MILFORD PLANNING

MP ref: M1669-OPW-5
QA: mm.gm

23 March 2026

Assessment Manager
Charters Towers Regional Council
PO Box 189
CHARTERS TOWERS QLD 4820
Via: *development@charterstowers.qld.gov.au*

Attention: Planning and Development

Dear Sir/ Madam,

Re: Development Application seeking a Development Permit for Operational Works – Civil Works (Earthworks, Roadworks, Stormwater Drainage and Water Reticulation) associated with Reconfiguring a Lot (Stage 2A – Grand Secret) (RAL2025/0009) on land described as Lot 145 on SP327488 and located at 1-21 Towers Street, Grand Secret

On behalf of the Applicant, Milford Planning hereby make the enclosed development application seeking the abovementioned development approval on the abovementioned land in accordance with Section 51 of the *Planning Act 2016*.

Assessment Fee

The relevant assessment fee for the proposed development has been calculated below in accordance with Charters Towers Regional Council's (Council) Schedule of Fees and Charges 2025/ 26.

Component	Calculation	Fee
Civil works (Value of work $755,994.80)	$1,250.00 plus 1.5% of total cost of Op Works proposed capped at $45,000 $1,250.00 + $11,339.92	**$12,589.92**
	TOTAL ASSESSMENT FEE:	**$12,589.92**

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info@milfordplanning.com.au
283 Flinders Street
Townsville City Q 4810
PO Box 5463
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We kindly ask that Council provide payment details to Milford Planning for the Applicant's action immediately upon receipt of this development application.

Proceeding

We look forward to working with Council to progress the proposed development, and request the opportunity to discuss any queries or further information that may be required prior to the issue of any formal correspondence.

In the instance that Council requires no further information, we look forward to receipt of Council's draft conditions for review and discussion prior to the issue of a Decision Notice.

If you have any questions regarding this correspondence, please contact the undersigned on TEL: (07) 4724 0095.

Yours sincerely,

MILFORD PLANNING

George Milford
DIRECTOR

Encl: Development application package

MILFORD PLANNING

Applicant	**Grand Secret Pty Ltd**
Reference	**M1669-OPW-5**
Date	**March 2026**

Development Application

Proposed Development	**Operational Works – Civil Works (Earthworks, Roadworks, Stormwater Drainage and Water Reticulation) associated with Reconfiguring a Lot (Stage 2A – Grand Secret) (RAL2025/0009)**
Property Details	**Lot 145 on SP327488** **1-21 Towers Street, Grand Secret**

DOCUMENT CONTROL

Applicant	Grand Secret Pty Ltd
Proposed Development	Operational Works – Civil Works (Earthworks, Roadworks, Stormwater Drainage and Water Reticulation) associated with Reconfiguring a Lot (Stage 2A – Grand Secret) (RAL2025/0009)
Contact	George Milford

Quality Assurance		
Date 23.3.26 **Version** 1 **Issue** Final **Template** DA-STN-1	 Mitchell Muckray GRADUATE TOWN PLANNER	 George Milford DIRECTOR
	Author	**Reviewer**

Disclaimer

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TABLE OF CONTENTS

APPENDICES

Appendix 1	DA Form 1
Appendix 2	SmartMap; and site aerial plan of the subject site
Appendix 3	State Assessment Referral Agency mapping
Appendix 4	Proposed Development Plans prepared by Premise; and HEC-RAS Report prepared by Premise
Appendix 5	Project Specification prepared by Premise
Appendix 6	Estimate of Costs prepared by Premise

1.0 INTRODUCTION

1.1 Purpose

The purpose of this development application is to seek approval for Operational Works – Civil Works (Earthworks, Roadworks, Stormwater Drainage and Water Reticulation) associated with Reconfiguring a Lot (Stage 2A – Grand Secret) (RAL2025/0009) (the proposed development) under the provisions of the *Planning Act 2016* (the Act).

The purpose of this report is to provide information about the site on which the subject development is proposed, detail of the proposed development, and an assessment against the relevant assessment benchmarks. The assessment detailed in this report has been undertaken in accordance with the provisions and subordinate planning controls under the Act.

1.2 Structure

This report provides the following information with respect to the assessment of the proposed development:

- overview of the site and surrounding area;
- description of the proposed development;
- overview of the relevant assessment framework;
- assessment of the proposed development against the relevant assessment benchmarks; and
- conclusion and recommendation.

This development application is made in accordance with Section 51 of the Act and contains the mandatory supporting information specified in the applicable DA Form. **Appendix 1** comprises DA Form 1.

2.0 SUBJECT SITE

2.1 Site Parameters

The following parameters are applicable to the site of the proposed development (the subject site).

Property Owner	Grand Secret Pty Ltd
Street Address	1-21 Towers Street, Grand Secret
Formal Description	Lot 145 on SP327488
Site Area	32.48 m^2 (refer **Appendix 2**)
Easements	Easement B on SP327488 for the purpose of protecting an Ergon Energy powerline. Easement C on SP327488 for the purpose of protecting an Ergon Energy powerline.
Street Frontage	Towers Street, Great Britain Road, View Street, Felix Street and Range Road.
Topography	The site has gently sloping topography, with the area for the approved lots sloping down to the north.
Existing Use	Vacant Lot
Existing Infrastructure	The site is serviced by the following infrastructure: ▪ reticulated water (Council); and ▪ electricity (Ergon).
Local Heritage Register	The site is not listed on the Local Heritage Register.
Contaminated Land	The land is not known to be included on the State Environmental Management Register or Contaminated Land Register.
Relevant State Interests	The following State interests are relevant to the proposed development as detailed in the State Assessment Referral Agency (SARA) mapping (refer **Appendix 3**): ▪ Water resource planning area boundaries (Queensland waterways for waterway barrier works – low risk of impact).

2.2 Surrounding Area

North	The surrounding area to the north contains rural residential lots, mostly containing dwellings and associated outbuildings.
East	The surrounding area to the east contains general residential lots on the outskirts of the Charters Towers city centre. The Charters Towers Showgrounds is also located east of the subject site.
South	The surrounding area to the south contains a mix of general residential lots and larger rural residential lots, consisting of dwellings and associated outbuildings.
West	The surrounding area to the west contains large rural residential lots, consisting of a mix of vacant vegetated lots and dwellings with associated outbuildings.

2.3 Approvals Background

Development Permit (RAL2021/0004) for Reconfiguring a Lot – One into 116 Lots (Stages 2 - 10) and Access Easement was approved by Charters Towers Regional Council (Council) on 31 May 2022. This approval includes lots as small as 1,500 m^2 and encompasses the majority of the parent lot over various development stages. This approved layout has not progressed to construction to date, because the expected development costs exceed the gross realisation for the project, as well as high demand for larger lots.

Stage One of Grand Secret Estate, RL21/36, was approved in April 2021 and construction has been completed. This approval consisted of 18 new lots (17 residential lots and one balance lot).

In lieu of enacting upon Development Permit RAL2024/0004, the Applicant obtained a Development Permit (RAL2025/0009) for Reconfiguring a Lot (One Lot into Six Lots (Stage 2A), One Balance Lot and Road) on 12 February 2026, to allow lots to be delivered on the ground.

In advance of the abovementioned Development Approval being approved and issued by Council, the Applicant lodged a Development Application seeking a Development Permit for Reconfiguring a Lot (One Lot into Five Lots (Stage 2B) and One Balance Lot) (RAL2026/0001). Council is currently assessing this application.

3.0 PROPOSED DEVELOPMENT

3.1 Description of Proposed Development

The proposed development involves civil works associated with the creation of six rural residential lots and a section of an internal road. Specific detail of the proposed development is provided below.

Purpose of Development

The purpose of the proposed work is to facilitate the approved Stage 2A of residential estate 'Grand Secret'. The civil works involved will include earthworks, roadworks, stormwater drainage works, erosion and sediment controls and water supply connections. The plans have been developed to facilitate the development of an approved cul-de-sac road to service six rural residential lots (refer **Appendix 4**). Management strategies have been outlined in the plans to showcase how the development aims to mitigate any potential issues from stormwater and erosion, along with connection points for the approved lots for water supply.

Design Overview

Earthworks

Premise have prepared a suite of detailed design drawings which illustrate the extent of earthworks proposed, which appear to be limited to the new stretch of road, cul-de-sac head and the frontages of Lots 18 to 23. All Earthworks will be completed in accordance with Councils specifications and standards. Earthworks will occur to ensure the road has a stable landform, along with enhancing the stormwater management strategies. This includes the cutting of topsoil to be reused in areas of fill, to ensure a stable landform for the development. Erosion controls will be implemented to ensure the earthworks are stable and resilient towards natural elements.

Access

Access to Stage 2A will be via View Street and a new 18 m wide road with a cul-de-sac head. The proposed new road and cul-de-sac head will be designed to Councils current specifications and standards, as illustrated on the detailed design drawings prepared by Premise (refer **Appendix 4**). The road is to be connected to View Street, adjacent to 92 View Street of the approved Stage 1 of Grand Secret estate.

Water & Sewer

As illustrated on the detailed design drawings prepared by Premise (refer **Appendix 4**), Stage 2A will be connected to Councils reticulated water network. A new DN100 water main will be installed along the frontage of the lots and will traverse the balance lot, ensuring water infrastructure is

established and available for future stages. Two new DN100 water mains will connect into the existing DN100 water mains located in View Street and Felix Street.

Future dwellings will be serviced with on-site wastewater systems, which are to be established by future owners.

Stormwater

Stormwater will be managed via a series of table drains and culverts. A 600 x 450 RCBC will be installed at the entrance to the new 18 m wide road reserve. Dumped rock scour protection will be placed on geotextile fabric around the base of the culvert headwalls. Nine 300 x 300 RCBC will be installed on the northern side of the new 18 m wide road and cul-de-sac head. This channels into the main stormwater culvert found at the connection of View Street to the cul-de-sac, allowing stormwater to flow down the natural drainage line along View Street.

Soil Erosion & Sediment Control

A sediment fence will be installed on the northern side of the proposed earthworks (Lots 19 – 23 and balance lot). Dumped rock scour protection will be placed on geotextile fabric to the southside of the new 18 m wide road. These measures will be installed pre-construction and will be maintained by the contractor during the construction period and throughout the maintenance period.

Specific detail of the proposed works is provided in the development plans and accompanying documentation prepared by Premise as referenced below.

3.2 Development Plans

The proposed development is detailed in the plans provided at **Appendix 4** and listed below. In addition, the proposed development is further detailed in the associated reports listed below and appended as referenced.

Title	Number	Issue	Date
Cover Sheet, Locality Plan & Drawing Schedule	C001	1	6.3.26
Safety In Design Report	C002	1	6.3.26
Soil Erosion & Sediment Control – Pre-Construction	C003	1	6.3.26
Soil Erosion & Sediment Control – Post-Construction	C004	1	6.3.26
Soil Erosion & Sediment Control – Details Plan	C005	1	6.3.26

Title	Number	Issue	Date
Earthworks, Roadworks & Stormwater Drainage Plan	C006	1	6.3.26
Road A Longitudinal Section	C007	1	6.3.26
Road A Cross Sections – Sheet 1 of 3	C008	1	6.3.26
Road A Cross Sections – Sheet 2 of 3	C009	1	6.3.26
Road A Cross Sections – Sheet 3 of 3	C010	1	6.3.26
Roadworks Details Plan – Sheet 1 of 3	C011	1	6.3.26
Roadworks Details Plan – Sheet 2 of 3	C012	1	6.3.26
Roadworks Details Plan – Sheet 3 of 3	C013	1	6.3.26
Stormwater Culvert Details Plan	C014	1	6.3.26
Water Reticulation Plan	C015	1	6.3.26
Q100 Stormwater Catchment Plan & Data Tables	C016	1	6.3.26
Associated Reports			
HEC-RAS Report prepared by Premise (refer **Appendix 4**)			

3.3 Prelodgement Meeting

The proposed development has been the subject of prelodgement discussions between Charters Towers Regional Council (Council) and the Applicant's representatives since 2021, upon the approval of the first stage of the development. In the prelodgement meeting for the previous approved development application, Council stated they were supportive of the Development Application for Reconfiguring a Lot on the site.

4.0 ASSESSMENT FRAMEWORK

4.1 Planning Act 2016

The *Planning Act 2016* (the Act) provides the framework for Queensland's planning system and coordinates local, regional, and State planning. The Act allows for the establishment and is supported by subordinate planning legislation and instruments such as planning schemes. The provisions of the Act are therefore applicable to the proposed development.

4.2 Planning Regulation 2017

The *Planning Regulation 2017* (the Regulation) is established under the Act and provides support to the Act by detailing how it functions at a practical level. The Regulation determines the Assessment Manager and Referral Agencies relevant to assessable development, and relevant State interests through the State Planning Policy (SPP) and State Development Assessment Provisions (SDAP). The provisions of the Regulation are therefore applicable to the proposed development.

4.3 Approval Sought

Approval Type	Development Permit
Development Type	Operational Work
Definition or General Description	Civil Works (Earthworks, Roadworks, Stormwater Drainage and Water Reticulation) associated with Reconfiguring a Lot
Specific Description	(Stage 2A – Grand Secret) (RAL2025/0009)

4.4 Assessment Manager Assessment Parameters

Assessment Manager	Charters Towers Regional Council
Planning Instrument	*Charters Towers Regional Town Plan Version 2.0* (the planning scheme)
Zone and Precinct	Rural Residential Zone
Triggered Overlays	▪ Flood Hazard Overlay (Significant, High and Extreme Hazard Area) ▪ Natural Environment Overlay (Regulated Vegetation (Category R) and Regulated Vegetation (intersecting a watercourse) ▪ Regional Infrastructure Overlay (Ergon High Voltage Line (above 66 kV))

Category of Assessment	Code
Table of Assessment Reference	Table 5.7.1 – Code Assessment (Any other operational work not listed in this table)

Assessment Manager Assessment Benchmarks	▪ Development Works Code ▪ Flood Hazard Overlay Code ▪ Natural Environment Code ▪ Regional Infrastructure Code

4.5 Referral Agency Assessment Parameters

Referral Agencies	No referral agencies are relevant to the proposed development.
Planning Instrument	*Planning Regulation 2017* (the Regulation)
Referral Triggers	The proposed development does not trigger referral.

5.0 ASSESSMENT MANAGER CONSIDERATIONS

5.1 State Planning Policy

The *State Planning Policy* (the SPP) is a State planning instrument established under the Act and is designed to ensure the State's interests in planning are protected and delivered as part of local government planning across Queensland. Local government use the SPP when making or amending its planning scheme. Local government will also assess aspects of development applications using the SPP if their local planning scheme has not integrated certain State interests.

In accordance with Section 2.1 – State Planning Policy (SPP) of the planning scheme, the Minister has identified that all relevant State interests as outlined in the SPP dated July 2017 have been integrated into the planning scheme.

For the purpose of the proposed development, we consider that assessment against the provisions of the SPP is not required, and all relevant matters will be dealt with under the provisions of the planning scheme.

5.2 Regional Plan

Regional plans are State planning instruments established under the Act, and set the long term strategic direction for how regions grow and respond to change. Regional plans are designed to facilitate economic growth, development, liveable communities, and the protection of natural resources. Regional plans seek to balance the State interests identified by the SPP in the context of the particular region they apply to.

The *North Queensland Regional Plan* (the Regional Plan) applies to the local government areas of Townsville City, Hinchinbrook Shire, Burdekin Shire, Charters Towers Regional, and Palm Island Aboriginal Shire. The Regional Plan was implemented in March 2020, and seeks to capitalise on the growth, prosperity, and diversity of the region by supporting a vibrant economy, generating jobs, improving business investment, protecting our natural environment, and encouraging tourism and lifestyle opportunities over the next 25 years.

The proposed development is considered to align with the goals outlined in the Regional Plan. In particular, the proposed development will further Goal 2 – A rich and healthy natural environment, Goal 3 – Liveable, sustainable and resilient communities that promote living in the tropics and Goal 4 – A safe, connected and efficient North Queensland.

5.3 Planning Scheme Purpose and Overall Outcomes

The proposed development is considered to further the purpose and overall outcomes sought by the relevant planning scheme codes by demonstrating compliance with the relevant performance and accepted outcomes.

5.4 Planning Scheme Assessment Matrix

The assessment matrix below summarises the outcome of an assessment of the proposed development against the relevant performance and accepted outcomes of the applicable Assessment Manager assessment benchmarks. The assessment matrix identifies the level of compliance of the proposed development in accordance with the legend below.

Legend	Criteria is clearly met and no further assessment is required. Criteria is met and further explanation is provided for clarity. Criteria is not met and further performance assessment is required. Not applicable or no criteria prescribed.

Outcome PO or AO	Development Works Code		Flood Hazard Overlay Code		Natural Environment Overlay Code		Regional Infrastructure Overlay Code	
	PO	AO	PO	AO	PO	AO	PO	AO
1								
2								
3								
4								
5								
6								
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14								
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16								
17								
18								
19								

Outcome PO or AO	Development Works Code		Flood Hazard Overlay Code		Natural Environment Overlay Code		Regional Infrastructure Overlay Code	
	PO	AO	PO	AO	PO	AO	PO	AO
20								
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Criteria identified in the assessment matrix as requiring further explanation or further assessment is addressed in the following subsection.

5.5 Planning Scheme Detailed Assessment

Development Works Code	
PO5 Earthworks are undertaken in a manner that: (a) prevents any worsening of soil erosion or water quality on the site, any adjoining land, or land upstream or downstream of the site; (b) produces stable landforms and structures; (c) maintain natural landforms where possible; (d) minimise the height of any batter faces; (e) does not unduly impact on the amenity or privacy for occupants of the site or on adjoining land or on the amenity of the streetscape; (f) does not result in the contamination of land or water; and (g) avoids risk to people and property.	**AO5.1** Earthworks comply with the *Development works Town plan policy.* **AO5.2** The extent of filling or excavation does not exceed 40% of the site area or 500m^2, whichever is lesser. **AO5.3** Excavating or filling is no greater than 1m in height or depth. **AO5.4** Batters have a maximum slope of 25%, are terraced at every rise of 1.5m and each terrace has a depth of 0.75m. **AO5.5** No contaminated material is used as fill.

Complies with PO5

To allow for the development and usage of the cul-de-sac earthworks must occur on the site to ensure a stable landform for the road. This will involve the cutting and filling on the edges of the cul-de-sac to allow for both a stable driving path, and sufficient stormwater pathways along the kerb. In certain areas, particularly around the bend of the road, the filling required will be a maximum of 1.75 m, exceeding the permitted maximum.

Notwithstanding this, the purpose of the earthworks is to support a stable landform and structures for residential development. The land only has a minimal flooding risk located away from the main areas of work, which will ensure that no impacts towards the stormwater flows or quality will occur. The works being done on only the road network, alongside the overall rural residential style of the surrounding area will ensure that no amenity impacts towards privacy or streetscape impacts will occur, as dwellings will be sufficiently placed away from any raised sections of the site. Lastly, the site will reuse the soil cut in areas that need to be filled to ensure that no contaminated materials or any environmental impacts from changes in the soil type occurs onto the surrounding area.

Given the above, sufficient measures have been taken to ensure earthworks occur with the intention of providing a stable landform. This, alongside measures to ensure no environmental or social risks occur from the development, achieves compliance with Performance Outcome 5 of the Development Works Code.

PO12	AO12
Footpaths in the road reserve are provided along all road frontages and are paved in durable and stable materials matching any adjacent development footpaths.	Footpaths are: (a) provided for the full width and length of all road frontages; (b) designed and constructed in accordance with the requirements of the Development works Town plan policy; and (c) certified by a Registered Professional Engineer of Queensland.

Not Applicable.

The design of the cul-de-sac does not propose to have footpaths along the frontage, due to the requirements of the drainage channel. Given the nature of the rural residential area, residents are highly unlikely to utilise foot traffic, given the distance between the lots to essential services. The road connects onto View Street, with Stage One of the development granted approval despite the lack of footpaths.

As there are no adjacent development footpaths, and the lack of anticipated foot traffic seen for the area, the intentions of PO12 of the Development Works Code is not relevant to the proposed development.

6.0 CONCLUSION

6.1 Assessment Summary

The assessment of the proposed development against the relevant assessment benchmarks detailed in this development application supports a recommendation for approval based on the following reasons:

- the proposed development complies with the relevant assessment benchmarks; and
- compliance with the relevant assessment benchmarks can be managed through reasonable and relevant conditions.

6.2 Recommended Conditions of Approval

Given the above facts and circumstances presented in this development application, we recommend that Council **approve** the proposed development subject to the following reasonable and relevant conditions that are considered specifically relevant to the proposed development.

Condition 1 – Approved Plans and Supporting Documentation

(a) The development must generally comply with the plan(s) and supporting documentation referenced in the table below and attached as stamped "Approved Subject to Conditions" which forms part of this approval, unless otherwise specified by any condition of this approval.

Title	Number	Issue	Date
Cover Sheet, Locality Plan & Drawing Schedule	C001	1	6.3.26
Safety In Design Report	C002	1	6.3.26
Soil Erosion & Sediment Control – Pre-Construction	C003	1	6.3.26
Soil Erosion & Sediment Control – Post-Construction	C004	1	6.3.26
Soil Erosion & Sediment Control – Details Plan	C005	1	6.3.26
Earthworks, Roadworks & Stormwater Drainage Plan	C006	1	6.3.26
Road A Longitudinal Section	C007	1	6.3.26
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Road A Cross Sections – Sheet 2 of 3	C009	1	6.3.26

Road A Cross Sections – Sheed 3 of 3	C010	1	6.3.26
Roadworks Details Plan – Sheet 1 of 3	C011	1	6.3.26
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Water Reticulation Plan	C015	1	6.3.26
Q100 Stormwater Catchment Plan & Data Tables	C016	1	6.3.26
Associated Reports			
HEC-RAS Report prepared by Premise			

MILFORD PLANNING

Appendix 1

DA Form 1 – Development application details

Approved form (version 1.6 effective 2 August 2024) made under section 282 of the Planning Act 2016.

This form **must** be used to make a development application **involving code assessment or impact assessment**, except when applying for development involving only building work.

For a development application involving **building work only**, use *DA Form 2 – Building work details*.

For a development application involving **building work associated with any other type of assessable development (i.e. material change of use, operational work or reconfiguring a lot)**, use this form (*DA Form 1*) **and** parts 4 to 6 of *DA Form 2 – Building work details.*

Unless stated otherwise, all parts of this form **must** be completed in full and all required supporting information **must** accompany the development application.

One or more additional pages may be attached as a schedule to this development application if there is insufficient space on the form to include all the necessary information.

This form and any other form relevant to the development application must be used to make a development application relating to strategic port land and Brisbane core port land under the *Transport Infrastructure Act 1994*, and airport land under the *Airport Assets (Restructuring and Disposal) Act 2008.* For the purpose of assessing a development application relating to strategic port land and Brisbane core port land, any reference to a planning scheme is taken to mean a land use plan for the strategic port land, Brisbane port land use plan for Brisbane core port land, or a land use plan for airport land.

