheme policy provides advice on the management of vehicle parking and deliveries during construction.</p>	<p><b>AO20</b></p> <p>Development ensures that during construction:</p> <ul style="list-style-type: none"> <li>(a) the ongoing use of adjoining and surrounding parks and public spaces, such as malls and outdoor dining, is not compromised;</li> <li>(b) adjoining and surrounding landscaping is protected from damage;</li> <li>(c) safe, legible, efficient and sufficient pedestrian, cyclist and vehicular accessibility and connectivity to the wider network are maintained.</li> </ul>	Not applicable for this development.
<p><b>PO21</b></p> <p>Development ensures that construction and demolition activities are guided by measures that prevent or minimise adverse impacts including sleep disturbance at a sensitive use, due to noise and dust, including dust from construction vehicles entering and leaving the site.</p> <p>Note—A noise and dust impact management plan prepared in accordance with the Management plans planning scheme policy can assist in demonstrating achievement of this performance outcome.</p>	<p><b>AO21.1</b></p> <p>Development ensures that demolition and construction:</p> <ul style="list-style-type: none"> <li>(a) only occur between 6:30am and 6:30pm Monday to Saturday, excluding public holidays;</li> <li>(b) do not occur over periods greater than 6 months.</li> </ul>	Demolition and construction activities will only occur during nominated times. Any variation to these hours will be subject to approval.
	<p><b>AO21.2</b></p> <p>Development including construction and demolition does not release dust emissions beyond the boundary of the site.</p>	Please see Section 2 of report for dust control strategies.
	<p><b>AO21.3</b></p> <p>Development construction and demolition does not involve asbestos-containing materials.</p>	Presence of asbestos in the existing building will be determined prior to any demolition work taking place. If asbestos bearing construction materials are encountered, they will be removed by suitably experienced and licensed sub-contractors under an Asbestos Removal Control Plan and SWMS. Development construction will not involve asbestos-containing materials.

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Performance outcomes	Acceptable outcomes	Response
<p><b>PO22</b></p> <p>Development ensures that:</p> <p>(a) construction and demolition do not result in damage to surrounding property as a result of vibration;</p> <p>(b) vibration levels achieve the vibration criteria in Table 9.4.4.3.B, Table 9.4.4.3.C, Table 9.4.4.3.D and Table 9.4.4.3.E.</p> <p>Note—A vibration impact assessment report prepared in accordance with the Noise impact assessment planning scheme policy can assist in demonstrating achievement of this performance outcome.</p>	<p><b>AO22</b></p> <p>Development ensures that the nature and scale of construction and demolition do not generate noticeable levels of vibration.</p>	<p>Not applicable for this development.</p>
<p><b>If for a material change of use or reconfiguring a lot in an urban area (as defined in the Regulation) involving premises that is, or will be, accessed by common private title, where involving buildings either attached or detached, that are not covered by other legislation mandating fire hydrants</b></p>		
<p><b>PO23</b></p> <p>Development ensures that fire hydrants are:</p> <p>(a) installed and located to enable fire services to access water safely, effectively and efficiently;</p> <p>(b) suitably identified so that fire services can locate them at all hours.</p>	<p><b>AO23.1</b></p> <p>Above or below ground fire hydrants are provided on residential, commercial and industrial streets and private roads, at not more than 90m intervals, and at each street intersection.</p> <p>Note—On residential streets, above ground fire hydrants may be single outlet. On commercial and industrial streets above ground fire hydrants should have dual valved outlets.</p>	<p>A fire hydrant in front of the site that is within 90m of the development is present along Villa St.</p>
	<p><b>AO23.2</b></p> <p>Fire hydrants are identified by:</p> <p>(a) raised reflectorised pavement markers (RRPM) on sealed roads;</p> <p>(b) marker posts at the fence line where on an unsealed road, as road (HR) or path (HP) hydrants.</p>	<p>The existing fire hydrant will be identified in compliance with BCC planning scheme.</p>
<p><b>PO24</b></p> <p>Development ensures road widths and construction within the development, are adequate for refuse vehicles and for fire emergency vehicles to gain access to a safe working area close to buildings and near water supplies whether or not on-street parking spaces are occupied.</p>	<p><b>AO24</b></p> <p>Internal private roads have a minimum roadway clearance between obstructions of 3.5m wide and 4.8m high in addition to any width required for on-street parking.</p>	<p>Internal road design with comply with BCC planning scheme.</p>

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<b>Development for major electricity infrastructure and bulk water supply infrastructure identified on the State Planning Policy Interactive Mapping System where not in the Utility services zone precinct of the Special purpose zone</b>		
<b>PO25</b> Development avoids or otherwise minimises adverse impacts on surrounding land uses through the use of buffers and setbacks and the appropriate design and location of plant and operational areas within the site.	<b>AO25</b> No acceptable outcome is prescribed.	Not applicable to this development.
<b>Development potentially impacting on major electricity infrastructure and bulk water supply infrastructure identified on the State Planning Policy Interactive mapping System where the infrastructure is not in the Utility services zone precinct of the Special purpose zone</b>		
<b>PO26</b> Development is sited and designed to: <ul style="list-style-type: none"> <li>(a) avoid safety risks to people or property;</li> <li>(b) minimise noise and visual impacts to people and property;</li> <li>(c) ensure the physical integrity and operation, maintenance and expansion of the infrastructure is not compromised.</li> </ul>	<b>AO26</b> No acceptable outcome is prescribed.	Not applicable to this development.



**vt CONSULTING  
ENGINEERS**

PO Box 26  
Carina, QLD 4152  
[admin@vtce.com.au](mailto:admin@vtce.com.au)  
[vtce.com.au](http://vtce.com.au)