Note: *All terms used in this form have the meaning given under the Planning Act 2016, the Planning Regulation 2017, or the Development Assessment Rules (DA Rules).*

PART 1 – APPLICANT DETAILS

1) Applicant details	
Applicant name(s) (*individual or company full name*)	Grand Secret Pty Ltd
Contact name *(only applicable for companies)*	George Milford
Postal address *(P.O. Box or street address)*	PO Box 5463
Suburb	Townsville City
State	Queensland
Postcode	4810
Country	Australia
Contact number	(07) 4724 0095
Email address *(non-mandatory)*	info@milfordplanning.com.au
Mobile number *(non-mandatory)*	
Fax number *(non-mandatory)*	
Applicant's reference number(s) *(if applicable)*	M1669-OPW-5

1.1) Home-based business
☐ Personal details to remain private in accordance with section 264(6) of *Planning Act 2016*

2) Owner's consent
2.1) Is written consent of the owner required for this development application?
☐ Yes – the written consent of the owner(s) is attached to this development application ☒ No – proceed to 3)

Queensland Government

PART 2 – LOCATION DETAILS

3) Location of the premises *(complete 3.1) or 3.2), and 3.3) as applicable)*

***Note**: Provide details below and attach a site plan for any or all premises part of the development application. For further information, see DA Forms Guide: Relevant plans.*

3.1) Street address and lot on plan

☒ Street address **AND** lot on plan (*all lots must be listed*), ***or***

☐ Street address **AND** lot on plan for an adjoining or adjacent property of the premises *(appropriate for development in water but adjoining or adjacent to land e.g. jetty, pontoon. All lots must be listed).*

a)	Unit No.	Street No.	Street Name and Type	Suburb
		1-21	Towers Street	Grand Secret
	Postcode	Lot No.	Plan Type and Number *(e.g. RP, SP)*	Local Government Area(s)
	4820	145	SP327488	Charters Towers Regional Council
b)	Unit No.	Street No.	Street Name and Type	Suburb
	Postcode	Lot No.	Plan Type and Number *(e.g. RP, SP)*	Local Government Area(s)

3.2) Coordinates of premises *(appropriate for development in remote areas, over part of a lot or in water not adjoining or adjacent to land e.g. channel dredging in Moreton Bay)*

***Note**: Place each set of coordinates in a separate row.*

☐ Coordinates of premises by longitude and latitude

Longitude(s)	Latitude(s)	Datum	Local Government Area(s) *(if applicable)*
		☐ WGS84 ☐ GDA94 ☐ Other:	

☐ Coordinates of premises by easting and northing

Easting(s)	Northing(s)	Zone Ref.	Datum	Local Government Area(s) *(if applicable)*
		☐ 54 ☐ 55 ☐ 56	☐ WGS84 ☐ GDA94 ☐ Other:	

3.3) Additional premises

☐ Additional premises are relevant to this development application and the details of these premises have been attached in a schedule to this development application

☒ Not required

4) Identify any of the following that apply to the premises and provide any relevant details

☐ In or adjacent to a water body or watercourse or in or above an aquifer

Name of water body, watercourse or aquifer:

☐ On strategic port land under the *Transport Infrastructure Act 1994*

Lot on plan description of strategic port land:

Name of port authority for the lot:

☐ In a tidal area

Name of local government for the tidal area *(if applicable)*:

Name of port authority for tidal area *(if applicable)*

☐ On airport land under the *Airport Assets (Restructuring and Disposal) Act 2008*	
Name of airport:	
☐ Listed on the Environmental Management Register (EMR) under the *Environmental Protection Act 1994*	
EMR site identification:	
☐ Listed on the Contaminated Land Register (CLR) under the *Environmental Protection Act 1994*	
CLR site identification:	

5) Are there any existing easements over the premises?

Note: Easement uses vary throughout Queensland and are to be identified correctly and accurately. For further information on easements and how they may affect the proposed development, see DA Forms Guide.

☒ Yes – All easement locations, types and dimensions are included in plans submitted with this development application

☐ No

PART 3 – DEVELOPMENT DETAILS

Section 1 – Aspects of development

6.1) Provide details about the first development aspect

a) What is the type of development? *(tick only one box)*

☐ Material change of use ☐ Reconfiguring a lot ☒ Operational work ☐ Building work

b) What is the approval type? *(tick only one box)*

☒ Development permit ☐ Preliminary approval ☐ Preliminary approval that includes a variation approval

c) What is the level of assessment?

☒ Code assessment ☐ Impact assessment *(requires public notification)*

d) Provide a brief description of the proposal *(e.g. 6 unit apartment building defined as multi-unit dwelling, reconfiguration of 1 lot into 3 lots)*:

Civil Works – Earthworks, Roadworks, Stormwater Drainage and Water Reticulation associated with Reconfiguring a Lot (Stage 2A – Grand Secret) (RAL2025/0009)

e) Relevant plans

***Note**: Relevant plans are required to be submitted for all aspects of this development application. For further information, see DA Forms guide: Relevant plans.*

☒ Relevant plans of the proposed development are attached to the development application

6.2) Provide details about the second development aspect

a) What is the type of development? *(tick only one box)*

☐ Material change of use ☐ Reconfiguring a lot ☐ Operational work ☐ Building work

b) What is the approval type? *(tick only one box)*

☐ Development permit ☐ Preliminary approval ☐ Preliminary approval that includes a variation approval

c) What is the level of assessment?

☐ Code assessment ☐ Impact assessment *(requires public notification)*

d) Provide a brief description of the proposal *(e.g. 6 unit apartment building defined as multi-unit dwelling, reconfiguration of 1 lot into 3 lots)*:

e) Relevant plans

***Note**: Relevant plans are required to be submitted for all aspects of this development application. For further information, see DA Forms Guide: Relevant plans.*

☐ Relevant plans of the proposed development are attached to the development application

6.3) Additional aspects of development
☐ Additional aspects of development are relevant to this development application and the details for these aspects that would be required under Part 3 Section 1 of this form have been attached to this development application
☒ Not required
6.4) Is the application for State facilitated development?
☐ Yes - Has a notice of declaration been given by the Minister?
☒ No

Section 2 – Further development details

7) Does the proposed development application involve any of the following?	
Material change of use	☐ Yes – complete division 1 if assessable against a local planning instrument
Reconfiguring a lot	☐ Yes – complete division 2
Operational work	☒ Yes – complete division 3
Building work	☐ Yes – complete *DA Form 2 – Building work details*

Division 1 – Material change of use

***Note**: This division is only required to be completed if any part of the development application involves a material change of use assessable against a local planning instrument.*

8.1) Describe the proposed material change of use			
Provide a general description of the proposed use	Provide the planning scheme definition *(include each definition in a new row)*	Number of dwelling units *(if applicable)*	Gross floor area (m^2) *(if applicable)*

8.2) Does the proposed use involve the use of existing buildings on the premises?
☐ Yes
☐ No

8.3) Does the proposed development relate to temporary accepted development under the Planning Regulation?	
☐ Yes – provide details below or include details in a schedule to this development application	
☐ No	
Provide a general description of the temporary accepted development	Specify the stated period dates under the Planning Regulation

Division 2 – Reconfiguring a lot

***Note**: This division is only required to be completed if any part of the development application involves reconfiguring a lot.*

9.1) What is the total number of existing lots making up the premises?

9.2) What is the nature of the lot reconfiguration? *(tick all applicable boxes)*	
☐ Subdivision *(complete 10)*	☐ Dividing land into parts by agreement *(complete 11)*
☐ Boundary realignment *(complete 12)*	☐ Creating or changing an easement giving access to a lot from a constructed road *(complete 13)*

10) Subdivision				
10.1) For this development, how many lots are being created and what is the intended use of those lots:				
Intended use of lots created	Residential	Commercial	Industrial	Other, please specify:
Number of lots created				

10.2) Will the subdivision be staged?	
☐ Yes – provide additional details below ☐ No	
How many stages will the works include?	
What stage(s) will this development application apply to?	

11) Dividing land into parts by agreement – how many parts are being created and what is the intended use of the parts?				
Intended use of parts created	Residential	Commercial	Industrial	Other, please specify:
Number of parts created				

12) Boundary realignment			
12.1) What are the current and proposed areas for each lot comprising the premises?			
Current lot		Proposed lot	
Lot on plan description	Area (m^2)	Lot on plan description	Area (m^2)
12.2) What is the reason for the boundary realignment?			

13) What are the dimensions and nature of any existing easements being changed and/or any proposed easement? *(attach schedule if there are more than two easements)*				
Existing or proposed?	Width (m)	Length (m)	Purpose of the easement? *(e.g. pedestrian access)*	Identify the land/lot(s) benefitted by the easement

Division 3 – Operational work

***Note**: This division is only required to be completed if any part of the development application involves operational work.*

14.1) What is the nature of the operational work?		
☒ Road work	☒ Stormwater	☒ Water infrastructure
☒ Drainage work	☒ Earthworks	☐ Sewage infrastructure
☐ Landscaping	☐ Signage	☐ Clearing vegetation
☐ Other – please specify:		

14.2) Is the operational work necessary to facilitate the creation of new lots? *(e.g. subdivision)*	
☒ Yes – specify number of new lots:	Six
☐ No	

Queensland Government

14.3) What is the monetary value of the proposed operational work? *(include GST, materials and labour)*

$755,994.80

PART 4 – ASSESSMENT MANAGER DETAILS

15) Identify the assessment manager(s) who will be assessing this development application

Charters Towers Regional Council

16) Has the local government agreed to apply a superseded planning scheme for this development application?

☐ Yes – a copy of the decision notice is attached to this development application
☐ The local government is taken to have agreed to the superseded planning scheme request – relevant documents attached
☒ No

PART 5 – REFERRAL DETAILS

17) Does this development application include any aspects that have any referral requirements?

***Note**: A development application will require referral if prescribed by the* Planning Regulation 2017.

☒ No, there are no referral requirements relevant to any development aspects identified in this development application – proceed to Part 6

Matters requiring referral to the **Chief Executive of the *Planning Act 2016***:

☐ Clearing native vegetation
☐ Contaminated land *(unexploded ordnance)*
☐ Environmentally relevant activities (ERA) *(only if the ERA has not been devolved to a local government)*
☐ Fisheries – aquaculture
☐ Fisheries – declared fish habitat area
☐ Fisheries – marine plants
☐ Fisheries – waterway barrier works
☐ Hazardous chemical facilities
☐ Heritage places – Queensland heritage place *(on or near a Queensland heritage place)*
☐ Infrastructure-related referrals – designated premises
☐ Infrastructure-related referrals – state transport infrastructure
☐ Infrastructure-related referrals – State transport corridor and future State transport corridor
☐ Infrastructure-related referrals – State-controlled transport tunnels and future state-controlled transport tunnels
☐ Infrastructure-related referrals – near a state-controlled road intersection
☐ Koala habitat in SEQ region – interfering with koala habitat in koala habitat areas outside koala priority areas
☐ Koala habitat in SEQ region – key resource areas
☐ Ports – Brisbane core port land – near a State transport corridor or future State transport corridor
☐ Ports – Brisbane core port land – environmentally relevant activity (ERA)
☐ Ports – Brisbane core port land – tidal works or work in a coastal management district
☐ Ports – Brisbane core port land – hazardous chemical facility
☐ Ports – Brisbane core port land – taking or interfering with water
☐ Ports – Brisbane core port land – referable dams
☐ Ports – Brisbane core port land – fisheries
☐ Ports – Land within Port of Brisbane's port limits *(below high-water mark)*
☐ SEQ development area
☐ SEQ regional landscape and rural production area or SEQ rural living area – tourist activity or sport and recreation activity
☐ SEQ regional landscape and rural production area or SEQ rural living area – community activity
☐ SEQ regional landscape and rural production area or SEQ rural living area – indoor recreation
☐ SEQ regional landscape and rural production area or SEQ rural living area – urban activity
☐ SEQ regional landscape and rural production area or SEQ rural living area – combined use
☐ SEQ northern inter-urban break – tourist activity or sport and recreation activity

☐ SEQ northern inter-urban break – community activity
☐ SEQ northern inter-urban break – indoor recreation
☐ SEQ northern inter-urban break – urban activity
☐ SEQ northern inter-urban break – combined use
☐ Tidal works or works in a coastal management district
☐ Reconfiguring a lot in a coastal management district or for a canal
☐ Erosion prone area in a coastal management district
☐ Urban design
☐ Water-related development – taking or interfering with water
☐ Water-related development – removing quarry material *(from a watercourse or lake)*
☐ Water-related development – referable dams
☐ Water-related development –levees *(category 3 levees only)*
☐ Wetland protection area

Matters requiring referral to the **local government:**
☐ Airport land
☐ Environmentally relevant activities (ERA) (*only if the ERA has been devolved to local government)*
☐ Heritage places – Local heritage places

Matters requiring referral to the **Chief Executive of the distribution entity or transmission entity:**
☐ Infrastructure-related referrals – Electricity infrastructure

Matters requiring referral to:
- The **Chief Executive of the holder of the licence**, if not an individual
- The **holder of the licence**, if the holder of the licence is an individual

☐ Infrastructure-related referrals – Oil and gas infrastructure

Matters requiring referral to the **Brisbane City Council:**
☐ Ports – Brisbane core port land

Matters requiring referral to the **Minister responsible for administering the *Transport Infrastructure Act 1994*:**
☐ Ports – Brisbane core port land *(where inconsistent with the Brisbane port LUP for transport reasons)*
☐ Ports – Strategic port land

Matters requiring referral to the **relevant port operator**, if applicant is not port operator**:**
☐ Ports – Land within Port of Brisbane's port limits *(below high-water mark)*

Matters requiring referral to the **Chief Executive of the relevant port authority:**
☐ Ports – Land within limits of another port *(below high-water mark)*

Matters requiring referral to the **Gold Coast Waterways Authority:**
☐ Tidal works or work in a coastal management district *(in Gold Coast waters)*

Matters requiring referral to the **Queensland Fire and Emergency Service:**
☐ Tidal works or work in a coastal management district *(involving a marina (more than six vessel berths))*

18) Has any referral agency provided a referral response for this development application?

☐ Yes – referral response(s) received and listed below are attached to this development application
☒ No

Referral requirement	Referral agency	Date of referral response

Identify and describe any changes made to the proposed development application that was the subject of the referral response and this development application, or include details in a schedule to this development application *(if applicable).*

PART 6 – INFORMATION REQUEST

19) Information request under the DA Rules

☒ I agree to receive an information request if determined necessary for this development application

☐ I do not agree to accept an information request for this development application

***Note**: By not agreeing to accept an information request I, the applicant, acknowledge:*

- *that this development application will be assessed and decided based on the information provided when making this development application and the assessment manager and any referral agencies relevant to the development application are not obligated under the DA Rules to accept any additional information provided by the applicant for the development application unless agreed to by the relevant parties*
- *Part 3 under Chapter 1 of the DA Rules will still apply if the application is an application listed under section 11.3 of the DA Rules or*
- *Part 2under Chapter 2 of the DA Rules will still apply if the application is for state facilitated development*

Further advice about information requests is contained in the DA Forms Guide.

PART 7 – FURTHER DETAILS

20) Are there any associated development applications or current approvals? *(e.g. a preliminary approval)*

☒ Yes – provide details below or include details in a schedule to this development application

☐ No

List of approval/development application references	Reference number	Date	Assessment manager
☒ Approval ☐ Development application	RAL2025/0009	12 February 2026	Charters Towers Regional Council
☐ Approval ☐ Development application			

21) Has the portable long service leave levy been paid? *(only applicable to development applications involving building work or operational work)*

☐ Yes – a copy of the receipted QLeave form is attached to this development application

☒ No – I, the applicant will provide evidence that the portable long service leave levy has been paid before the assessment manager decides the development application. I acknowledge that the assessment manager may give a development approval only if I provide evidence that the portable long service leave levy has been paid

☐ Not applicable *(e.g. building and construction work is less than $150,000 excluding GST)*

Amount paid	Date paid (dd/mm/yy)	QLeave levy number (A, B or E)
$		

22) Is this development application in response to a show cause notice or required as a result of an enforcement notice?

☐ Yes – show cause or enforcement notice is attached

☒ No

23) Further legislative requirements

Environmentally relevant activities

23.1) Is this development application also taken to be an application for an environmental authority for an **Environmentally Relevant Activity (ERA)** under section 115 of the *Environmental Protection Act 1994*?

☐ Yes – the required attachment (form ESR/2015/1791) for an application for an environmental authority accompanies this development application, and details are provided in the table below

☒ No

***Note**: Application for an environmental authority can be found by searching "ESR/2015/1791" as a search term at www.qld.gov.au. An ERA requires an environmental authority to operate. See www.business.qld.gov.au for further information.*

Proposed ERA number:		Proposed ERA threshold:	
Proposed ERA name:			

☐ Multiple ERAs are applicable to this development application and the details have been attached in a schedule to this development application.

Hazardous chemical facilities

23.2) Is this development application for a **hazardous chemical facility**?

☐ Yes – *Form 536: Notification of a facility exceeding 10% of schedule 15 threshold* is attached to this development application

☒ No

***Note**: See www.business.qld.gov.au for further information about hazardous chemical notifications.*

Clearing native vegetation

23.3) Does this development application involve **clearing native vegetation** that requires written confirmation that the chief executive of the *Vegetation Management Act 1999* is satisfied the clearing is for a relevant purpose under section 22A of the *Vegetation Management Act 1999*?

☐ Yes – this development application includes written confirmation from the chief executive of the *Vegetation Management Act 1999* (s22A determination)

☒ No

***Note**: 1. Where a development application for operational work or material change of use requires a s22A determination and this is not included, the development application is prohibited development.*

2. See https://www.qld.gov.au/environment/land/vegetation/applying for further information on how to obtain a s22A determination.

Environmental offsets

23.4) Is this development application taken to be a prescribed activity that may have a significant residual impact on a **prescribed environmental matter** under the *Environmental Offsets Act 2014*?

☐ Yes – I acknowledge that an environmental offset must be provided for any prescribed activity assessed as having a significant residual impact on a prescribed environmental matter

☒ No

***Note**: The environmental offset section of the Queensland Government's website can be accessed at www.qld.gov.au for further information on environmental offsets.*

Koala habitat in SEQ Region

23.5) Does this development application involve a material change of use, reconfiguring a lot or operational work which is assessable development under Schedule 10, Part 10 of the Planning Regulation 2017?

☐ Yes – the development application involves premises in the koala habitat area in the koala priority area

☐ Yes – the development application involves premises in the koala habitat area outside the koala priority area

☒ No

***Note**: If a koala habitat area determination has been obtained for this premises and is current over the land, it should be provided as part of this development application. See koala habitat area guidance materials at www.desi.qld.gov.au for further information.*

Water resources

23.6) Does this development application involve **taking or interfering with underground water through an artesian or subartesian bore, taking or interfering with water in a watercourse, lake or spring, or taking overland flow water under the *Water Act 2000***?

☐ Yes – the relevant template is completed and attached to this development application and I acknowledge that a relevant authorisation or licence under the *Water Act 2000* may be required prior to commencing development

☒ No

***Note**: Contact the Department of Resources at www.resources.qld.gov.au for further information.*

DA templates are available from planning.statedevelopment.qld.gov.au. If the development application involves:

- *Taking or interfering with underground water through an artesian or subartesian bore: complete DA Form 1 Template 1*
- *Taking or interfering with water in a watercourse, lake or spring: complete DA Form1 Template 2*
- *Taking overland flow water: complete DA Form 1 Template 3.*

Waterway barrier works

23.7) Does this application involve **waterway barrier works?**

☐ Yes – the relevant template is completed and attached to this development application

☒ No

DA templates are available from planning.statedevelopment.qld.gov.au. For a development application involving waterway barrier works, complete DA Form 1 Template 4.

Marine activities

23.8) Does this development application involve **aquaculture, works within a declared fish habitat area or removal, disturbance or destruction of marine plants?**

☐ Yes – an associated *resource* allocation authority is attached to this development application, if required under the *Fisheries Act 1994*

☒ No

***Note**: See guidance materials at www.daf.qld.gov.au for further information.*

Quarry materials from a watercourse or lake

23.9) Does this development application involve the **removal of quarry materials from a watercourse or lake** under the *Water Act 2000?*

☐ Yes – I acknowledge that a quarry material allocation notice must be obtained prior to commencing development

☒ No

***Note**: Contact the Department of Resources at www.resources.qld.gov.au and www.business.qld.gov.au for further information.*

Quarry materials from land under tidal waters

23.10) Does this development application involve the **removal of quarry materials from land under tidal water** under the *Coastal Protection and Management Act 1995?*

☐ Yes – I acknowledge that a quarry material allocation notice must be obtained prior to commencing development

☒ No

***Note**: Contact the Department of Environment, Science and Innovation at www.desi.qld.gov.au for further information.*

Referable dams

23.11) Does this development application involve a **referable dam** required to be failure impact assessed under section 343 of the *Water Supply (Safety and Reliability) Act 2008* (the Water Supply Act)?

☐ Yes – the 'Notice Accepting a Failure Impact Assessment' from the chief executive administering the Water Supply Act is attached to this development application

☒ No

***Note**: See guidance materials at www.resources.qld.gov.au for further information.*

Tidal work or development within a coastal management district

23.12) Does this development application involve **tidal work or development in a coastal management district**?

☐ Yes – the following is included with this development application:
- ☐ Evidence the proposal meets the code for assessable development that is prescribed tidal work *(only required if application involves prescribed tidal work)*
- ☐ A certificate of title

☒ No

***Note**: See guidance materials at www.desi.qld.gov.au for further information.*

Queensland and local heritage places

23.13) Does this development application propose development on or adjoining a place entered in the **Queensland heritage register** or on a place entered in a local government's **Local Heritage Register**?

☐ Yes – details of the heritage place are provided in the table below

☒ No

***Note**: See guidance materials at www.desi.qld.gov.au for information requirements regarding development of Queensland heritage places.*

For a heritage place that has cultural heritage significance as a local heritage place and a Queensland heritage place, provisions are in place under the Planning Act 2016 that limit a local categorising instrument from including an assessment benchmark about the effect or impact of, development on the stated cultural heritage significance of that place. See guidance materials at www.planning.statedevelopment.qldgov.au for information regarding assessment of Queensland heritage places.

Name of the heritage place:		Place ID:	

Decision under section 62 of the *Transport Infrastructure Act 1994*

23.14) Does this development application involve new or changed access to a state-controlled road?

☐ Yes – this application will be taken to be an application for a decision under section 62 of the *Transport Infrastructure Act 1994* (subject to the conditions in section 75 of the *Transport Infrastructure Act 1994* being satisfied)

☒ No

Walkable neighbourhoods assessment benchmarks under Schedule 12A of the Planning Regulation

23.15) Does this development application involve reconfiguring a lot into 2 or more lots in certain residential zones (except rural residential zones), where at least one road is created or extended?

☐ Yes – Schedule 12A is applicable to the development application and the assessment benchmarks contained in schedule 12A have been considered

☒ No

***Note**: See guidance materials at www.planning.statedevelopment.qld.gov.au for further information.*

PART 8 – CHECKLIST AND APPLICANT DECLARATION

24) Development application checklist	
I have identified the assessment manager in question 15 and all relevant referral requirement(s) in question 17 ***Note**: See the Planning Regulation 2017 for referral requirements*	☒ Yes
If building work is associated with the proposed development, Parts 4 to 6 of *DA Form 2 – Building work details* have been completed and attached to this development application	☐ Yes ☒ Not applicable
Supporting information addressing any applicable assessment benchmarks is with the development application ***Note**: This is a mandatory requirement and includes any relevant templates under question 23, a planning report and any technical reports required by the relevant categorising instruments (e.g. local government planning schemes, State Planning Policy, State Development Assessment Provisions). For further information, see DA Forms Guide: Planning Report Template.*	☒ Yes
Relevant plans of the development are attached to this development application ***Note**: Relevant plans are required to be submitted for all aspects of this development application. For further information, see DA Forms Guide: Relevant plans.*	☒ Yes
The portable long service leave levy for QLeave has been paid, or will be paid before a development permit is issued *(see 21)*	☒ Yes ☐ Not applicable

Queensland Government

25) Applicant declaration
☒ By making this development application, I declare that all information in this development application is true and correct ☒ Where an email address is provided in Part 1 of this form, I consent to receive future electronic communications from the assessment manager and any referral agency for the development application where written information is required or permitted pursuant to sections 11 and 12 of the *Electronic Transactions Act 2001* ***Note**: It is unlawful to intentionally provide false or misleading information.*
Privacy – Personal information collected in this form will be used by the assessment manager and/or chosen assessment manager, any relevant referral agency and/or building certifier (including any professional advisers which may be engaged by those entities) while processing, assessing and deciding the development application. All information relating to this development application may be available for inspection and purchase, and/or published on the assessment manager's and/or referral agency's website. Personal information will not be disclosed for a purpose unrelated to the *Planning Act 2016*, Planning Regulation 2017 and the DA Rules except where: • such disclosure is in accordance with the provisions about public access to documents contained in the *Planning Act 2016* and the Planning Regulation 2017, and the access rules made under the *Planning Act 2016* and Planning Regulation 2017; or • required by other legislation (including the *Right to Information Act 2009*); or • otherwise required by law. This information may be stored in relevant databases. The information collected will be retained as required by the *Public Records Act 2002.*

PART 9 – FOR COMPLETION OF THE ASSESSMENT MANAGER – FOR OFFICE USE ONLY

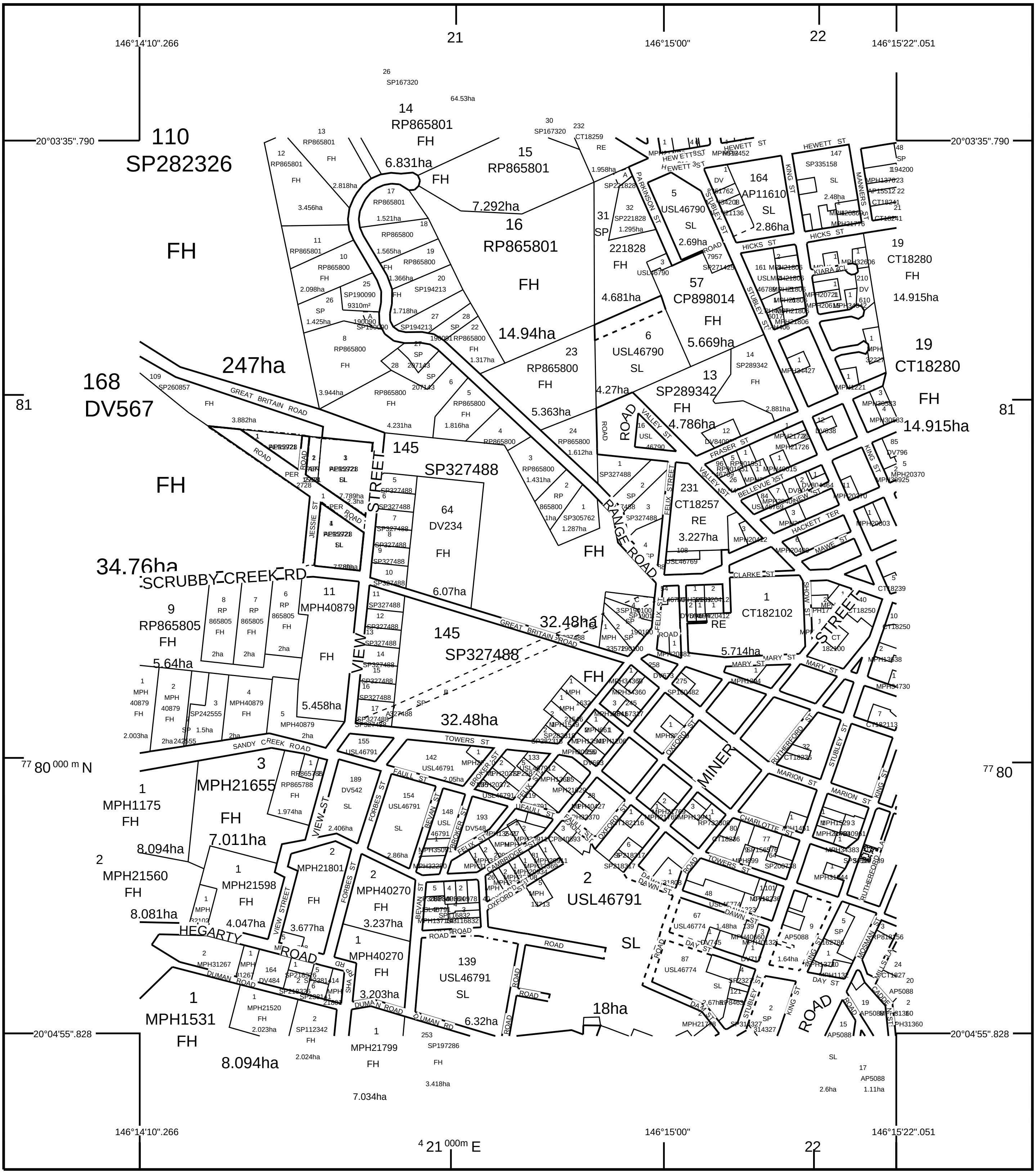
Date received: | Reference number(s):

Notification of engagement of alternative assessment manager	
Prescribed assessment manager	
Name of chosen assessment manager	
Date chosen assessment manager engaged	
Contact number of chosen assessment manager	
Relevant licence number(s) of chosen assessment manager	

QLeave notification and payment *Note: For completion by assessment manager if applicable*			
Description of the work			
QLeave project number			
Amount paid ($)		Date paid (dd/mm/yy)	
Date receipted form sighted by assessment manager			
Name of officer who sighted the form			

MILFORD PLANNING

Appendix 2



STANDARD MAP NUMBER
8157-41211

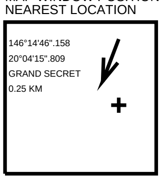
0	300	600	900	1200	1500	m

HORIZONTAL DATUM:GDA94 ZONE:55 SCALE 1 : 15000

SmartMap
An External Product of
SmartMap Information Services

Based upon an extraction from the
Digital Cadastral Data Base

MAP WINDOW POSITION &
NEAREST LOCATION



SUBJECT PARCEL DESCRIPTION

DCDB

Lot/Plan	145/SP327488
Area/Volume	32.48ha
Tenure	FREEHOLD
Local Government	CHARTERS TOWERS REGIONAL
Locality	GRAND SECRET
Segment/Parcel	46790/102

CLIENT SERVICE STANDARDS

PRINTED 01/08/2025

DCDB 31/07/2025 (Lots with an area less than 1500m² are not shown)

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Despite Department of Resources best efforts, RESOURCES makes no representations or warranties in relation to the Information, and, to the extent permitted by law, exclude or limit all warranties relating to correctness, accuracy, reliability, completeness or currency and all liability for any direct, indirect and consequential costs, losses, damages and expenses incurred in any way (but not limited to that arising from negligence) in connection with any use of or reliance on the Information

For further information on SmartMap products visit
https://www.qld.gov.au/housing/buying-owning-home/property-land-valuations/smartmaps

Queensland Government

GDA

MILFORD PLANNING

Drawing
Site Aerial

Property
1-21 Towers Street, Grand Secret
Lot 145 on SP327488

Drawing Number	Issue	Sheet
M1669-SK-01	B	1
Date	**Author**	**Reviewer**
11.8.25	HW	GM

Legend
- Cadastre
- Easement
- Subject Site

Scale (A3 Original)
1:3,500
0 20 40 60 80 100 m

Sources
Milford Planning GIS (2025)
DCDB extract – State of Queensland (2025)
Aerial imagery – Bing (2025)

Disclaimer
Areas and dimensions are approximate only and are subject to site survey.

MILFORD PLANNING

Appendix 3

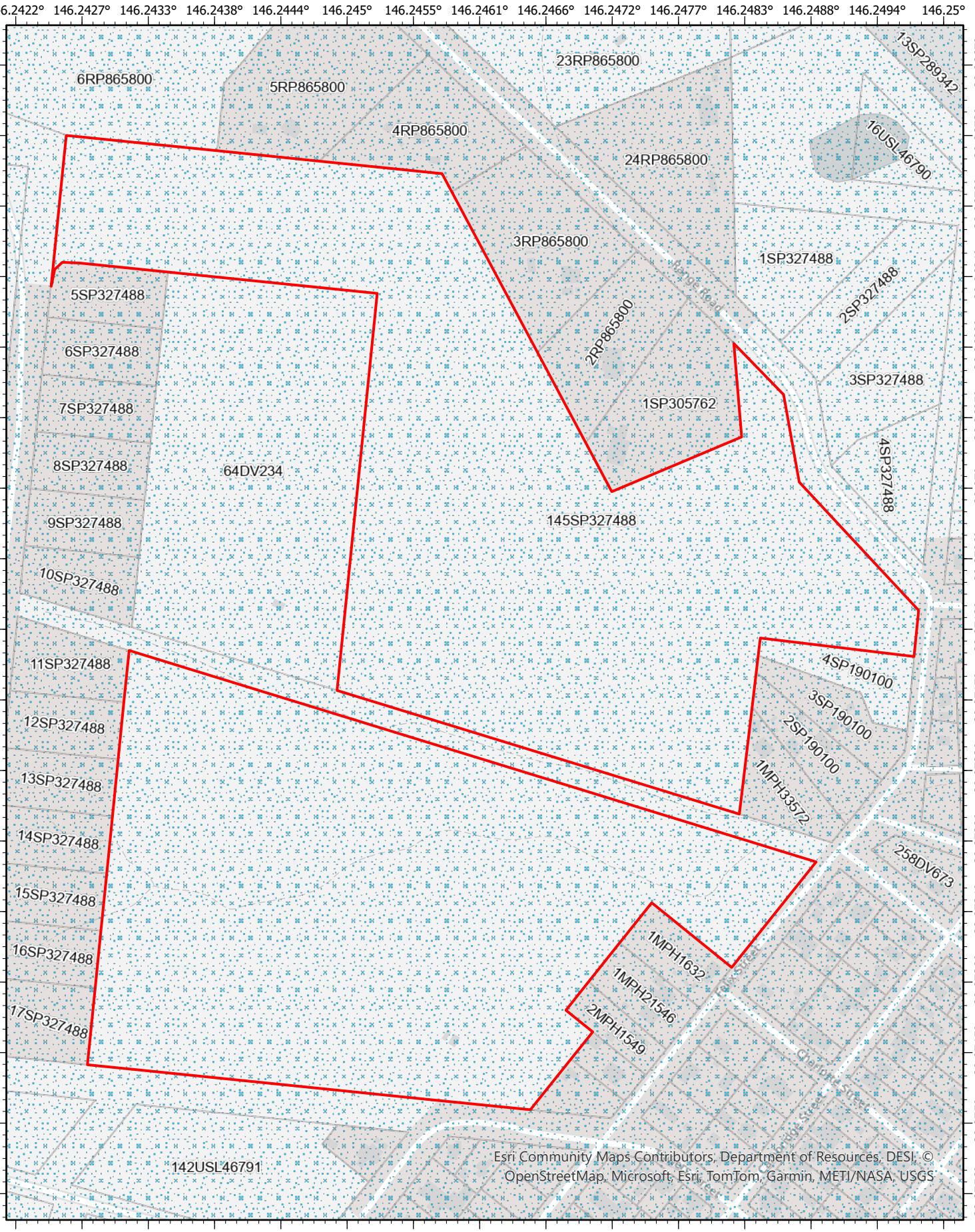
Matters of Interest for all selected Lot Plans

Water resource planning area boundaries

Matters of Interest by Lot Plan

Lot Plan: 145SP327488 (Area: 324800 m²)

Water resource planning area boundaries



Water resource planning area boundaries

Date: 01/08/2025

N

Scale: 1:4,700

0 50 100 150 200

Metres

Queensland Government

Disclaimer This map has been generated from the information supplied to the Queensland Government for the purposes of the Development Assessment Mapping System. The map generated has been prepared with due care based on the best available information at the time of publication. The State of Queensland holds no responsibility for any errors, inconsistencies or omissions within this document. Any decisions made by other parties based on this document are solely the responsibility of those parties. Information is supplied subject to the full terms and conditions available on the department's website.

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Queensland waterways for waterway barrier works

Risk of impact

Low

Date: 01/08/2025

N

Scale: 1:4,700

0 50 100 150 200

Metres

Queensland Government

Disclaimer This map has been generated from the information supplied to the Queensland Government for the purposes of the Development Assessment Mapping System. The map generated has been prepared with due care based on the best available information at the time of publication. The State of Queensland holds no responsibility for any errors, inconsistencies or omissions within this document. Any decisions made by other parties based on this document are solely the responsibility of those parties. Information is supplied subject to the full terms and conditions available on the department's website.

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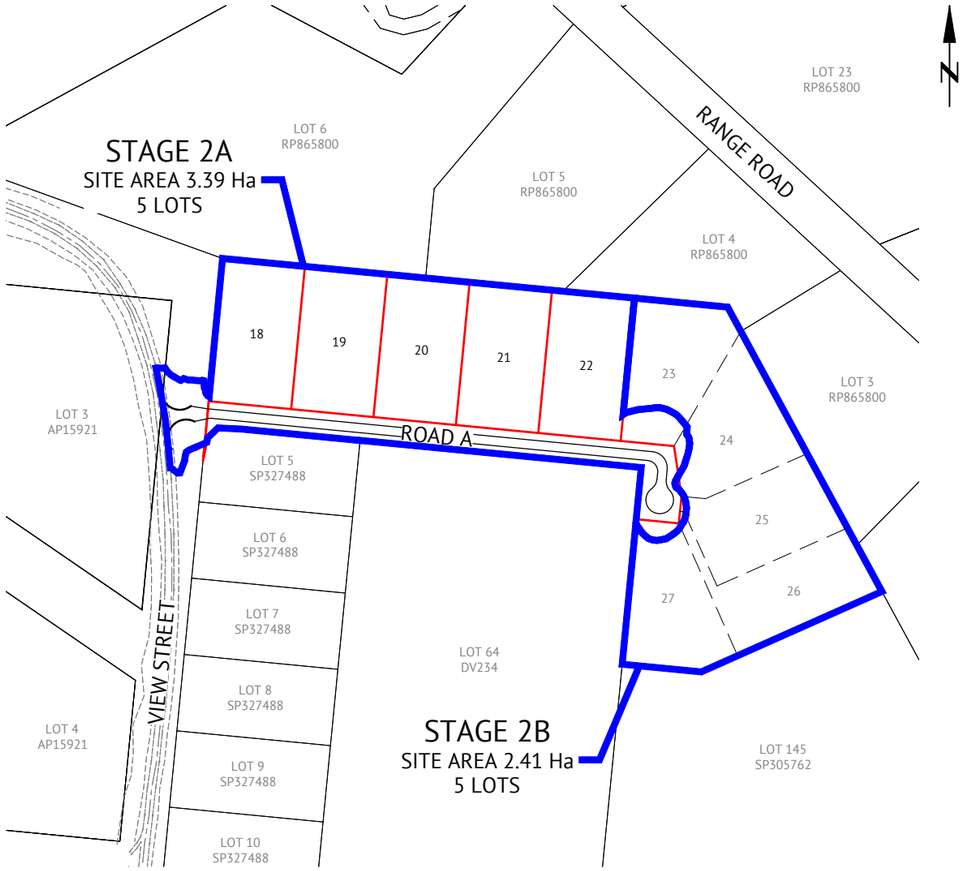
MILFORD PLANNING

Appendix 4

GRAND SECRET STAGE 2

VIEW STREET, CHARTERS TOWERS

FOR MENDI CONSTRUCTIONS PTY LTD



LOCALITY PLAN
SCALE 1:2000

DRAWING SCHEDULE	
DRAWING NO.	DRAWING TITLE
C001	COVER SHEET, LOCALITY PLAN & DRAWING SCHEDULE
C002	SAFETY IN DESIGN REPORT
C003	SOIL EROSION & SEDIMENT CONTROL - PRE-CONSTRUCTION
C004	SOIL EROSION & SEDIMENT CONTROL - POST-CONSTRUCTION
C005	SOIL EROSION & SEDIMENT CONTROL - DETAILS PLAN
C006	EARTHWORKS, ROADWORKS & STORMWATER DRAINAGE PLAN
C007	ROAD A LONGITUDINAL SECTION
C008	ROAD A CROSS SECTIONS - SHEET 1 OF 3
C009	ROAD A CROSS SECTIONS - SHEET 2 OF 3
C010	ROAD A CROSS SECTIONS - SHEET 3 OF 3
C011	ROADWORKS DETAILS PLAN - SHEET 1 OF 3
C012	ROADWORKS DETAILS PLAN - SHEET 2 OF 3
C013	ROADWORKS DETAILS PLAN - SHEET 3 OF 3
C014	STORMWATER CULVERT DETAILS PLAN
C015	WATER RETICULATION PLAN
ADDITIONAL COUNCIL INFORMATION	
C016	Q100 STORMWATER CATCHMENT PLAN & DATA TABLES

PRELIMINARY - NOT FOR CONSTRUCTION

DATE	REV	DESCRIPTION		
06/03/2026	1	ISSUED FOR OPERATIONAL WORKS APPROVAL	JJ	AP
REVISIONS			REC	APP

Premise
PART OF THE Amey GROUP

TOWNSVILLE OFFICE
84 DENHAM STREET
PO BOX 1110
TOWNSVILLE, QLD 4810
PH: (07) 4772 0666
WEB: www.premise.com.au

DESIGNED JJONES
CHECKED Z.STROGUSZ
PROJECT MANAGER Z.STROGUSZ
ENGINEERING CERTIFICATION
K. DE LACEY RPEQ. 31559

SCALE
0 40 80 120m
SCALE 1:2000 (A1)
ORIGINAL SHEET SIZE A1

CLIENT MENDI CONSTRUCTIONS PTY LTD
PROJECT GRAND SECRET DEVELOPMENT - STAGE 2A
LOCATION VIEW STREET, CHARTERS TOWERS
SHEET TITLE COVER SHEET, LOCALITY PLAN & DRAWING SCHEDULE

JOB CODE P004215
SHEET NUMBER C001
REV 1

SAFE DESIGN ASSESSMENT

ITEM NO.	ITEM DESCRIPTION	SAFE DESIGN CRITERIA
1	DESIGN CONSIDERATIONS (GENERAL)	DESIGN STANDARDS/GUIDELINES - CHARTERS TOWERS REGIONAL COUNCIL - AUSTROADS GUIDE TO ROAD DESIGN (AGRD 2020) - TMR - MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES - AS1742 - MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES - CTM WATER ALLIANCE DESIGN AND CONSTRUCTION CODE ROAD HIERARCHY - ROAD A - RURAL ACCESS DESIGN VEHICLE - 12.5m SINGLE UNIT TRUCK/BUS - ALL MOVEMENTS CHECK VEHICLE - 19m PRIME MOVER AND SEMI-TRAILER DESIGN SPEEDS - ROAD A - 50km/h POSTED SEEDS - ROAD A - 50km/h ROADSIDE RISK ASSESSMENT RISK ASSESSMENT WAS COMPLETED IN ACCORDANCE WITH AUSTROADS GUIDE TO ROAD DESIGN PART 6 AND TMR RPDM ED. 2 SUPPLEMENT GUIDE.

CONSEQUENCE TABLE

LEVEL	EVENT CONSEQUENCE/COST/TIME
6. - CATASTROPHIC	MULTIPLE FATALITIES POTENTIALLY IN MULTIPLE VEHICLES AND/OR AT MULTIPLE LOCATIONS ON THE GROUND. SIGNIFICANT SOCIETAL DISRUPTION AND/OR CONSEQUENTIAL DAMAGE.
5 - SEVERE	FATALITY OR MULTIPLE PERSONS ONSITE WITH LIFE THREATENING HEALTH EFFECTS OR INABILITY TO CONTINUE AND/OR SIGNIFICANT FINANCIAL OR TIME LOSS.
4 - MAJOR	EXTENSIVE INJURIES, OR ONSET OF SEVERE OR LIFE THREATENING HEALTH EFFECTS TO SINGLE PERSON ONSITE. MULTIPLE PERSONS WITH ONSET OF IRREVERSIBLE HEALTH EFFECTS. PERMANENT INJURY TO PERSON ONSITE AND/OR MAJOR FINANCIAL OR TIME LOSS.
3 - MEDIUM	MEDICAL TREATMENT REQUIRED. IRREVERSIBLE HEALTH EFFECT TO A SINGLE PERSON. MULTIPLE PERSONS ONSITE WITH REVERSIBLE HEALTH EFFECTS AND/OR HIGH FINANCIAL OR TIME LOSS.
2 - MINOR	FIRST AID, SINGLE OR MULTIPLE INJURIES AMONGST PERSONS ONSITE. SINGLE PERSON ONSITE WITH MODERATE SHORT TERM REVERSIBLE HEALTH EFFECTS AND/OR MEDIUM FINANCIAL OR TIME LOSS.
1 - INSIGNIFICANT	NO INJURIES. OVER EXPOSURE TO A SINGLE PERSON ONSITE, BUT NO REPORTED HEALTH EFFECTS AND/OR LOW FINANCIAL OR TIME LOSS.

LIKELIHOOD TABLE

LEVEL	DESCRIPTION/QUANTIFICATION GUIDE
A - ALMOST CERTAIN	THE EVENT IS EXPECTED TO OCCUR IN MOST CIRCUMSTANCES.
B - LIKELY	THE EVENT IS EXPECTED TO OCCUR IN SOME CIRCUMSTANCES.
C - POSSIBLE	THE EVENT MAY OCCUR IN SOME CIRCUMSTANCES
D - UNLIKELY	THE EVENT IS NOT EXPECTED TO OCCUR IN MOST CIRCUMSTANCES
E - RARE	THE EVENT MAY OCCUR IN EXCEPTIONAL CIRCUMSTANCES.

HAZARD CONTROL TABLE

HIERACHY OF CONTROLS		LEVEL OF CONTROL
1 - ELIMINATE	ELIMINATE THE HAZARD/RISK - RELOCATE THE DESIGN OR DESIGN ELEMENT AWAY FROM A HAZARD WHICH CONSTITUTES A RISK. - REMOVE OR RELOCATE A HAZARD WHICH CONSTITUTES A RISK AWAY FROM THE DESIGN OR DESIGN ELEMENT.	MOST EFFECTIVE
2- SUBSTITUTE	REPLACE A HAZARD WITH A HAZARD OF LESSER RISK	
3 - ISOLATE	ISOLATE THE PERSON(S) FROM THE HAZARD/RISK.	
4 - ENGINEERING CONTROLS	INCORPORATE ELEMENTS INTO THE DESIGN WHICH REDUCE THE RISK. BY REQUIRING PERSON(S) TO ACT AND BEHAVE IN A SAFER MANNER.	
5 - ADMINISTRATIVE CONTROLS	INCORPORATE FEATURES INTO THE DESIGN WHICH REDUCE THE RISK BY REQUIRING PERSON(S) TO THINK AND BEHAVE IN A SAFER MANNER. NOTE: HOW PERSON(S) RESPOND TO ADMINISTRATIVE CONTROLS IS NOT WITHIN THE DESIGNERS CONTROL.	
6 - PPE	PROTECT PERSON(S) BY USE OF PERSONAL PROTECTIVE EQUIPMENT NOTE: THE USE OF PPE IS NOT WITHIN THE DESIGNERS CONTROL.	LEAST EFFECTIVE

RISK ANALYSIS MATRIX

LIKELIHOOD	CONSEQUENCE: 1 - INSIGNIFICANT	2 - MINOR	3 -MEDIUM	4 - MAJOR	5 -SEVERE	6 - CATASTROPHIC
A - ALMOST CERTAIN	MODERATE	HIGH	HIGH	EXTREME	EXTREME	EXTREME
B - LIKELY	LOW	MODERATE	HIGH	EXTREME	EXTREME	EXTREME
C - POSSIBLE	LOW	MODERATE	HIGH	HIGH	EXTREME	EXTREME
D - UNLIKELY	LOW	LOW	MODERATE	MODERATE	HIGH	EXTREME
E - RARE	LOW	LOW	LOW	LOW	MODERATE	HIGH

RISK EVALUATION

RISK LEVEL	ACTION REQUIRED
EXTREME	UNACCEPTABLE RISK. RE-DESIGN REQUIRED TO REDUCE RISK LEVEL.
HIGH	UNACCEPTABLE RISK. REVIEW OF DESIGN AND/OR FURTHER MITIGATIONS REQUIRED
MODERATE	RISK MAY BE ACCEPTABLE. ADDRESSED BY REASONABLE IMPLEMENTATION OF THE RELEVANT DESIGN STANDARDS/GUIDELINES AND OTHER ADMINISTRATIVE CONTROLS. DESIGNER TO CONSIDER IMPLEMENTATION OF FURTHER REASONABLY PRACTICABLE MITIGATION MEASURES IF AVAILABLE/APPROPRIATE. ROAD TO BE MONITORED WITH A VIEW TO CONFIRMING SAFE PERFORMANCE.
LOW	ACCEPTABLE. ADDRESSED BY REASONABLE IMPLEMENTATION OF THE RELEVANT DESIGN STANDARDS/GUIDELINES AND OTHER ADMINISTRATIVE CONTROLS. DESIGNER TO CONSIDER IMPLEMENTATION OF FURTHER REASONABLY PRACTICABLE MITIGATION MEASURES IF AVAILABLE/APPROPRIATE.

DESIGN HAZARD NOTES:

1. THE DETAILED DESIGN AND DOCUMENTATION OF THESE WORKS HAS BEEN INTERNALLY REVIEWED FOR DESIGN SAFETY IN ACCORDANCE WITH SECTION 22 OF THE WORK HEALTH AND SAFETY ACT 2011 QLD.
2. THIS REPORT SUMMARISES THIS INTERNAL REVIEW FOR DESIGN SAFETY.
3. THIS REPORT IN NO WAY RELIEVES THE PRINCIPAL, CONTRACTOR OR ANY OTHER PARTY OF THEIR OWN OBLIGATIONS AND RESPONSIBILITIES UNDER THE WORK HEALTH AND SAFETY ACT 2011 QLD, INCLUDING (BUT NOT LIMITED TO) CONSULTATION WITH THE DESIGNER UNDER SECTION 294 OF THE ACT, THE PREPARATION OF SATISFACTORY SAFE WORK METHOD STATEMENTS AND DUTIES OF CARE.
4. IT IS A REQUIREMENT UNDER SECTION 296 OF THE WORK HEALTH AND SAFETY ACT 2011 QLD, THAT A COPY OF THIS REPORT BE PROVIDED TO THE CONTRACTOR BY THE ENTITY COMMISSIONING THE WORK SHOWN ON THESE DRAWINGS.
5. AS PER THE DEPARTMENT OF JUSTICE AND THE ATTORNEY-GENERAL - WORKPLACE HEALTH AND SAFETY QUEENSLAND, A WRITTEN REPORT IS NOT REQUIRED FOR DESIGNS THAT HAVE TYPICAL FEATURES.
6. PURSUANT TO THE WORK HEALTH AND SAFETY ACT 2011 WE THE DESIGN SAFETY REVIEW HAS SOUGHT TO IDENTIFY UNUSUAL OR ATYPICAL DEIGN FEATURES THAT MAY PRESENT ADDITIONAL HAZARDS OR RISKS DURING THE CONSTRUCTION, MAINTANANCE, DEMOLITION, DISPOSAL/RECYCLE AND OPERATIONAL PHASES AND THESE ARE DESCRIBED IN THE DESIGN HAZARD ASSESSMENT TABLES.

DESIGN HAZARD RISK ASSESSMENT

ITEM NO.	HAZARD	INITIAL RISK: CONSEQUENCE	INITIAL RISK: LIKELIHOOD	INITIAL RISK: RISK RATING	MITIGATIONS/CONTROL MEASURES	EXECUTION OF MITIGATIONS/CONTROL MEASURES	RESIDUAL RISK: LEVEL OF CONTROL	RESIDUAL RISK: CONSEQUENCE	RESIDUAL RISK: LIKELIHOOD	RESIDUAL RISK: RISK RATING	CONSIDERATION OF ADDITIONAL REASONABLY PRACTICABLE MEASURES	EXECUTION OF MITIGATIONS/CONTROL MEASURES	RESIDUAL RISK: LEVEL OF CONTROL	RESIDUAL RISK: CONSEQUENCE	RESIDUAL RISK: LIKELIHOOD	RESIDUAL RISK: RISK RATING
PREMISE NOTES THAT NO UNUSUAL HAZARDS SPECIFIC TO THIS DESIGN HAVE BEEN IDENTIFIED																

PRELIMINARY - NOT FOR CONSTRUCTION

DATE	REV	DESCRIPTION		
06/03/2026	1	ISSUED FOR OPERATIONAL WORKS APPROVAL	JJ	AP

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CHECKED Z.STROGUSZ
PROJECT MANAGER Z.STROGUSZ
ENGINEERING CERTIFICATION
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SCALE

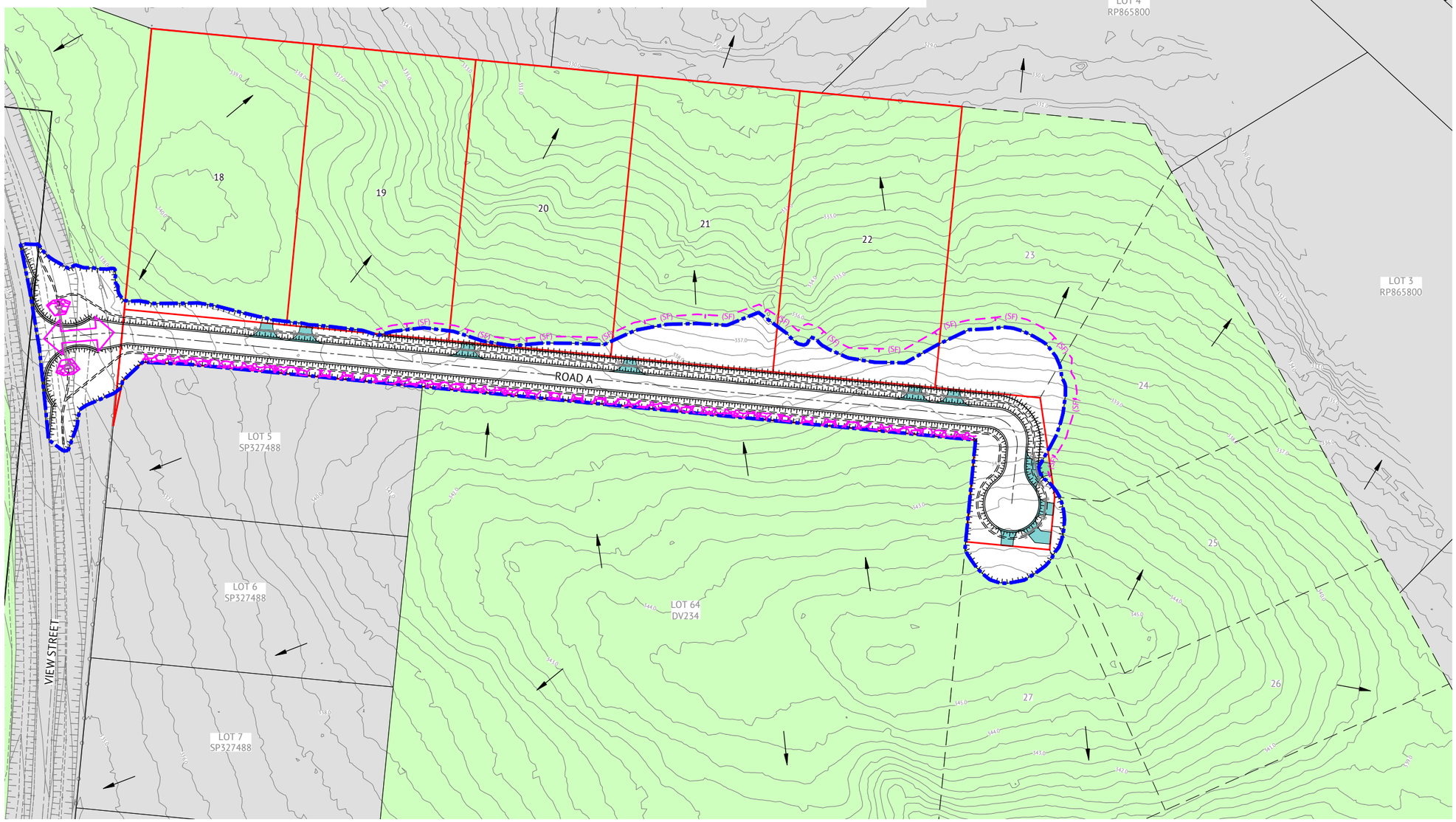
ORIGINAL SHEET SIZE A1

CLIENT: MENDI CONSTRUCTIONS PTY LTD
PROJECT: GRAND SECRET DEVELOPMENT - STAGE 2A
LOCATION: VIEW STREET, CHARTERS TOWERS
SHEET TITLE: SAFETY IN DESIGN REPORT

JOB CODE: P004215
SHEET NUMBER: C002
REV: 1

RUSLE CALCULATION, A = R x K x LS x C x P		JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
RAINFALL EROSIVITY FACTOR (TABLE E1)	R	2807	2885	1692	469	156	68.5	39.1	68.5	39.1	117	372	1076
SOIL ERODIBILITY FACTOR (TABLE E4)	K	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
TOPOGRAPHIC FACTOR (TABLE E3)	LS	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
SOIL COVER (TABLE E9)	C	1	1	1	1	1	1	1	1	1	1	1	1
EROSION CONTROL PRACTICE FACTOR (TABLE E11)	P	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
MONTHLY RATE OF SOIL LOSS (t/Ha/MONTH)	A	70.53	72.49	42.51	11.78	3.92	1.72	0.98	1.72	0.98	2.94	9.35	27.04
SEDIMENT CONTROL TECHNIQUE (TABLE 4.5.1 IECA BEST PRACTICE EROSION AND SEDIMENT CONTROL MANUAL)													
AREA BETWEEN 2500 AND 10000 SQM		TYPE 1	TYPE 1	TYPE 1	TYPE 2	TYPE 3	TYPE 3	TYPE 3	TYPE 3	TYPE 3	TYPE 3	TYPE 2	TYPE 1
AREA GREATER THAN 10000 SQM		TYPE 1	TYPE 1	TYPE 1	TYPE 1	TYPE 3	TYPE 3	TYPE 3	TYPE 3	TYPE 3	TYPE 3	TYPE 1	TYPE 1

BASED ON THE ABOVE RUSLE CALCULATIONS, CONSTRUCTION TO OCCUR BETWEEN THE MONTHS OF **APRIL** AND **NOVEMBER**, WITH **TYPE 3 SEDIMENT CONTROL TECHNIQUES** IN ACCORDANCE WITH TABLE 4.5.3 OF IECA BEST PRACTICE EROSION AND SEDIMENT CONTROL MANUAL. IF CONSTRUCTION OCCURS OUTSIDE THESE MONTHS, FURTHER SESC MEASURES WILL BE PROVIDED FOR COUNCIL APPROVAL.



PRE-CONSTRUCTION SOIL EROSION AND SEDIMENT CONTROL LEGEND

- 6.75 — EXISTING SURFACE CONTOURS
- D — STORMWATER DRAIN
- (SF) — SEDIMENT FENCE (SF) WITH RETURNS AT 20m SPACINGS
- DIVERSION MOUND, ENSURE POSITIVE LONGITUDINAL GRADE
- TOP OF BATTER
- BOTTOM OF BATTER
- ESTABLISHED SURFACE
- NATURAL VEGETATION TO REMAIN UNDISTURBED
- DRIVEWAY ACCESS
  REFER FNQROC STD DRG - S1105 FOR DETAILS
- DUMPED ROCK SCOUR PROTECTION
  ON GEOTEXTILE FABRIC (200g/m²)
  ROCK GRADING - 400mm THICK
  75mm-325mm, AVERAGE SIZE 200mm
- DIRECTION OF OVERLAND FLOW PATH
- EXTENTS OF SITE
- ENTRY/EXIT

PRE-CONSTRUCTION SOIL EROSION AND SEDIMENT CONTROL NOTES

1. THE CONTRACTOR IS TO UNDERTAKE EROSION AND SEDIMENT CONTROL WORKS (ESC) FOR THE SITE, GENERALLY IN ACCORDANCE WITH THE TOWNSVILLE CITY COUNCIL'S DEVELOPMENT MANUAL - CLAUSE SC6.4.8.11 'EROSION AND SEDIMENT CONTROL' AND THE INTERNATIONAL EROSION CONTROL ASSOCIATION'S (IECA) 'BEST PRACTICE EROSION AND SEDIMENT CONTROL' MANUAL.
2. THE EROSION HAZARD ASSESSMENT FOR THE SITE HAS BEEN COMPLETED IN ACCORDANCE WITH SC6.4.8.11 'EROSION AND SEDIMENT CONTROL' OF TOWNSVILLE CITY COUNCIL'S DEVELOPMENT MANUAL. THE SITE IS CONSIDERED A MEDIUM RISK SITE AND THE EROSION AND SEDIMENT CONTROL PLANS ARE DEVELOPED AND TO BE MAINTAINED ACCORDINGLY.
3. THE PRE-CONSTRUCTION EROSION AND SEDIMENT CONTROL WORKS ARE TO BE IMPLEMENTED BY THE CONTRACTOR PRIOR TO COMMENCEMENT OF WORKS ONSITE. THE CONTRACTOR IS REQUIRED TO MAINTAIN AN UPDATED ESC PROGRAM AND DRAWINGS IN ACCORDANCE WITH THEIR CONSTRUCTION PROGRAM, THE IECA MANUAL AND THE EROSION HAZARD RISK APPROPRIATE AT THE TIME OF CONSTRUCTION. THESE ESC DOCUMENTS ARE TO BE AVAILABLE ONSITE AT ALL TIMES FOR REVIEW.
4. THE CONTRACTOR IS TO STAGE THE WORKS SUCH THAT CLEARING, STRIPPING AND EATHWORKS, INCLUDING COMPACTION, TESTING AND RESPREADING OF THE TOPSOIL IS COMPLETED WITHIN THE TIMEFRAMES SPECIFIED IN TABLE 4.4.7 OF IECA BEST PRACTICE EROSION AND SEDIMENT CONTROL MANUAL:
   - 2 WEEKS (JANUARY, FEBRUARY)
   - 4 WEEKS (DECEMBER, MARCH)
   - 6 WEEKS (APRIL, NOVEMBER)
   - 8 WEEKS (MAY, OCTOBER)
5. STOCKPILE LOCATIONS ARE TO BE DESIGNATED BY THE CONTRACTOR ONSITE DURING CONSTRUCTION TO SUIT THE EARTHWORKS PROGRAM. THE STOCKPILE LOCATION IS TO BE CONFIRMED WITH THE SUPERINTENDENT PRIOR TO COMMENCEMENT OF EARTHWORKS.
6. ALL EROSION AND SEDIMENTATION CONTROL MEASURES REQUIRED BY THE ESC PLANS AND PROGRAM, SHALL BE INSTALLED AND MAINTAINED BY THE CONTRACTOR DURING CONSTRUCTION AND THROUGHOUT THE MAINTENANCE PERIOD (IF APPLICABLE).
7. ALL MEASURES FOR EROSION AND SEDIMENTATION CONTROL SHALL BE INSTALLED AND MAINTAINED BY THE CONTRACTOR IN SUCH A MANNER SO AS NOT TO PRESENT POTENTIAL HAZARD TO ANY PERSON OR PROPERTY.
8. THE CONTRACTOR WILL MONITOR AND (IF REQUIRED) PROVIDE FURTHER MITIGATION MEASURES TO PREVENT DUST LEAVING THE SITE BY PROACTIVE USE OF WATER TRUCK PRIOR TO, AND DURING ANY EXCAVATION, BACK FILLING OR GRADING EARTHWORKS INLCUDING HAUL ROADS. THE WORKS SHALL BE UNDERTAKEN IN ACCORDANCE WITH THE CONTRACTORS DUST MANAGMENT PLAN.
9. IF TOWNSVILLE CITY COUNCIL'S LEVEL 3 OR 4 WATER RESTRICTIONS ARE IN PLACE THEN CONSTRUCTION WATER FOR DUST CONTROL MUST NOT BE DRAWN FROM THE RETICULATED SUPPLY. A BORE WATER SUPPLY MUST BE UTILISED AND TRUCKED IN FOR DUST SUPPRESSION OR AS AGREED WITH COUNCIL

PRELIMINARY - NOT FOR CONSTRUCTION

DATE	REV	DESCRIPTION		
06/03/2026	1	ISSUED FOR OPERATIONAL WORKS APPROVAL	JJ	AP

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CHECKED Z.STROGUSZ
PROJECT MANAGER Z.STROGUSZ
ENGINEERING CERTIFICATION
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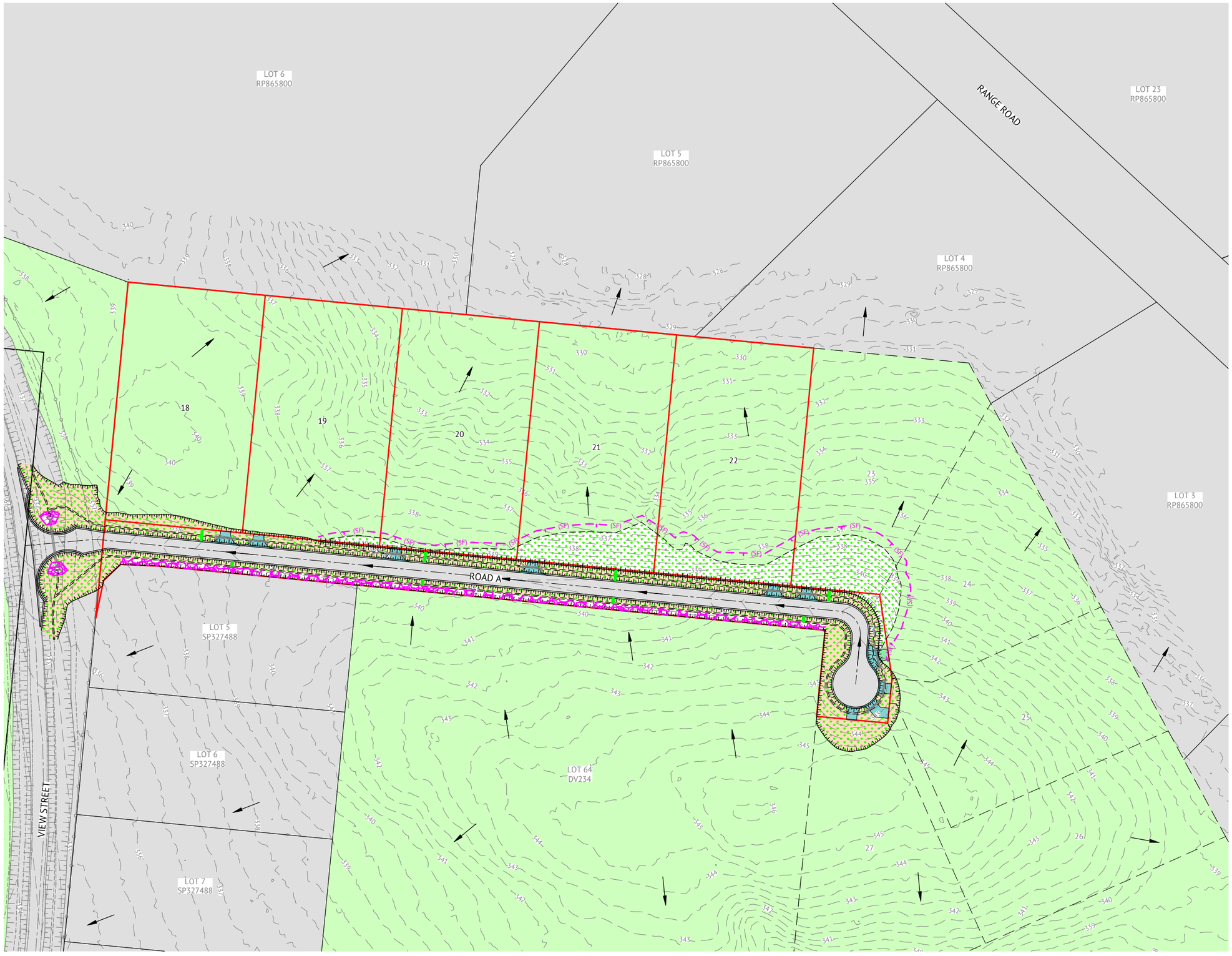
SCALE
0 15 30 45m
SCALE 1:750 (A1)
ORIGINAL SHEET SIZE A1

CLIENT: MENDI CONSTRUCTIONS PTY LTD
PROJECT: GRAND SECRET DEVELOPMENT - STAGE 2A
LOCATION: VIEW STREET, CHARTERS TOWERS
SHEET TITLE: SOIL EROSION & SEDIMENT CONTROL - PRE-CONSTRUCTION

JOB CODE: P004215
SHEET NUMBER: C003
REV: 1



POST-CONSTRUCTION SOIL EROSION AND SEDIMENT CONTROL LEGEND

- 6.75 — DESIGN SURFACE CONTOURS
- D — STORMWATER DRAIN
- (SF) — SEDIMENT FENCE (SF) WITH RETURNS AT 20m SPACINGS
- DIVERSION MOUND, ENSURE POSITIVE LONGITUDINAL GRADE
- TOP OF BATTER
- BOTTOM OF BATTER
- ESTABLISHED SURFACE
- NATURAL VEGETATION TO REMAIN UNDISTURBED
- DRIVEWAY ACCESS
  REFER FNQROC STD DRG - S1105 FOR DETAILS
- DUMPED ROCK SCOUR PROTECTION
  ON GEOTEXTILE FABRIC (200g/m²)
  ROCK GRADING - 400mm THICK
  75mm-325mm, AVERAGE SIZE 200mm
- CHECK DAM
- HYDROMULCH (TO BE APPLIED IMMEDIATELY UPON COMPLETION OF EARTHWORKS AND TOPSOILING)
- RESPREAD TOPSOIL TO ALLOW VEGETATION TO RE-ESTABLISH // AND PROVIDE TACKIFIER AGENT
- DIRECTION OF OVERLAND FLOW PATH
- 1.0m WIDE TURF STRIP

POST-CONSTRUCTION SOIL EROSION AND SEDIMENT CONTROL NOTES

1. THE CONTRACTOR IS TO UNDERTAKE EROSION AND SEDIMENT CONTROL WORKS (ESC) FOR THE SITE, GENERALLY IN ACCORDANCE WITH THE TOWNSVILLE CITY COUNCIL'S DEVELOPMENT MANUAL - CLAUSE SC6.4.8.11 'EROSION AND SEDIMENT CONTROL' AND THE INTERNATIONAL EROSION CONTROL ASSOCIATION'S (IECA) 'BEST PRACTICE EROSION AND SEDIMENT CONTROL' MANUAL.
2. THE POST-CONSTRUCTION EROSION AND SEDIMENT CONTROL WORKS ARE TO BE IMPLEMENTED BY THE CONTRACTOR. THE CONTRACTOR IS REQUIRED TO MAINTAIN AN UPDATED ESC PROGRAM AND DRAWINGS IN ACCORDANCE WITH THEIR CONSTRUCTION PROGRAM AND THE IECA MANUAL. THESE ESC DOCUMENTS ARE TO BE AVAILABLE ONSITE AT ALL TIMES FOR REVIEW.
3. THE POST-CONSTRUCTION ESC MEASURES REQUIRED BY THE ESC PLANS AND PROGRAM, SHALL BE MAINTAINED BY THE CONTRACTOR DURING CONSTRUCTION AND THROUGHOUT THE MAINTENANCE PERIOD (IF APPLICABLE).
4. ALL POST CONSTRUCTION ESC MEASURES SHALL BE INSTALLED AND MAINTAINED BY THE CONTRACTOR IN SUCH A MANNER SO AS NOT TO PRESENT POTENTIAL HAZARD TO ANY PERSON OR PROPERTY.

PRELIMINARY - NOT FOR CONSTRUCTION

DATE	REV	DESCRIPTION	REVISIONS		
06/03/2026	1	ISSUED FOR OPERATIONAL WORKS APPROVAL		JJ	AP

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DESIGNED JJONES
CHECKED Z.STROGUSZ
PROJECT MANAGER Z.STROGUSZ
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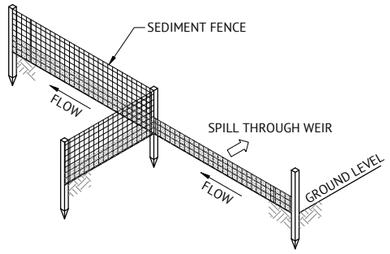
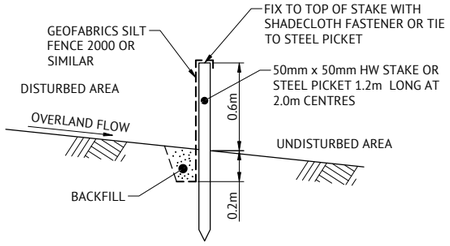
SCALE
0 10 20 30m
SCALE 1:500 (A1)
ORIGINAL SHEET SIZE A1

CLIENT: MENDI CONSTRUCTIONS PTY LTD
PROJECT: GRAND SECRET DEVELOPMENT - STAGE 2A
LOCATION: VIEW STREET, CHARTERS TOWERS
SHEET TITLE: SOIL EROSION & SEDIMENT CONTROL - POST-CONSTRUCTION

JOB CODE: P004215
SHEET NUMBER: C004
REV: 1



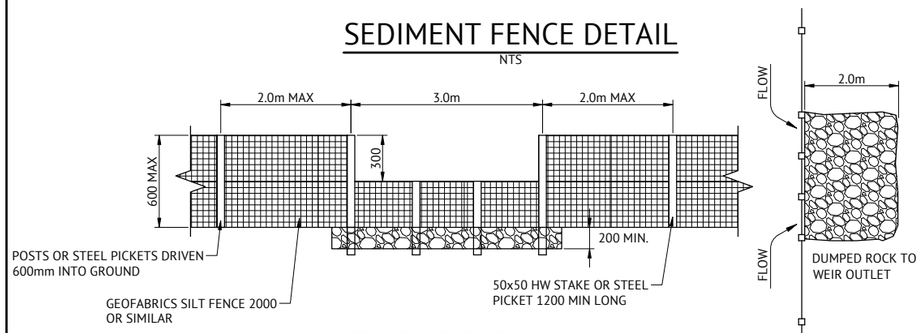
SEDIMENT FENCE RETURN



TYPICAL SECTION

SEDIMENT FENCE DETAIL

NTS

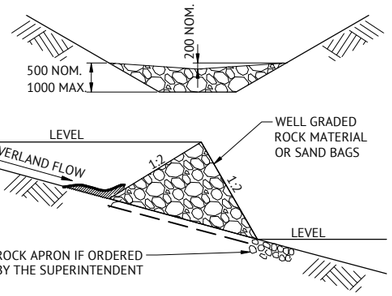


TYPICAL ELEVATION

PLAN

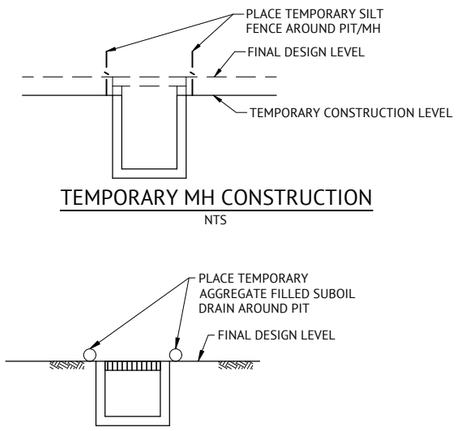
SPILL THROUGH WEIR

NTS



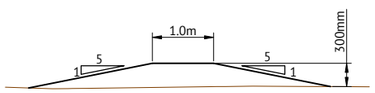
CHECK DAM

NTS



TEMPORARY MH CONSTRUCTION

NTS

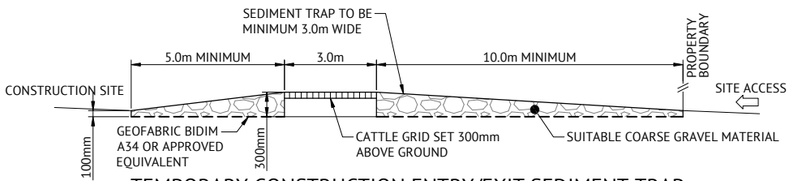


TYPICAL SECTION
TEMPORARY DIVERSION MOUND

NTS

INTERALLOTMENT PIT/MH
TEMPORARY CONSTRUCTION

NTS



TEMPORARY CONSTRUCTION ENTRY/EXIT SEDIMENT TRAP

LOCATION TO BE DETERMINED ON SITE
ALTERNATE: 75mm ROCK RUMBLE PAD 20x3m

NTS

SEQUENCE OF ACTIONS TO BE UNDERTAKEN BY CONTRACTOR

1. NOTIFICATION	THE SUPERINTENDENT IS TO BE GIVEN NOTIFICATION FOR EACH OF THE FOLLOWING POINTS:- - CONTRACTORS UPDATED ESC PROGRAM AND DRAWINGS IN ACCORDANCE WITH THEIR CONSTRUCTION SCHEDULE. - AFTER THE AREA TO BE CLEARED HAS BEEN MARKED ONSITE AND STOCKPILE LOCATIONS NOMINATED. - ONCE THE LOCATION OF ANY DIVERSION DRAINS, SEDIMENT FENCES AND SEDIMENT BASINS HAVE BEEN DETERMINED ONSITE. - AFTER THE PRE-CONSTRUCTION EROSION CONTROL MEASURES HAVE BEEN INSTALLED.
2. SITE POSSESSION	- ERECT THE BARRIER FENCING TO BUFFER AREAS AND DRAINAGE RESERVES TO ENSURE EXISTING OR UNDISTURBED LAND IS NOT DISTURBED/ENCROACHED DURING CONSTRUCTION. - INSTALLATION OF CONSTRUCTION EXIT TO ENSURE NO SOIL LEAVES THE SITE DURING CONSTRUCTION. - CONSTRUCT TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SUCH AS SILT FENCING, CHECK DAMS AND DIVERSION BANKS IN ACCORDANCE WITH PRE-CONSTRUCTION ESC PLAN. - CONSTRUCT THE SEDIMENT BASIN IN ACCORDANCE WITH DETAILS AND DIMENSIONS SHOWN ON THE DRAWINGS AND, IF REQUIRED, CONSTRUCT TEMPORARY DIVERSION MOUNDS TO DIRECT WATER FROM DISTURBED AREAS TO BE BASIN. - CONSTRUCT TEMPORARY DIVERSION MOUNDS TO DIVERT 'CLEAN' WATER AROUND CONSTRUCTION SITE.
3. CONSTRUCTION	- ALL ESC MEASURES ARE TO BE IMPLEMENTED IN ACCORDANCE WITH THE INSTALLATION SEQUENCE IN THE ESC PROGRAM AS DEVELOPED TO SUIT THE CONSTRUCTION PROGRAM AND EROSION RISK. - TOPSOIL IS TO BE STRIPPED AND STOCKPILED IN LOCATIONS NOMINATED BY THE CONTRACTOR AND AGREED WITH THE SUPERINTENDENT. A SEDIMENT FENCE IS TO BE CONSTRUCTED ON THE DOWNHILL SIDE OF THE STOCKPILE TO CONTAIN SEDIMENT RUNOFF FROM THE STOCKPILE/S. A DIVERSION DRAIN IS TO BE INSTALLED UPSTREAM OF THE STOCKPILE/S (IF REQUIRED). - AT ALL TIMES THE CONTRACTOR SHALL ENSURE THAT DUST RESULTING FROM THE PROPOSED WORKS, INCLUDING EXCAVATION, BACKFILLING, GRADING AND STOCKPILES IS KEPT TO AN ABSOLUTE MINIMUM IN ACCORDANCE WITH THEIR DUST MANAGMENT PLAN. - ESC DEVICES REQUIRED TO BE MODIFIED/REMOVED TO ALLOW CONSTRUCTION ACCESS ARE TO BE REINSTATED AT THE COMPLETION OF THE WORK DURING PERIODS OF LOW RISK OF EROSION AND AT THE END OF EACH WORKDAY IF THERE IS A MODERATE/HIGH RISK OF EROSION. - MOVEMENT OF CONSTRUCTION EQUIPMENT AND VEHICLES SHALL BE LIMITED TO THE AREA OF WORK, THE HAUL ROAD AND EXISTING ROADS. - DISTURBED AREAS ARE TO BE STABILISED IN TIMELY MANNER AND IN ACCORDANCE WITH ESC PLANS AND THE IECA MANUAL 'BEST PRACTICE EROSION AND SEDIMENT CONTROL. DISTURBED AREAS ARE TO BE RESTORED PROGRESSIVELY AS THE WORK IS FINISHED AND BARRICADED OFF FROM CONSTRUCTION ACTIVITIES TO ALLOW REVEGATION TO BE ESTABLISHED. - ALL BATTERS SHALL BE TOPSOILED, GRASS SEEDED AND WATERED IMMEDIATELY UPON COMPLETION OF EARTHWORKS TO STABILISE THE BATTER. - ADDITIONAL CONTROL DEVICES MAY BE REQUIRED BY THE SUPERINTENDENT.
4. MAINTENANCE	- CHECK THE INTEGRITY OF THE ESC DEVICES DAILY DURING THE MONTHS OF NOVEMBER TO MARCH AND WEEKLY AT OTHER TIMES OF THE YEAR. - CHECK THE INTEGRITY OF THE ESC DEVICES PRIOR TO IMPENDING OR BOM PREDICTED RAINFALL EVENTS. - CHECK THE INTEGRITY OF THE ESC DEVICES IMMEDIATELY FOLLOWING EACH RAINFALL EVENT. - UNDERTAKE THE REQUIRED MAINTENANCE TO THE ESC DEVICES AFTER EACH RAINFALL EVENT (IF REQUIRED). - PROVIDE ADDITIONAL ESC DEVICES, IF THE IMPLEMENTED ESC PLAN FAILS TO CONTAIN THE SEDIMENT ONSITE.
5. GENERAL	- THE CONTRACTOR WILL BE RESPONSIBLE FOR THE IMPLEMENTATION OF THE ESC PLANS AND PROGRAM, THE CONSTRUCTION AND MAINTENANCE OF ESC DEVICES, FROM THE POSSESSION OF THE SITE UNTIL THE SITE IS ACCEPTED BY THE LOCAL AUTHORITY ""OFF MAINTENANCE"" OR UNTIL SOIL STABILISATION HAS OCCURRED IN ACCORDANCE WITH THE TCC DEVELOPMENT MANUAL. - AMENDED OR AN ALTERNATIVE ESC PROGRAM AND PLANS ARE TO BE REVIEWED AND APPROVED BY THE SUPERINTENDENT PRIOR TO IMPLEMENTATION.

TYPICAL ESC DEVICES	CONSTRUCTION REQUIREMENTS	MAINTENANCE REQUIREMENTS
CONSTRUCTION EXITS - USED TO PREVENT THE TRACKING OF DEBRIS FROM TYRES OF VEHICLES ONTO PUBLIC ROAD.	1. REFER TO DETAIL ON THIS DRAWING. 2. SURFACE WATER FLOWING TO THE CONSTRUCTION EXIT SEDIMENT TRAP MUST BE PIPED UNDER THE TRAP OR A PERIMETER BANK SHOULD BE CONSTRUCTED TO DIRECT SURFACE FLOW AWAY FROM THE TRAP. 3. WASH-OFF TO BE DIRECTED TO A SEDIMENT TRAP OR BUFFER ZONE. 4. ONLY PROVIDE ONE CONSTRUCTION EXIT FOR THE SITE UNLESS SITE ACCESS OR TOPOGRAPHY REQUIRE MORE. 5. ENSURE THAT CONTAMINATED VEHICLES CANNOT BYPASS IT WHEN EXITING THE SITE.	1. REMOVAL OF SEDIMENT AND/OR ADDING EXTRA AGGREGATE. 2. REMOVE SEDIMENT TRANSPORTED ONTO ROADWAYS AND APPLY CORRECTIVE MEASURE TO ENSURE NO RE-OCCURENCE. 3. EXTEND THE LENGTH OF THE GRAVEL PAD IF EXCESSIVE SEDIMENT IS STILL BEING TRANSPORTED OFF THE SITE.
ROCK CHECK DAMS - USED TO INTERCEPT AND REDUCE THE VELOCITY OF CONCENTRATED FLOW.	1. REFER TO DETAIL ON THIS DRAWING. 2. PROVIDE DOWNSTREAM OF CONCENTRATED OUTLETS AND AT 50m MAX. ALONG OPEN CHANNELS AND AROUND FIELD INLETS TO ALLOW SEDIMENT TO SETTLE OUT PRIOR TO ENTERING STORMWATER PIPES. 3. SHOULD BE SHAPED SUCH THAT WATER FLOW OVER THE CENTRE OF THE ROCK CHECK DAM TO PREVENT WATER FUNNELING AROUND THE DAM AND ERODING THE EDGE OF THE DRAIN. 4. ACCESS WILL BE REQUIRED FOR MAINTENANCE AND THE ROCK CHECK DAMS ARE TO BE REMOVED ONCE SUITABLE STABILISATION OF THE DISTURBED CATCHMENT IS ACHIEVED.	1. EXCESSIVE SEDIMENT SHOULD BE REMOVED FROM UPSTREAM OF THE ROCK CHECK DAMS AFTER RAINFALL EVENTS. 2. THE UPSTREAM GRAVEL FILTER LAYER SHOULD BE RE-ESTABLISHED WHEN SEDIMENT BEGINS TO FLOW THROUGH THE STRUCTURE OR WHEN PERMEABILITY IS EXCESSIVELY REDUCED.
SEDIMENT BASINS - USED TO ALLOW PONDING AND SETTLEMENT OF SEDIMENT-LADEN RUN-OFF.	1. REFER TO THE SEDIMENT BASIN DRAWING FOR DETAILS. 2. HES AND MODIFIED HES BASINS SHALL BE FREE DRAINING WHEREVER POSSIBLE. 3. SEDIMENT BASINS SHOULD BE LOCATED ABOVE THE 5 yr ARI FLOOD LEVEL IF POSSIBLE. 4. TEMPORARY SEDIMENT BASINS WITHIN THE ROAD BOX ARE TO BE MAINTAINED UNTIL SUCH TIME THAT THE KERB AND CHANNEL IS CONSTRUCTED, BACK FILLED AND TURF STRIPS INSTALLED.	1. SEDIMENT BASINS AND OUTLET STRUCTURES SHOULD BE INSPECTED AFTER A RAIN EVENT. 2. SCOURING AND DAMAGE TO THE INLET OR OUTLETS SHOULD BE REPAIRED AND EMBANKMENT VEGETATION MAINTAINED. 3. ANY DAMAGE TO THE EMERGENCY SPILLWAY SHOULD PREFERABLY BE REPAIRED WITHIN 24 HOURS. 4. FLOWS EXCEEDING THE DESIGN EVENT WILL OVERFLOW FROM THE SEDIMENT BASIN TO THE EXISTNG SURCHARGE PATH. 5. SEDIMENT SHOULD BE REMOVED WHEN THE MAXIMUM STORAGE VOLUME IS ACHIEVED OR JUST PRIOR TO REMOVAL OF THE SEDIMENT BASIN. 6. SEDIMENT LADEN WATER IN TYPE D BASINS AND TEMPORARY SEDIMENT TRAPS SHOULD BE FLOCULATED TO ACHIEVE A MINIMUM 50mg/L TSS AND PUMPED OUT/DISCHARGED PRIOR TO ANY FORECAST RAINFALL EVENT.
SEDIMENT FENCES - USED TO TEMPORARILY REDUCE THE VELOCITY OF CONTAMINATED SHEET FLOW AND TO INDUCE GRAVITATIONAL SETTLEMENT OF THE SEDIMENT.	1. REFER TO DETAIL ON THIS DRAWING. 2. ALL SEDIMENT FENCES TO BE INSTALLED PARALLEL TO CONTOURS. 3. REGULAR TURN-BACKS AND A FIRM WIRE MESH BACKING ARE REQUIRED TO PREVENT THE FURTHER CONCENTRATION OF FLOW. 4. THE FENCE SHOULD BE SEGMENTED INTO A SERIES OF L SHAPED FENCES TO AVOID THE CONCENTRATION OF FLOW ALONG THE FENCE. 5. SEDIMENT FENCE RETURNS TO BE PROVIDED AT 20m INTERVALS MAX.	1. REGULAR INSPECTIONS AND MAINTENANCE ARE REQUIRED TO REPAIR DAMAGE CAUSED BY ON-SITE VEHICLES OR OTHER CONSTUCTION ACTIVITIES. 2. INSPECT AFTER EACH RAINFALL EVENT THAT RESULTS IN STORMWATER RUN-OFF. 3. REMOVE EXCESSIVE SEDIMENT DEPOSITS AFTER RAINFALL EVENTS. 4. INVESTIGATE THE SOURCE OF EXCESSIVE SEDIMENT, REVIEW ESC PLAN AND APPLY REMEDIAL ACTIONS AS NECESSARY.
GULLY INLET PROTECTION - USED TO LIMIT SEDIMENT DEPOSITING IN STORMWATER PIPES.	1. REFER TO DETAIL ON THIS DRAWING. 2. PROVIDE TEMPORY SILT FENCE PROTECTION OR SIMILAR AT GULLY PITS AND MANHOLES DURING CONSTRUCTION. 3. PONDING MUST BE ALLOWED TO OCCUR TO 300MM AROUND THE PIT IN ORDER FOR SEDIMENT TO SETTLE.	1. REGULAR MAINTENANCE AND INSPECTION AFTER EACH RUN-OFF PRODUCING STORM EVENT. 2. BULK SEDIMENT TRAPPED BY ESC DEVICES SHOULD REGULARLY BE REMOVED AND NOT BE ALLOWED TO WASH INTO THE STORMWATER PIPES.
DIVERSION DRAIN/PERIMETER BANKS - USED TO DIVERT CLEAN WATER AROUND DISTURBED AREAS OR USED WITHIN DISTURBED AREAS TO DIRECT DIRTY WATER TO A SEDIMENT TRAP.	1. REFER TO DETAIL ON THIS DRAWING. 2. MOUNDS/DRAINS MUST HAVE A STABLE OUTLET - PROVIDE ROCK PROTECTION IF NECESSARY. 3. MOUNDS/DRAINS DIVERTING CLEAN WATER SHOULD BE SEEDED OR MULCHED IF THEIR WORKING LIFE IS EXPECTED TO EXCEED 30 DAYS.	1. REGULARLY INSPECT MOUNDS/DRAINS AND REPAIR ANY SLUMPS, WHEEL TRACK DAMAGE OR LOSS OF FREEBOARD. 2. SEDIMENT SHOULD BE REMOVED TO AVOID PONDING.

PRELIMINARY - NOT FOR CONSTRUCTION

DATE	REV	DESCRIPTION		
06/03/2026	1	ISSUED FOR OPERATIONAL WORKS APPROVAL	JJ	AP
		REVISIONS	REC	APP

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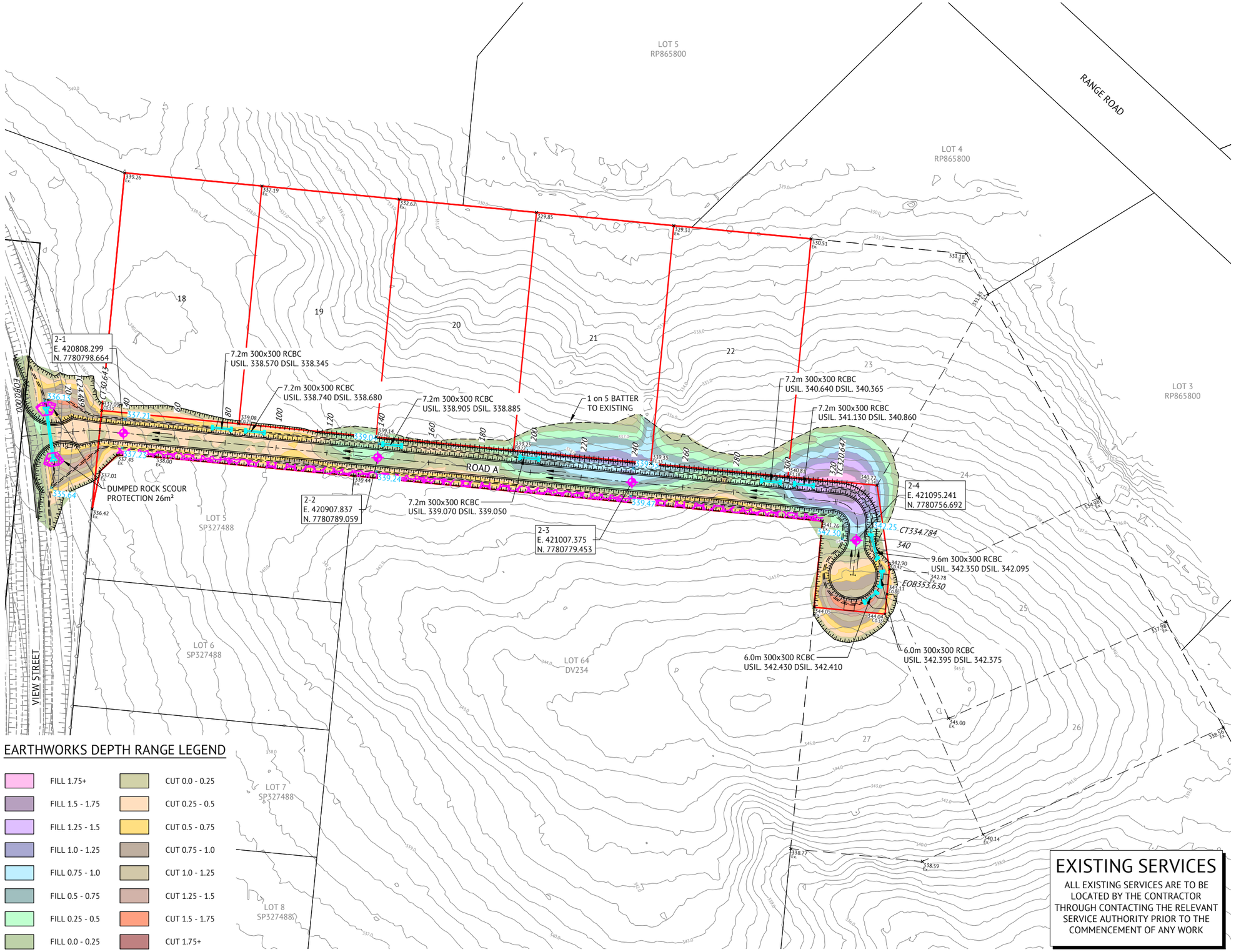
CHECKED Z.STROGUSZ
PROJECT MANAGER Z.STROGUSZ
ENGINEERING CERTIFICATION
K. DE LACEY RPEQ. 31559

SCALE
ORIGINAL SHEET SIZE A1

CLIENT: MENDI CONSTRUCTIONS PTY LTD
PROJECT: GRAND SECRET DEVELOPMENT - STAGE 2A
LOCATION: VIEW STREET, CHARTERS TOWERS
SHEET TITLE: SOIL EROSION & SEDIMENT CONTROL - DETAILS PLAN

JOB CODE: P004215
SHEET NUMBER: C005
REV: 1



EARTHWORKS DEPTH RANGE LEGEND

FILL 1.75+	CUT 0.0 - 0.25
FILL 1.5 - 1.75	CUT 0.25 - 0.5
FILL 1.25 - 1.5	CUT 0.5 - 0.75
FILL 1.0 - 1.25	CUT 0.75 - 1.0
FILL 0.75 - 1.0	CUT 1.0 - 1.25
FILL 0.5 - 0.75	CUT 1.25 - 1.5
FILL 0.25 - 0.5	CUT 1.5 - 1.75
FILL 0.0 - 0.25	CUT 1.75+

EARTHWORKS LEGEND

- EXISTING SURFACE CONTOURS (5.90)
- DENOTES Q100 FLOOD LEVEL (6.30)
- TOP OF BATTER
- BOTTOM OF BATTER
- 1-1 — GEOTECHNICAL TEST LOCATION (STAGE NUMBER - TEST NUMBER)
- CBR — EXISTING GEOTECHNICAL TEST

EARTHWORKS NOTES

1. ALL EARTHWORKS OPERATIONS ARE TO BE UNDERTAKEN IN ACCORDANCE WITH THE PROJECT SPECIFICATION.

GEOTECHNICAL NOTES

THE CONTRACTOR IS TO PERFORM SOIL SAMPLING TO A DEPTH OF 600mm BELOW THE PROPOSED SUBGRADE LEVELS, AT THE LOCATIONS SHOWN AND PROVIDE A WRITTEN REPORT WHICH INCLUDES:-

1. A DESCRIPTIVE LOG OF THE SOIL TYPES FOR EACH LOCATION
2. LABORATORY TEST RESULTS FOR EACH SOIL TYPE SAMPLE BETWEEN THE SUBGRADE AND 600mm BELOW FOR THE FOLLOWING:-
   - 2.1. ATTERBERG LIMITS
   - 2.2. LINEAR SHRINKAGE
   - 2.3. PARTICLE ANALYSIS; AND
   - 2.4. SOAKED CBR AND CBR SWELL
3. G.I.T.A TO ENSURE THE SOIL SAMPLE VOLUME IS SUFFICIENT FOR LIME DEMAND AND SOLUBLE SULPHATE TESTING (PROVISIONAL IF REQUIRED).
   CONTRACTOR WILL BE ADVISED IF THE TESTING FOR LIME STABILISATION OF THE SUBGRADE IS REQUIRED ONCE INITIAL TESTING ABOVE IS COMPLETED AND SUPPLIED TO THE SUPERINTENDENT.

STORMWATER LEGEND:

- D — STORMWATER DRAINAGE LINE
- DUMPED ROCK SCOUR PROTECTION ON GEOTEXTILE FABRIC (200g/m²)
  ROCK GRADING - 400mm THICK
  75mm-325mm, AVERAGE SIZE 200mm

STORMWATER NOTES

1. FOR HYDROLOGY AND HYDRAULIC DETAILS, REFER TO STORMWATER DATA TABLE DRAWINGS. ALL WORKS TO BE CONSTRUCTED IN ACCORDANCE WITH RELEVANT LATEST ISSUE COUNCIL OR TMR STANDARD DRAWINGS AND SPECIFICATIONS, UNLESS NOTED OTHERWISE.
2. FOR HYDROLOGY AND HYDRAULIC DETAILS, REFER TO NCE REPORT MIL0033_ENG-RevD.
3. FOR STORMWATER SETOUT, LEVELS, PIPE LENGTHS, PIPE CLASS AND STRUCTURE TYPES, REFER DRAWINGS.
4. ALL PIPE CUTS TO BE MADE USING A MASONRY SAW.
5. ALL TRENCHES UNDER ROAD PAVEMENT (INCLUDING FUTURE) TO BE BACKFILLED WITH CRUSHER DUST TO SUBGRADE LEVEL.

ROADWORKS LEGEND

- LIP — BARRIER KERB AND CHANNEL (TYPE B1)
- DOUBLE STREET NAME PLATE
- DIRECTION OF KERB & CHANNEL FLOW

ROADWORKS NOTES

1. ALL WORKS TO BE CONSTRUCTED IN ACCORDANCE WITH RELEVANT LATEST ISSUE COUNCIL STANDARD DRAWINGS AND SPECIFICATIONS, UNLESS NOTED OTHERWISE.

PROVISIONAL PAVEMENT DESIGN

ROAD A

PRIME COAT 0.2L/m² (C170E CRS EMULSION PRIMER)
1st SEAL - 14mm (PRECOATED) C170 @ 1.2L/m² & 110m²/m³
2nd SEAL- 10mm (PRECOATED) C170 @ 0.7L/m² & 175m²/m³
125mm BASE COURSE (DMR TYPE 2.1)
140mm SUB BASE COURSE (DMR TYPE 2.3)

EXISTING SERVICES

ALL EXISTING SERVICES ARE TO BE LOCATED BY THE CONTRACTOR THROUGH CONTACTING THE RELEVANT SERVICE AUTHORITY PRIOR TO THE COMMENCEMENT OF ANY WORK

PRELIMINARY - NOT FOR CONSTRUCTION

DATE	REV	DESCRIPTION		
06/03/2026	1	ISSUED FOR OPERATIONAL WORKS APPROVAL	JJ	AP

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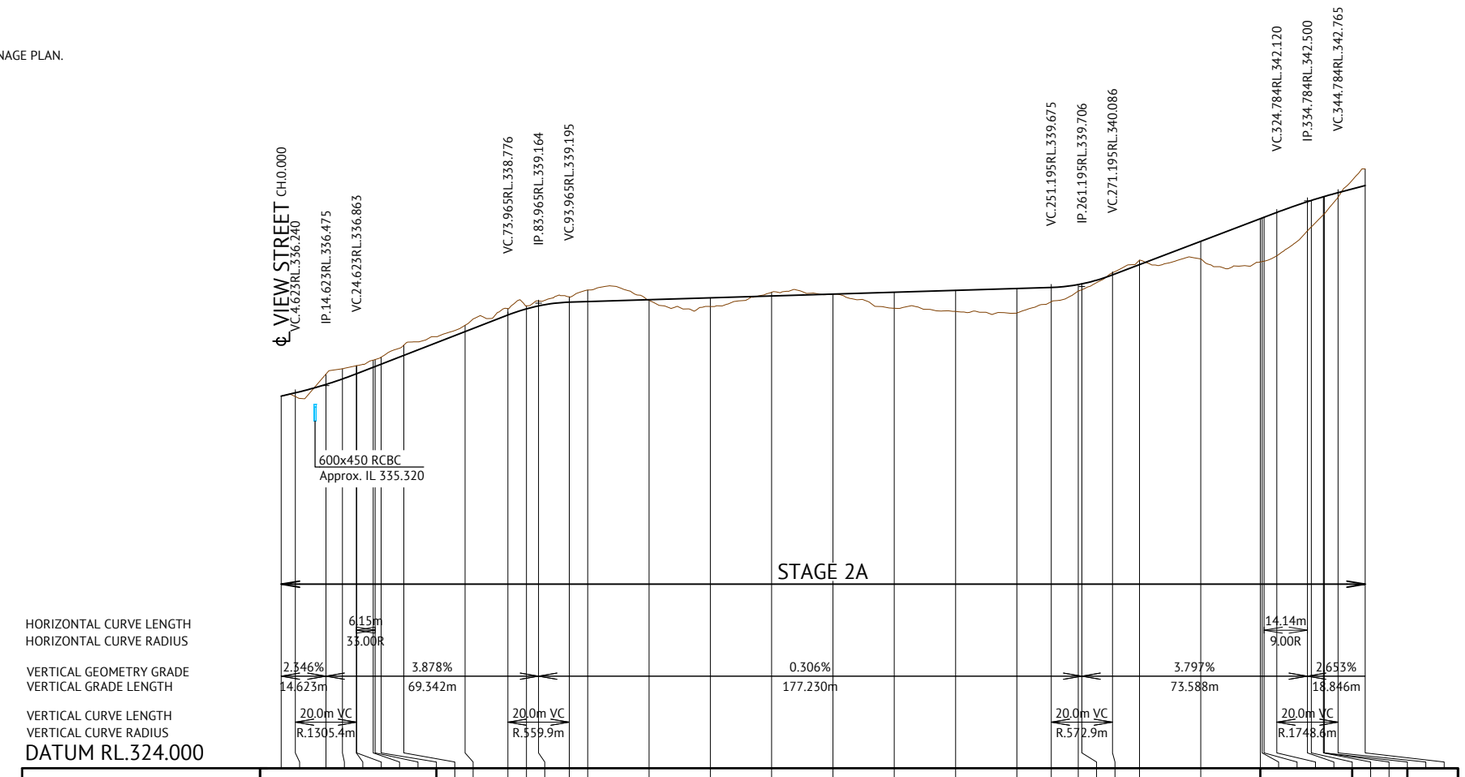
DESIGNED JJONES
CHECKED Z.STROGUSZ
PROJECT MANAGER Z.STROGUSZ
ENGINEERING CERTIFICATION
K. DE LACEY RPEQ. 31559

SCALE
0 10 20 30m
SCALE 1:500 (A1)
ORIGINAL SHEET SIZE A1

CLIENT	MENDI CONSTRUCTIONS PTY LTD
PROJECT	GRAND SECRET DEVELOPMENT - STAGE 2A
LOCATION	VIEW STREET, CHARTERS TOWERS
SHEET TITLE	EARTHWORKS, ROADWORKS & STORMWATER DRAINAGE PLAN

JOB CODE	
P004215	
SHEET NUMBER	REV
C006	1



ROAD LONGITUDINAL SECTION NOTES

1. FOR LEVEL INFORMATION REFER ROADWORKS DETAILS PLAN.
2. FOR PAVEMENT DESIGN REFER ROADWORKS AND STORMWATER DRAINAGE PLAN.

HORIZONTAL CURVE LENGTH: 6.15m; 14.14m
HORIZONTAL CURVE RADIUS: 33.00R; 9.00R

VERTICAL GEOMETRY GRADE: 2.346%; 3.878%; 0.306%; 3.797%; 2.653%
VERTICAL GRADE LENGTH: 14.623m; 69.342m; 177.230m; 73.588m; 18.846m

VERTICAL CURVE LENGTH: 20.0m VC; 20.0m VC; 20.0m VC; 20.0m VC
VERTICAL CURVE RADIUS: R.1305.4m; R.559.9m; R.572.9m; R.1748.6m

DATUM RL.324.000

CONTROL LINE CHAINAGE	LIP OF KERB LEVELS RHS	LIP OF KERB LEVELS LHS	EXISTING SURFACE LEVEL	CUT / FILL DEPTH TO EXISTING	CONTROL LINE DESIGN LEVEL	CONTROL LINE SETOUT (NORTHING)	CONTROL LINE SETOUT (EASTING)
0	REFER NOTE 1	REFER NOTE 1	336.132	0.000	336.132	7780797.373	420768.451
4.623			336.118	0.123	336.240	7780797.790	420773.055
14.623			336.853	-0.340	336.513	7780798.692	420783.015
20			337.023	-0.331	336.692		
24.489			337.121	-0.264	336.858	7780799.581	420792.840
24.623			337.124	-0.262	336.863	7780799.593	420792.974
30.024		336.982	337.304	-0.232	337.072		
30.643		337.006	337.325	-0.228	337.096	7780799.563	420798.986
32.595	337.082	337.082	337.400	-0.228	337.172		
40	337.369	337.369	337.792	-0.333	337.459		
60	338.145	338.145	338.442	-0.208	338.235		
73.965	338.686	338.686	338.986	-0.210	338.776	7780795.402	420842.107
80	338.888	338.888	339.077	-0.099	338.978		
83.965	338.985	338.985	339.231	-0.157	339.075	7780794.441	420852.061
93.965	339.105	339.105	339.369	-0.175	339.195	7780793.481	420862.015
100	339.123	339.123	339.589	-0.376	339.213		
120	339.184	339.184	339.254	0.020	339.274		
140	339.245	339.245	339.055	0.280	339.335		
160	339.307	339.307	339.518	-0.121	339.397		
180	339.368	339.368	339.454	0.004	339.458		
200	339.429	339.429	338.996	0.523	339.519		
220	339.490	339.490	338.893	0.687	339.580		
240	339.551	339.551	338.843	0.798	339.641		
251.195	339.585	339.585	339.208	0.467	339.675	7780778.378	421018.518
260	339.680	339.680	339.557	0.213	339.770		
261.195	339.703	339.703	339.599	0.195	339.793	7780777.418	421028.472
271.195	339.996	339.996	340.153	-0.067	340.086	7780776.457	421038.426
280	340.330	340.330	340.563	-0.143	340.420		
300	341.089	341.089	340.603	0.576	341.179		
319.397	341.826	341.826	340.507	1.409	341.916		
320	REFER NOTE 1	341.849	340.520	1.418	341.939		
320.647		341.873	340.530	1.433	341.963	7780771.707	421087.648
324.784			340.707	1.413	342.120	7780770.394	421091.533
334.784		342.381	341.521	0.951	342.471	7780761.884	421095.742
336.034	342.421	342.421	341.647	0.865	342.511		
340	342.542	342.542	342.048	0.584	342.632		
340.179	342.547	342.547	342.065	0.572	342.637		
340.256	342.549	REFER NOTE 1	342.073	0.566	342.639		
344.784	REFER NOTE 1		342.617	0.148	342.765	7780751.930	421094.782
353.63			343.539	-0.539	343.000	7780743.125	421093.932

ROAD A LONGITUDINAL SECTION

SCALE 1:1000 HORIZONTAL, SCALE 1:100 VERTICAL

PAVEMENT & KERBING DETAIL (B1)

SCALE 1:20

PRELIMINARY - NOT FOR CONSTRUCTION

DATE	REV	DESCRIPTION	REC	APP
06/03/2026	1	ISSUED FOR OPERATIONAL WORKS APPROVAL	JJ	AP

REVISIONS

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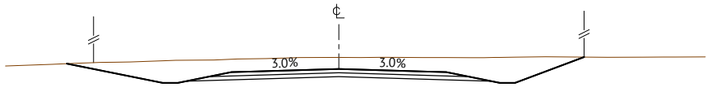
DESIGNED J.JONES
CHECKED Z.STROGUSZ
PROJECT MANAGER Z.STROGUSZ
ENGINEERING CERTIFICATION
K. DE LACEY RPEQ. 31559

SCALE
0 0.4 0.8 1.2m
SCALE 1:20 (A1)
0 20 40 60m
HORIZONTAL 1:1000 (A1)
0 2 4 6m
VERTICAL 1:100 (A1)
ORIGINAL SHEET SIZE A1

CLIENT MENDI CONSTRUCTIONS PTY LTD
PROJECT GRAND SECRET DEVELOPMENT - STAGE 2A
LOCATION VIEW STREET, CHARTERS TOWERS
SHEET TITLE ROAD A LONGITUDINAL SECTION

JOB CODE P004215
SHEET NUMBER C007
REV 1



DATUM RL.337.000

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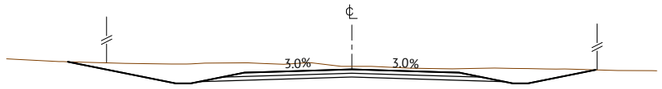

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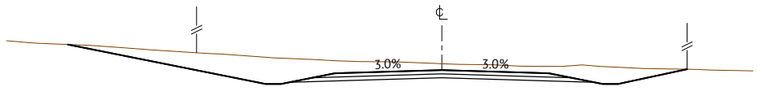

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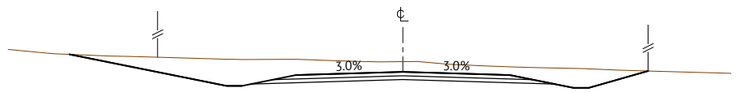

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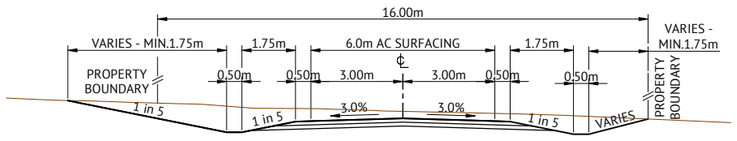
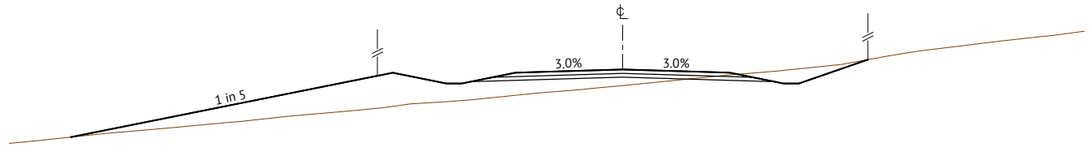


DATUM RL.335.000

32.595 TYPICAL SECTION CH.32.595 - CH.340.179



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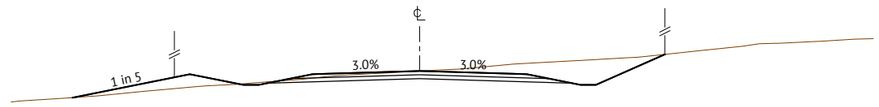

DATUM RL.337.000

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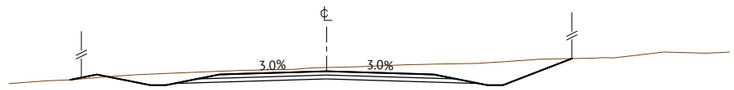

DATUM RL.337.000

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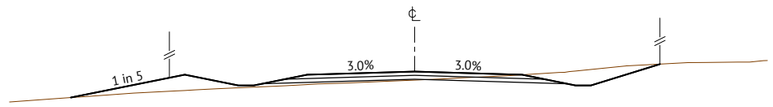

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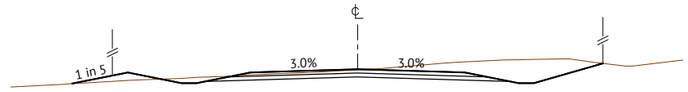

DATUM RL.337.000

120

ROAD A CROSS SECTIONS

SCALE 1:100

PRELIMINARY - NOT FOR CONSTRUCTION

DATE	REV	DESCRIPTION		
06/03/2026	1	ISSUED FOR OPERATIONAL WORKS APPROVAL	JJ	AP

REVISIONS

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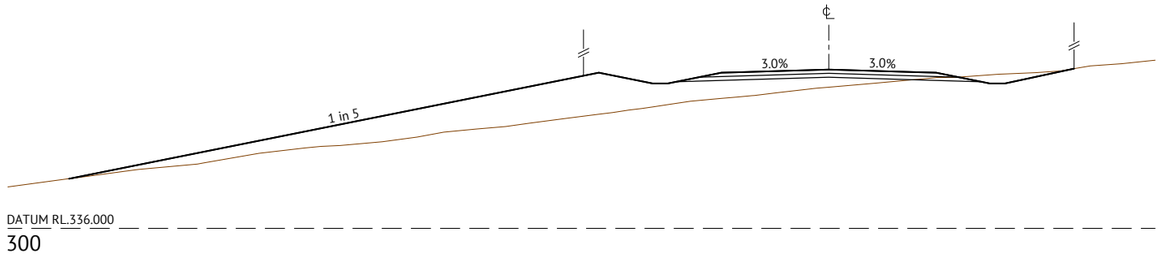
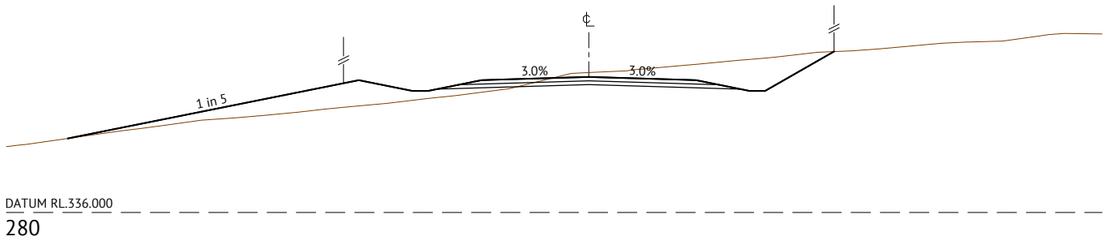
DESIGNED JJONES
CHECKED Z.STROGUSZ
PROJECT MANAGER Z.STROGUSZ
ENGINEERING CERTIFICATION
K. DE LACEY RPEQ. 31559

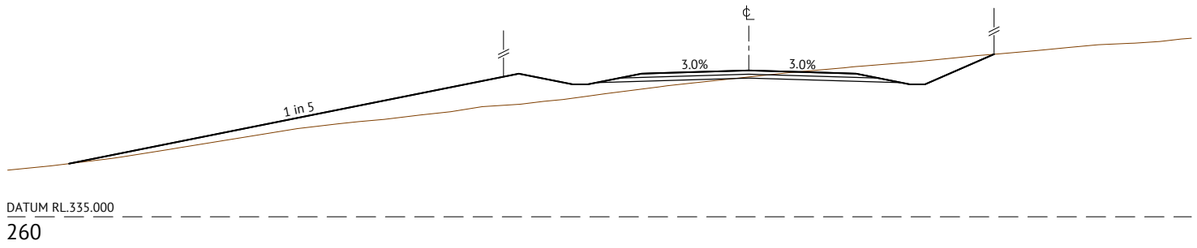
SCALE
0 2 4 6m
SCALE 1:100 (A1)
ORIGINAL SHEET SIZE A1

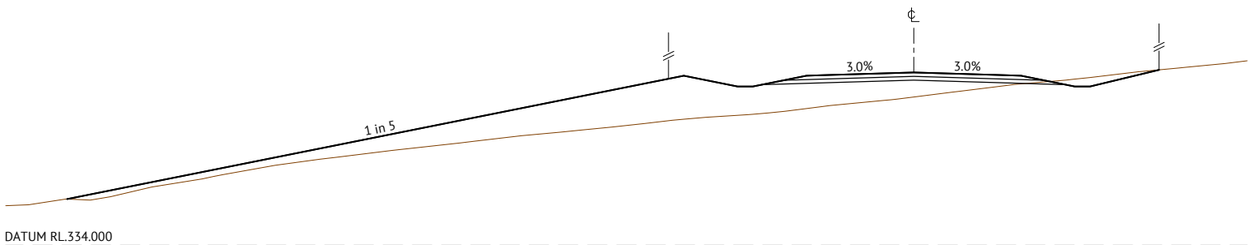
CLIENT MENDI CONSTRUCTIONS PTY LTD
PROJECT GRAND SECRET DEVELOPMENT - STAGE 2A
LOCATION VIEW STREET, CHARTERS TOWERS
SHEET TITLE ROAD A CROSS SECTIONS - SHEET 1 OF 3

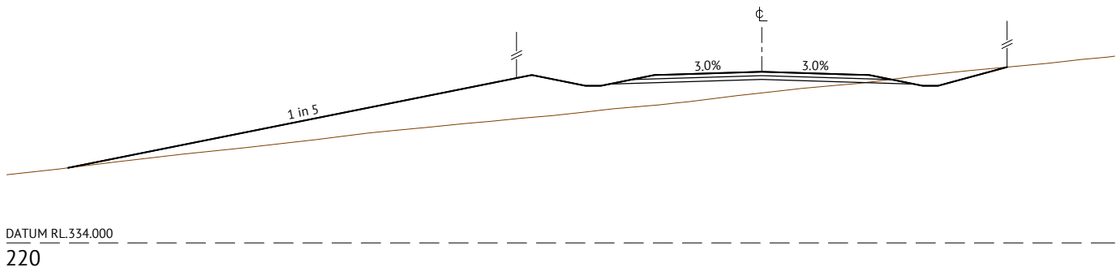
JOB CODE P004215
SHEET NUMBER C008
REV 1











ROAD A CROSS SECTIONS
SCALE 1:100

PRELIMINARY - NOT FOR CONSTRUCTION

DATE	REV	DESCRIPTION		
06/03/2026	1	ISSUED FOR OPERATIONAL WORKS APPROVAL	JJ	AP
			REC	APP

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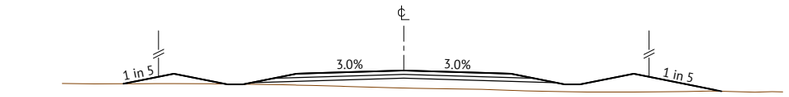
CHECKED Z.STROGUSZ
PROJECT MANAGER Z.STROGUSZ
ENGINEERING CERTIFICATION
K. DE LACEY RPEQ. 31559

SCALE
0 2 4 6m
SCALE 1:100 (A1)
ORIGINAL SHEET SIZE A1

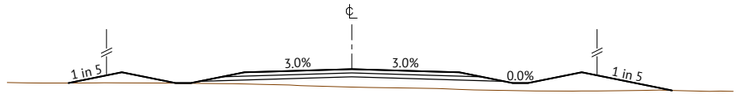
CLIENT: MENDI CONSTRUCTIONS PTY LTD
PROJECT: GRAND SECRET DEVELOPMENT - STAGE 2A
LOCATION: VIEW STREET, CHARTERS TOWERS
SHEET TITLE: ROAD A CROSS SECTIONS - SHEET 2 OF 3

JOB CODE: P004215
SHEET NUMBER: C009
REV: 1



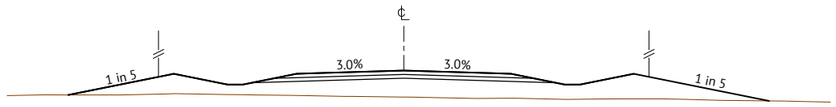
DATUM RL.340.000

340.179



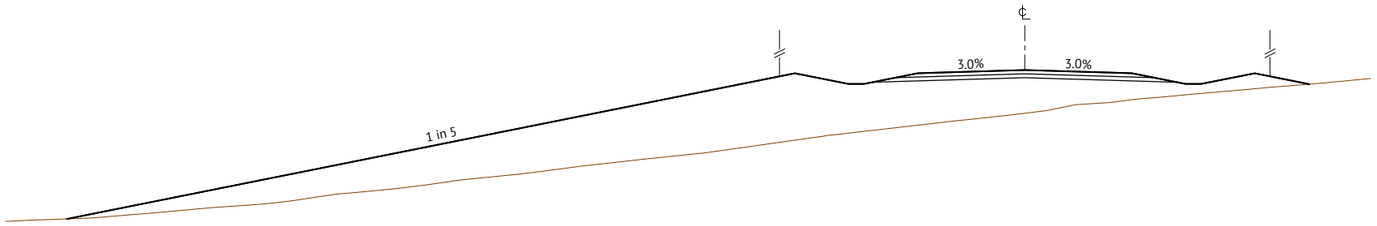
DATUM RL.340.000

340



DATUM RL.340.000

336.034



DATUM RL.335.000

319.397

ROAD A CROSS SECTIONS

SCALE 1:100

PRELIMINARY - NOT FOR CONSTRUCTION

DATE	REV	DESCRIPTION		
06/03/2026	1	ISSUED FOR OPERATIONAL WORKS APPROVAL	JJ	AP
			REC	APP

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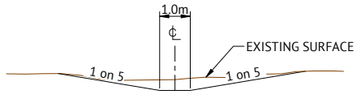
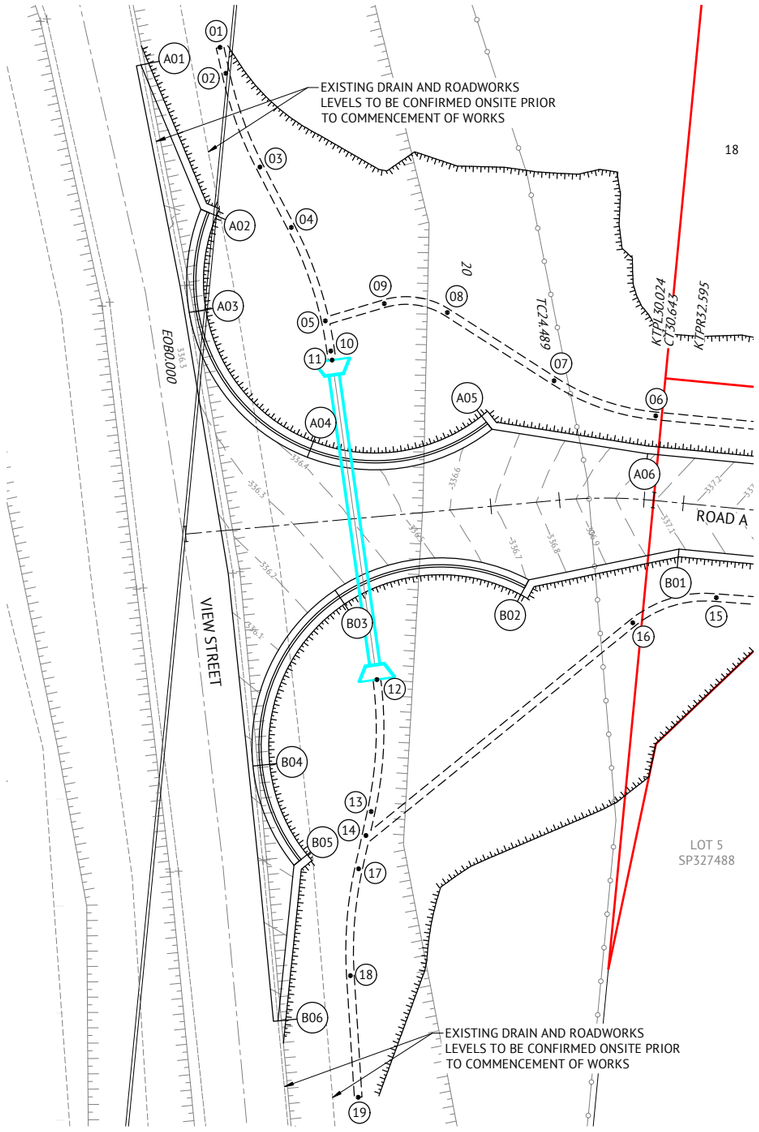
CHECKED Z.STROGUSZ
PROJECT MANAGER Z.STROGUSZ
ENGINEERING CERTIFICATION
K. DE LACEY RPEQ. 31559

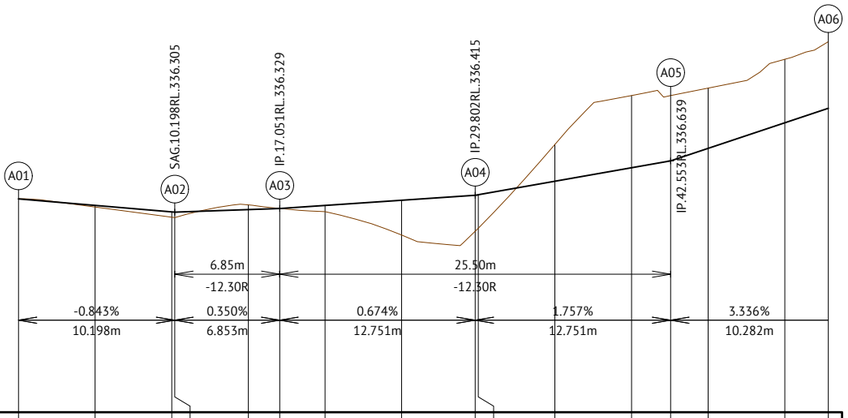
SCALE
0 2 4 6m
SCALE 1:100 (A1)
ORIGINAL SHEET SIZE A1

CLIENT: MENDI CONSTRUCTIONS PTY LTD
PROJECT: GRAND SECRET DEVELOPMENT - STAGE 2A
LOCATION: VIEW STREET, CHARTERS TOWERS
SHEET TITLE: ROAD A CROSS SECTIONS - SHEET 3 OF 3

JOB CODE: P004215
SHEET NUMBER: C010
REV: 1







TYPICAL DRAIN SECTION

1:100

TABLE DRAIN SETOUT POINT DETAILS

POINT	EASTING	NORTHING	LEVEL
01	420770.698	7780829.110	336.238
02	420771.074	7780827.416	336.168
03	420773.298	7780821.305	335.904
04	420775.348	7780817.363	335.724
05	420777.566	7780811.273	335.461
06	420799.124	7780805.075	336.641
07	420792.489	7780807.365	335.903
08	420785.526	7780811.814	335.487
09	420781.413	7780812.395	335.473
10	420777.924	7780809.308	335.368
11	420778.007	7780808.716	335.340
12	420780.932	7780787.880	335.300
13	420780.559	7780779.271	335.273
14	420780.216	7780777.710	335.267
15	420803.077	7780793.222	336.739
16	420797.626	7780791.582	335.856
17	420779.738	7780775.537	335.261
18	420779.205	7780768.569	335.239
19	420779.712	7780760.640	335.215

LIP OF KERB LEVEL	336.391	336.349	336.307	336.305	336.322	336.329	336.349	336.383	336.415	336.418	336.506	336.594	336.639	336.721	336.887	336.982
EXISTING SURFACE LEVEL	336.391	336.338	336.272	336.270	336.352	336.329	336.308	336.156	336.181	336.200	336.746	337.065	337.065	337.114	337.302	337.417
EASTING	420765.541			420769.448		420768.688			420776.393				420788.444			420798.601
NORTHING	7780827.964			7780818.544		7780811.822			7780802.379				7780804.203			7780802.608
CONTROL LINE CHAINAGE	0	5	10	10.198	15	17.051	20	25	29.802	30	35	40	42.553	45	50	52.835

EXISTING DRAIN AND ROADWORKS LEVELS TO BE CONFIRMED ONSITE PRIOR TO COMMENCEMENT OF WORKS

EXISTING DRAIN AND ROADWORKS LEVELS TO BE CONFIRMED ONSITE PRIOR TO COMMENCEMENT OF WORKS

LIP OF KERB LEVEL	337.083	336.894	336.706	336.544	336.382	336.276	336.220	336.058	335.897	335.845	335.785	335.720	335.686	335.556	335.455
EXISTING SURFACE LEVEL	337.333	337.140	337.019	336.901	336.558	336.186	335.967	335.920	335.894	335.852	335.759	335.566	335.552	335.502	335.455
EASTING	420800.640		420790.847			420778.204				420772.846		420775.526			420774.483
NORTHING	7780796.389		7780794.380			7780793.714				7780782.243		7780775.770			7780765.625
CONTROL LINE CHAINAGE	0	5	9.997	15	20	23.296	25	30	35	36.595	40	43.7	45	50	53.898

ROADWORKS DETAILS LEGEND

— — -6.35- — —	DESIGN SURFACE CONTOUR
═	BARRIER KERB & CHANNEL (TYPE B1)

ROADWORKS DETAILS NOTES

1. ALL WORKS TO BE CONSTRUCTED IN ACCORDANCE WITH RELEVANT LATEST ISSUE COUNCIL STANDARD DRAWINGS AND SPECIFICATIONS, UNLESS NOTED OTHERWISE.
2. ALL RADII, SETOUT AND LEVEL INFORMATION IS TO LIP OF KERB UNLESS NOTED OTHERWISE.

TYPICAL PAVEMENT CUTBACK DETAIL - NO KERB

SCALE 1:20

0 0.4 0.8 1.2m
SCALE 1:20 (A1)
0 0.5 1.0 1.5m
SCALE 1:25 (A1)
0 4 8 12m
SCALE 1:200 (A1)

PRELIMINARY - NOT FOR CONSTRUCTION

DATE	REV	DESCRIPTION	REC	APP
06/03/2026	1	ISSUED FOR OPERATIONAL WORKS APPROVAL	JJ	AP

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CHECKED Z.STROGUSZ
PROJECT MANAGER Z.STROGUSZ
ENGINEERING CERTIFICATION
K. DE LACEY RPEQ. 31559

SCALE
ORIGINAL SHEET SIZE A1

CLIENT MENDI CONSTRUCTIONS PTY LTD
PROJECT GRAND SECRET DEVELOPMENT - STAGE 2A
LOCATION VIEW STREET, CHARTERS TOWERS
SHEET TITLE ROADWORKS DETAILS PLAN - SHEET 1 OF 3

JOB CODE P004215
SHEET NUMBER C011
REV 1

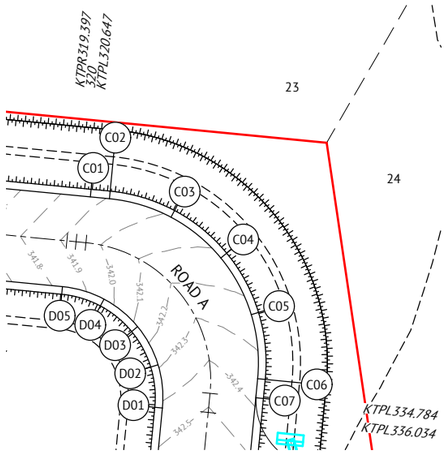
ROADWORKS DETAILS LEGEND

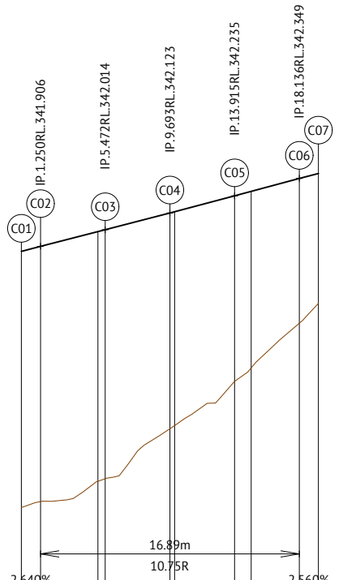
DESIGN SURFACE CONTOUR

BARRIER KERB & CHANNEL (TYPE B1)

ROADWORKS DETAILS NOTES

1. ALL WORKS TO BE CONSTRUCTED IN ACCORDANCE WITH RELEVANT LATEST ISSUE COUNCIL STANDARD DRAWINGS AND SPECIFICATIONS, UNLESS NOTED OTHERWISE.
2. ALL RADII, SETOUT AND LEVEL INFORMATION IS TO LIP OF KERB UNLESS NOTED OTHERWISE.





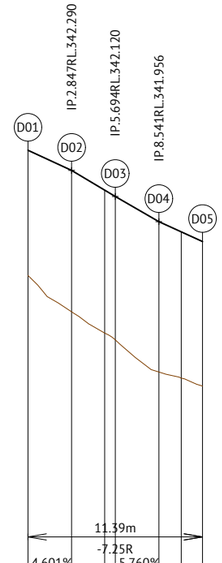
HORIZONTAL CURVE LENGTH
HORIZONTAL CURVE RADIUS

VERTICAL GEOMETRY GRADE
VERTICAL GRADE LENGTH

VERTICAL CURVE LENGTH
VERTICAL CURVE RADIUS

DATUM RL.339.000

LIP OF KERB LEVEL	341.873	341.906	342.002	342.014	342.123	342.131	342.235	342.264	342.349	342.381
EXISTING SURFACE LEVEL	340.203	340.241	340.374	340.389	340.716	340.737	341.025	341.113	341.405	341.535
EASTING	421087.937	421089.181		421093.197	421096.445		421098.429		421098.849	421098.729
NORTHING	7780774.693	7780774.573		7780773.363	7780770.709		7780767.014		7780762.840	7780761.596
CONTROL LINE CHAINAGE	0	1.25	5	5.472	9.693	10	13.915	15	18.136	19.386



HORIZONTAL CURVE LENGTH
HORIZONTAL CURVE RADIUS

VERTICAL GEOMETRY GRADE
VERTICAL GRADE LENGTH

VERTICAL CURVE LENGTH
VERTICAL CURVE RADIUS

DATUM RL.339.000

LIP OF KERB LEVEL	342.421	342.290	342.161	342.120	341.956	341.889	341.826			
EXISTING SURFACE LEVEL	341.606	341.368	341.230	341.184	340.974	340.936	340.884			
EASTING	421092.636	421092.353		421091.015	421088.825		421086.116			
NORTHING	7780760.928	7780763.743		7780766.235	7780768.025		7780768.841			
CONTROL LINE CHAINAGE	0	2.847	5	5.694	8.541	10	11.388			

0 0.5 1.0 1.5m
SCALE 1:25 (A1)

0 4 8 12m
SCALE 1:200 (A1)

PRELIMINARY - NOT FOR CONSTRUCTION

DATE	REV	DESCRIPTION		
06/03/2026	1	ISSUED FOR OPERATIONAL WORKS APPROVAL	JJ	AP

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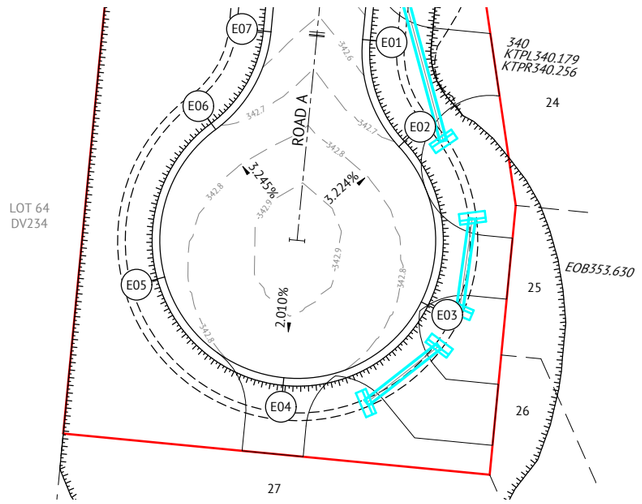
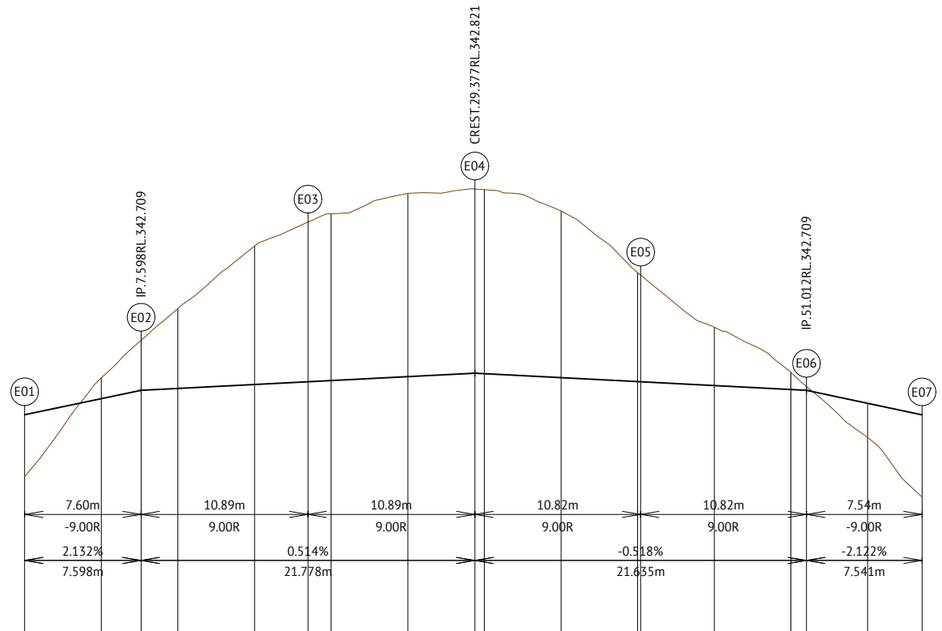
DESIGNED J.JONES
CHECKED Z.STROGUSZ
PROJECT MANAGER Z.STROGUSZ
ENGINEERING CERTIFICATION
K. DE LACEY RPEQ. 31559

SCALE
ORIGINAL SHEET SIZE A1

CLIENT: MENDI CONSTRUCTIONS PTY LTD
PROJECT: GRAND SECRET DEVELOPMENT - STAGE 2A
LOCATION: VIEW STREET, CHARTERS TOWERS
SHEET TITLE: ROADWORKS DETAILS PLAN - SHEET 2 OF 3

JOB CODE: P004215
SHEET NUMBER: C012
REV: 1





ROADWORKS DETAILS LEGEND

6.35 DESIGN SURFACE CONTOUR
BARRIER KERB & CHANNEL (TYPE B1)

N

ROADWORKS DETAILS NOTES

1. ALL WORKS TO BE CONSTRUCTED IN ACCORDANCE WITH RELEVANT LATEST ISSUE COUNCIL STANDARD DRAWINGS AND SPECIFICATIONS, UNLESS NOTED OTHERWISE.
2. ALL RADII, SETOUT AND LEVEL INFORMATION IS TO LIP OF KERB UNLESS NOTED OTHERWISE.

HORIZONTAL CURVE LENGTH: 7.60m | 10.89m | 10.89m | 10.82m | 10.82m | 7.54m
HORIZONTAL CURVE RADIUS: -9.00R | 9.00R | 9.00R | 9.00R | 9.00R | -9.00R
VERTICAL GEOMETRY GRADE: 2.132% | 0.514% | -0.518% | -2.122%
VERTICAL GRADE LENGTH: 7.598m | 21.778m | 21.635m | 7.541m
VERTICAL CURVE LENGTH
VERTICAL CURVE RADIUS
DATUM RL.341.000

LIP OF KERB LEVEL	342.547	342.655	342.709	342.721	342.747	342.765	342.773	342.798	342.821	342.818	342.792	342.766	342.765	342.740	342.714	342.709	342.624	342.549
EXISTING SURFACE LEVEL	342.149	342.790	343.036	343.242	343.650	343.806	343.860	343.993	344.022	344.018	343.878	343.477	343.461	343.121	342.826	342.735	342.403	342.013
EASTING	421098.210		421100.572			421102.031			421093.067				421085.295			421088.623		421092.231
NORTHING	7780756.226		7780749.239			7780739.107			7780734.163				7780740.735			7780750.354		7780756.726
CONTROL LINE CHAINAGE	0	5	7.598	10	15	18.487	20	25	29.377	30	35	40	40.194	45	50	51.012	55	58.553

0 0.5 1.0 1.5m
SCALE 1:25 (A1)
0 4 8 12m
SCALE 1:200 (A1)
0 5 10 15m
SCALE 1:250 (A1)

PRELIMINARY - NOT FOR CONSTRUCTION

DATE	REV	DESCRIPTION	REC	APP
06/03/2026	1	ISSUED FOR OPERATIONAL WORKS APPROVAL	JJ	AP

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PROJECT MANAGER Z.STROGUSZ
ENGINEERING CERTIFICATION
K. DE LACEY RPEQ. 31559
SCALE
ORIGINAL SHEET SIZE A1

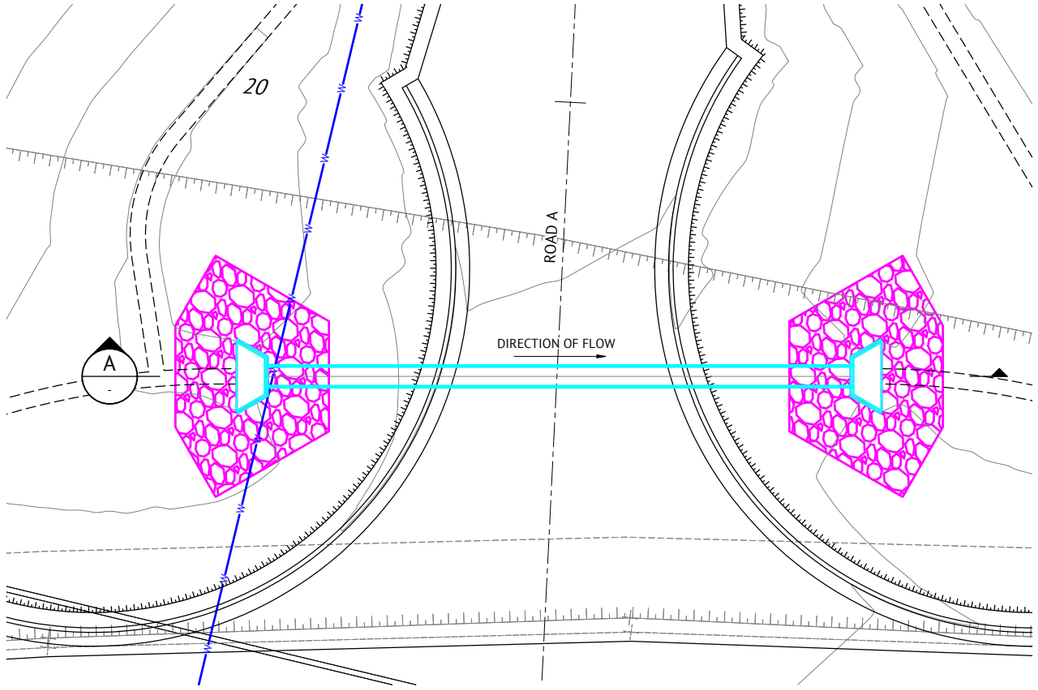
CLIENT MENDI CONSTRUCTIONS PTY LTD
PROJECT GRAND SECRET DEVELOPMENT - STAGE 2A
LOCATION VIEW STREET, CHARTERS TOWERS
SHEET TITLE ROADWORKS DETAILS PLAN - SHEET 3 OF 3
JOB CODE P004215
SHEET NUMBER C013
REV 1

CULVERT DETAILS LEGEND

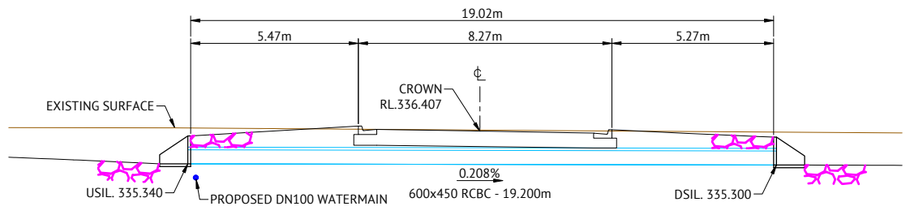
- 6.75 — FINISHED SURFACE CONTOURS
- LIP — BARRIER KERB AND CHANNEL (TYPE B1)
- TOP OF BATTER
- BOTTOM OF BATTER
- W — PROPOSED WATERMAIN
- DUMPED ROCK SCOUR PROTECTION ON GEOTEXTILE FABRIC (200g/m²) ROCK GRADING - 600mm THICK d50 = 300mm

NOTES

1. FOR CULVERT HEADWALL DETAILS REFER TO DEPARTMENT OF TRANSPORT AND MAIN ROADS STANDARD DRAWING 1304
2. CONCRETE EXPOSURE CLASSIFICATION - B2
3. CONCRETE STRENGTH - S40/20
4. MINIMUM COVER TO REINFORCEMENT - 60mm UNO



CULVERT A DETAILS
SCALE 1:100



SECTION A - CULVERT A
ROAD A CH11.053
SCALE 1:100

PRELIMINARY - NOT FOR CONSTRUCTION

DATE	REV	DESCRIPTION	REC	APP
06/03/2026	1	ISSUED FOR OPERATIONAL WORKS APPROVAL	JJ	AP

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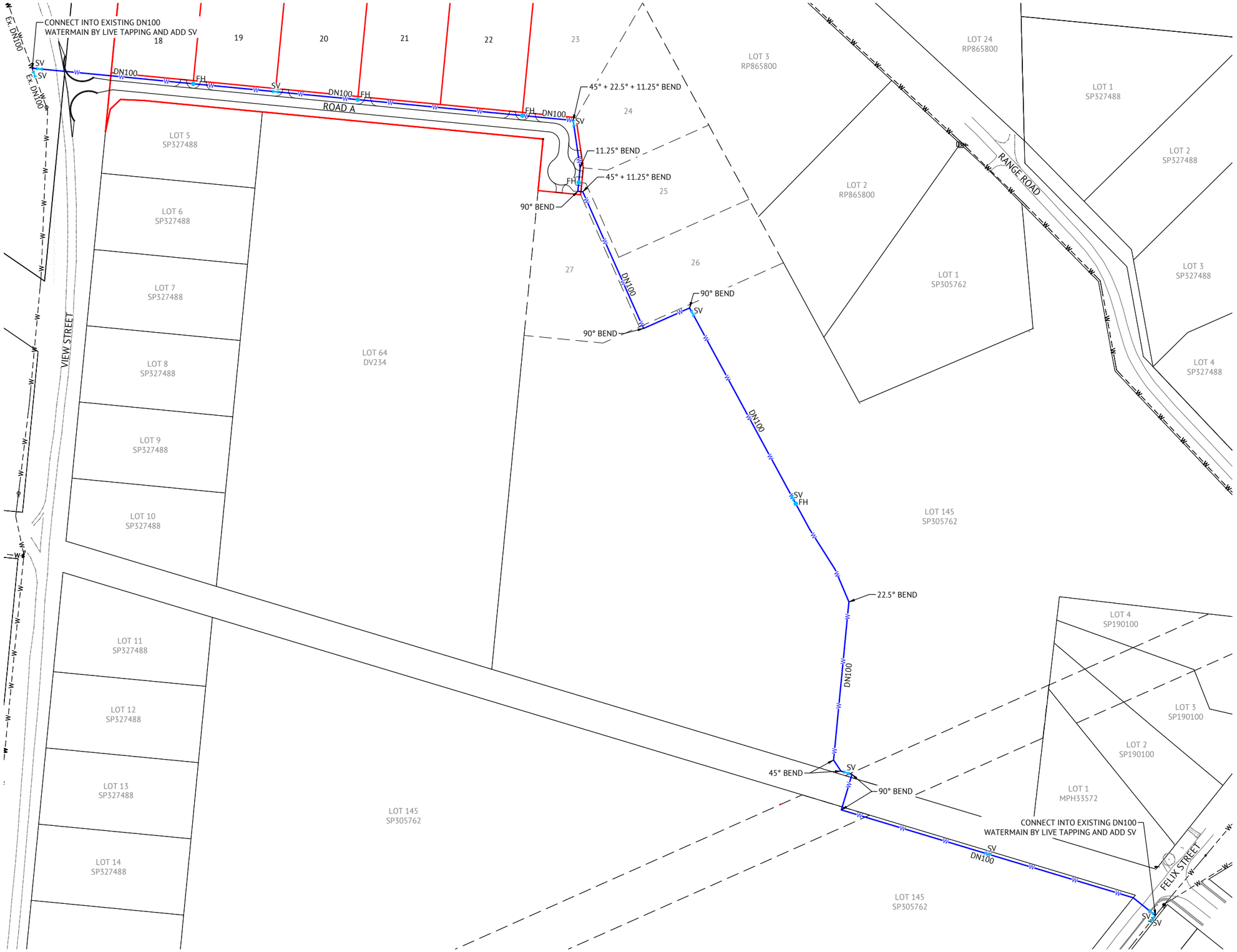
K. DE LACEY RPEQ. 31559

SCALE
0 2 4 6m
SCALE 1:100 (A1)
ORIGINAL SHEET SIZE A1

CLIENT: MENDI CONSTRUCTIONS PTY LTD
PROJECT: GRAND SECRET DEVELOPMENT - STAGE 2A
LOCATION: VIEW STREET, CHARTERS TOWERS
SHEET TITLE: STORMWATER CULVERT DETAILS PLAN

JOB CODE: P004215
SHEET NUMBER: C014
REV: 1



WATER LEGEND

- DN100 — WATER MAIN AND DIAMETER
- 63OD — POLYETHYLENE WATER MAIN AND DIAMETER
- FH SV — FIRE HYDRANT, VALVE AND REDUCER
- EXISTING WATER MAIN, VALVE AND HYDRANT

WATER NOTES

1. ALL WORKS TO BE CONSTRUCTED IN ACCORDANCE WITH RELEVANT LATEST ISSUE COUNCIL STANDARD DRAWINGS AND PROJECT SPECIFICATION.
2. ALL WATER MAINS ARE TO BE LOCATED ON A 1.8m ±0.1m ALIGNMENT OFFSET FROM PROPERTY BOUNDARIES, UNLESS NOTED OTHERWISE.
3. ALL FIRE HYDRANTS TO BE LOCATED PERPENDICULAR TO PROPERTY BOUNDARY UNLESS NOTED OTHERWISE.
4. ALL uPVC MAINS ARE TO BE CLASS PN16 SERIES 2 COMPATIBLE TO AS 1477 RUBBER RING JOINTED, WITH SOCKETED DICL FITTINGS UNLESS NOTED OTHERWISE.
5. ALL DN32 MAINS TO BE POLYETHYLENE CLASS PN16 TO AS 4130.
6. ALL TRENCHES UNDER ROAD PAVEMENT (INCLUDING FUTURE) TO BE BACKFILLED WITH CRUSHER DUST TO SUBGRADE LEVEL.
7. REFER CTM WATER ALLIANCE DESIGN AND CONSTRUCTION CODE (CTM CODE) DRAWINGS SEQ-WAT-1105-1 & SEQ-WAT-1105-2 FOR SERVICE MAIN CONNECTION DETAILS. FOR PVC TO PE SERVICE MAIN CONNECTION DETAIL.
8. CONNECTION TO EXISTING WATER MAINS TO BE CARRIED OUT BY COUNCIL AT THE CONTRACTORS EXPENSE.

EXISTING SERVICES

ALL EXISTING SERVICES ARE TO BE LOCATED BY THE CONTRACTOR THROUGH CONTACTING THE RELEVANT SERVICE AUTHORITY PRIOR TO THE COMMENCEMENT OF ANY WORK

PRELIMINARY - NOT FOR CONSTRUCTION

DATE	REV	DESCRIPTION		
06/03/2026	1	ISSUED FOR OPERATIONAL WORKS APPROVAL	JJ	AP

REVISIONS

Premise
PART OF THE Amey GROUP

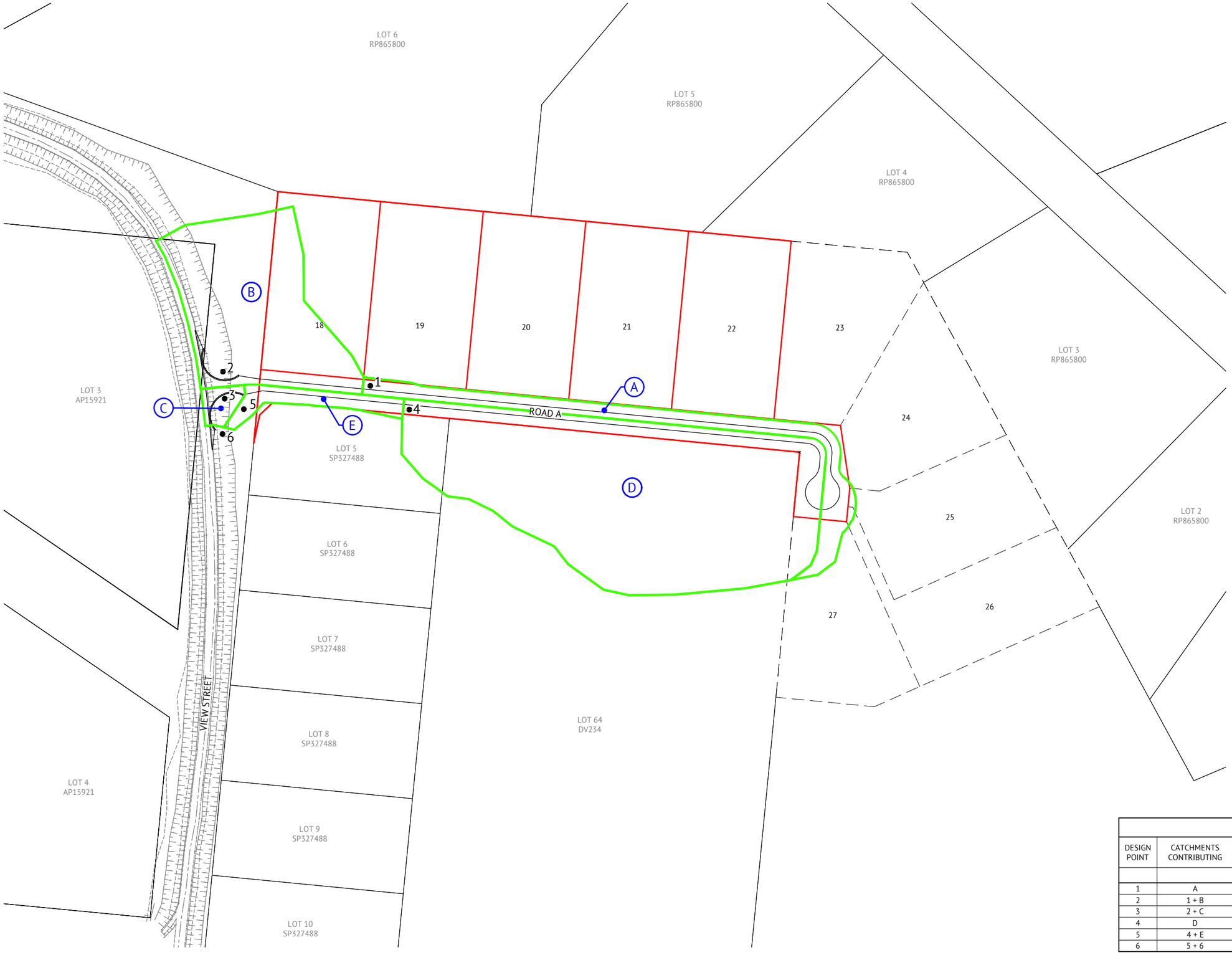
TOWNSVILLE OFFICE
84 DENHAM STREET
PO BOX 1110
TOWNSVILLE, QLD 4810
PH: (07) 4772 0666
WEB: www.premise.com.au

DESIGNED JJONES
CHECKED Z.STROGUSZ
PROJECT MANAGER Z.STROGUSZ
ENGINEERING CERTIFICATION
K. DE LACEY RPEQ. 31559

SCALE
0 20 40 60m
SCALE 1:1000 (A1)
ORIGINAL SHEET SIZE A1

CLIENT	MENDI CONSTRUCTIONS PTY LTD
PROJECT	GRAND SECRET DEVELOPMENT - STAGE 2A
LOCATION	VIEW STREET, CHARTERS TOWERS
SHEET TITLE	WATER RETICULATION PLAN

JOB CODE P004215
SHEET NUMBER C015
REV 1



CATCHMENT DATA

CATCHMENT NAME	AREA (Ha)	C100	E.I.A (Ha)
A	0.278	1.00	0.278
B	0.655	1.00	0.655
C	0.036	1.00	0.036
D	1.578	1.00	1.578
E	0.087	1.00	0.087

Q100 - DATA TABLE

DESIGN POINT	CATCHMENTS CONTRIBUTING	E.I.A	Tc	I100	Q100	I2	Q2 @ 75%	Q100 NET
		(Ha)	(mins)	(mm/hr)	(m3/s)	(mm/hr)	(m3/s)	(m3/s)
1	A	0.278	15.0	231	0.178	103	0.042	0.136
2	1 + B	0.933	15.3	229	0.594	102	0.141	0.453
3	2 + C	0.969	16.2	224	0.603	100	0.143	0.460
4	D	1.578	18.1	214	0.937	95	0.222	0.715
5	4 + E	1.665	18.5	212	0.980	94	0.232	0.747
6	5 + 6	2.634	18.5	212	1.550	94	0.367	1.182

PRELIMINARY - NOT FOR CONSTRUCTION

DATE	REV	DESCRIPTION		
06/03/2026	1	ISSUED FOR OPERATIONAL WORKS APPROVAL	JJ	AP

REVISIONS

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TOWNSVILLE OFFICE
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DESIGNED J.JONES
CHECKED Z.STROGUSZ
PROJECT MANAGER Z.STROGUSZ
ENGINEERING CERTIFICATION
K. DE LACEY RPEQ. 31559

SCALE
0 20 40 60m
SCALE 1:1000 (A1)
ORIGINAL SHEET SIZE A1

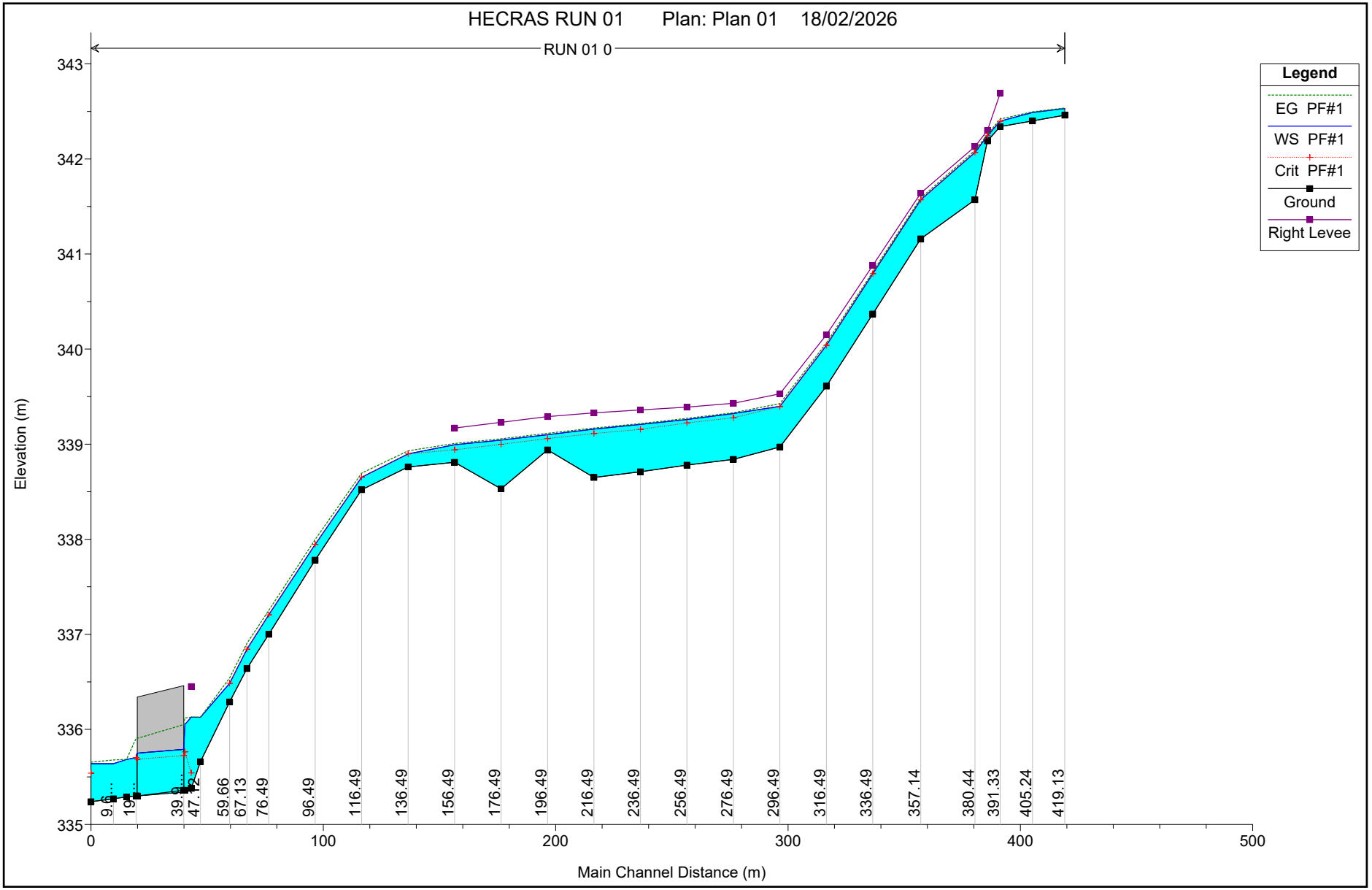
CLIENT: MENDI CONSTRUCTIONS PTY LTD
PROJECT: GRAND SECRET DEVELOPMENT - STAGE 2A
LOCATION: VIEW STREET, CHARTERS TOWERS
SHEET TITLE: Q100 STORMWATER CATCHMENT PLAN & DATA TABLES

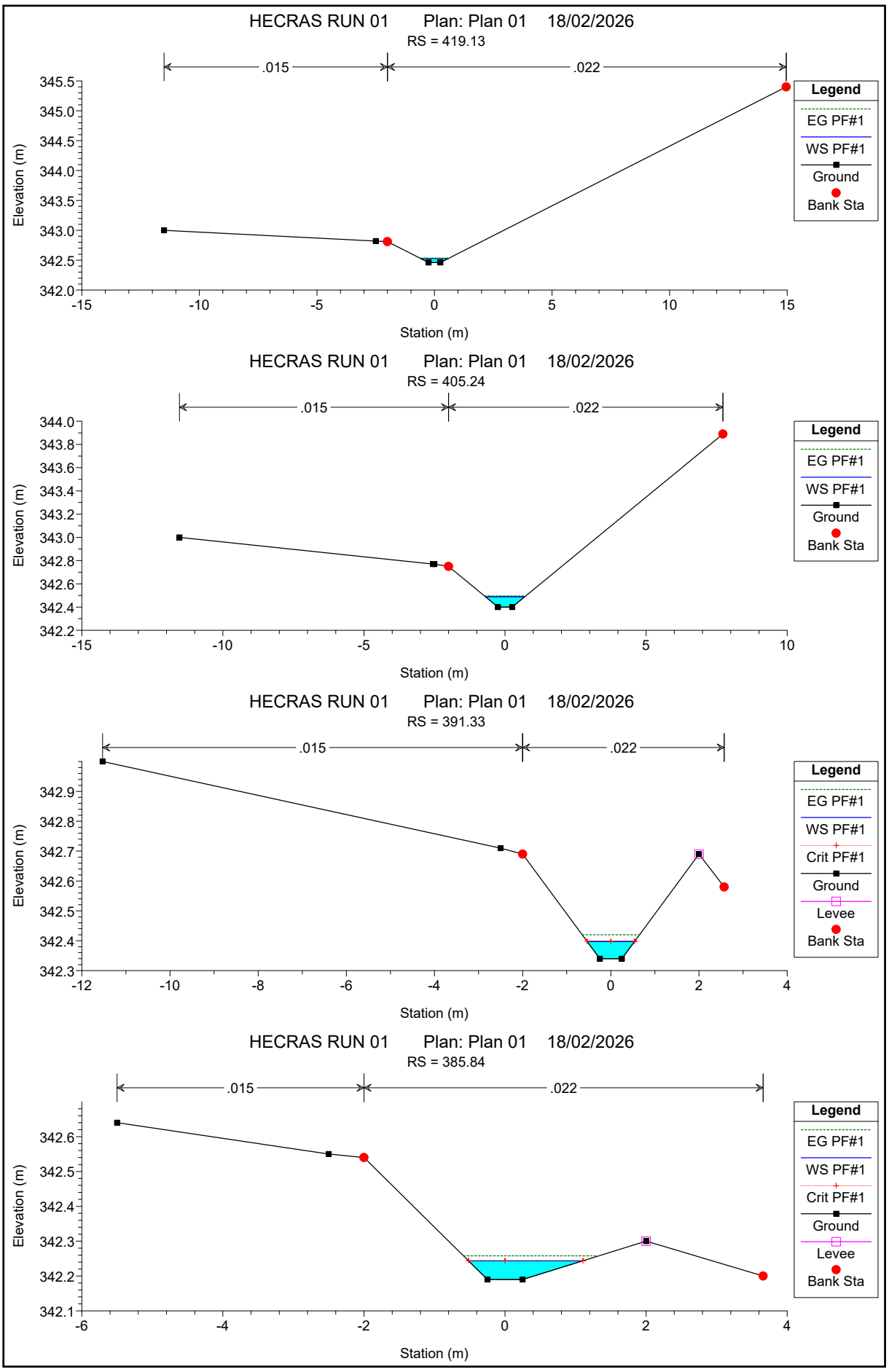
JOB CODE: P004215
SHEET NUMBER: C016
REV: 1

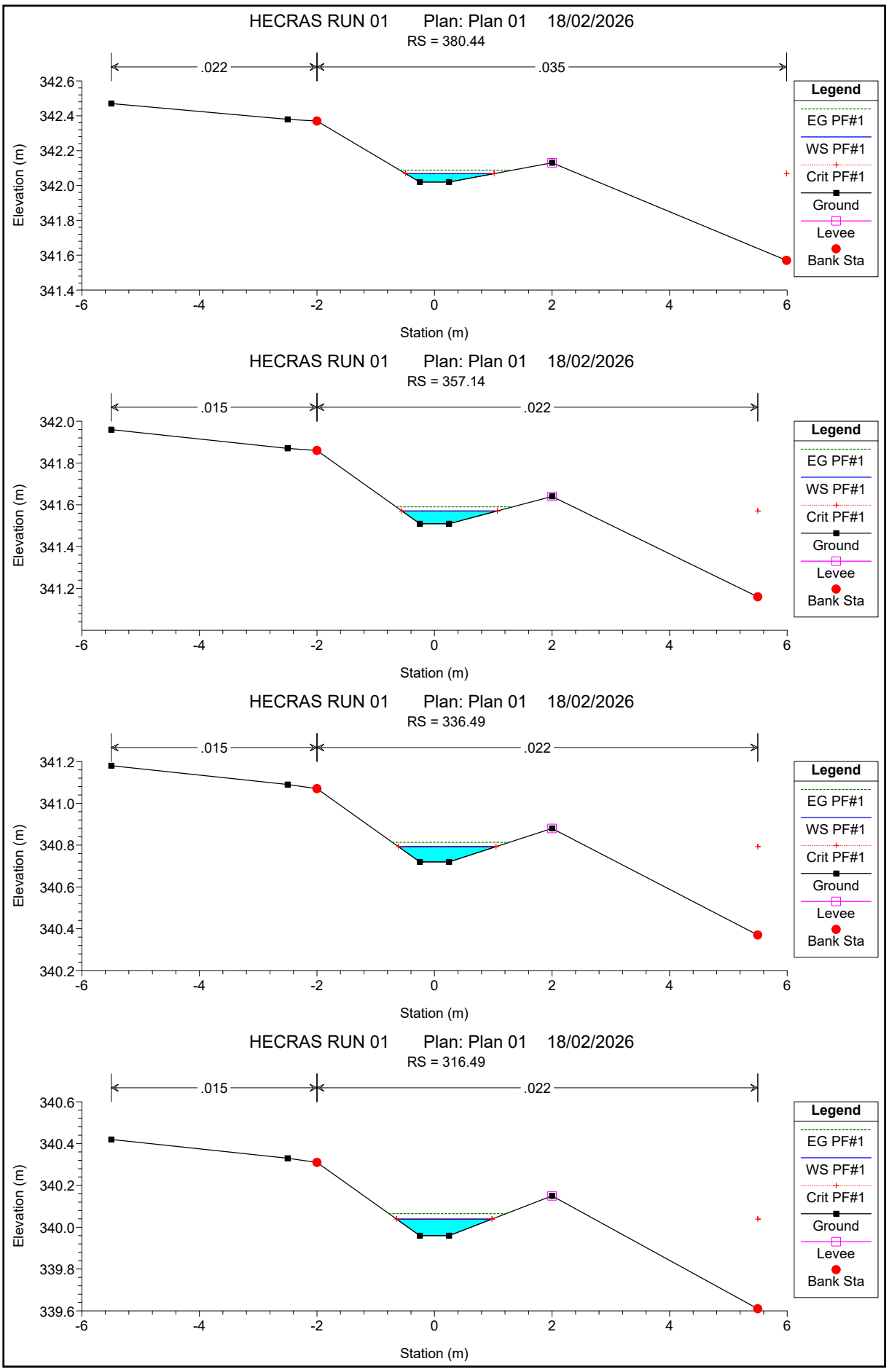
JOB CODE:	P004215
PROJECT:	GRANDR SECRET STAGE 2A
DATE:	11/03/2026
PREPARED:	J.JONES
REVIEWED:	K.DE LACEY

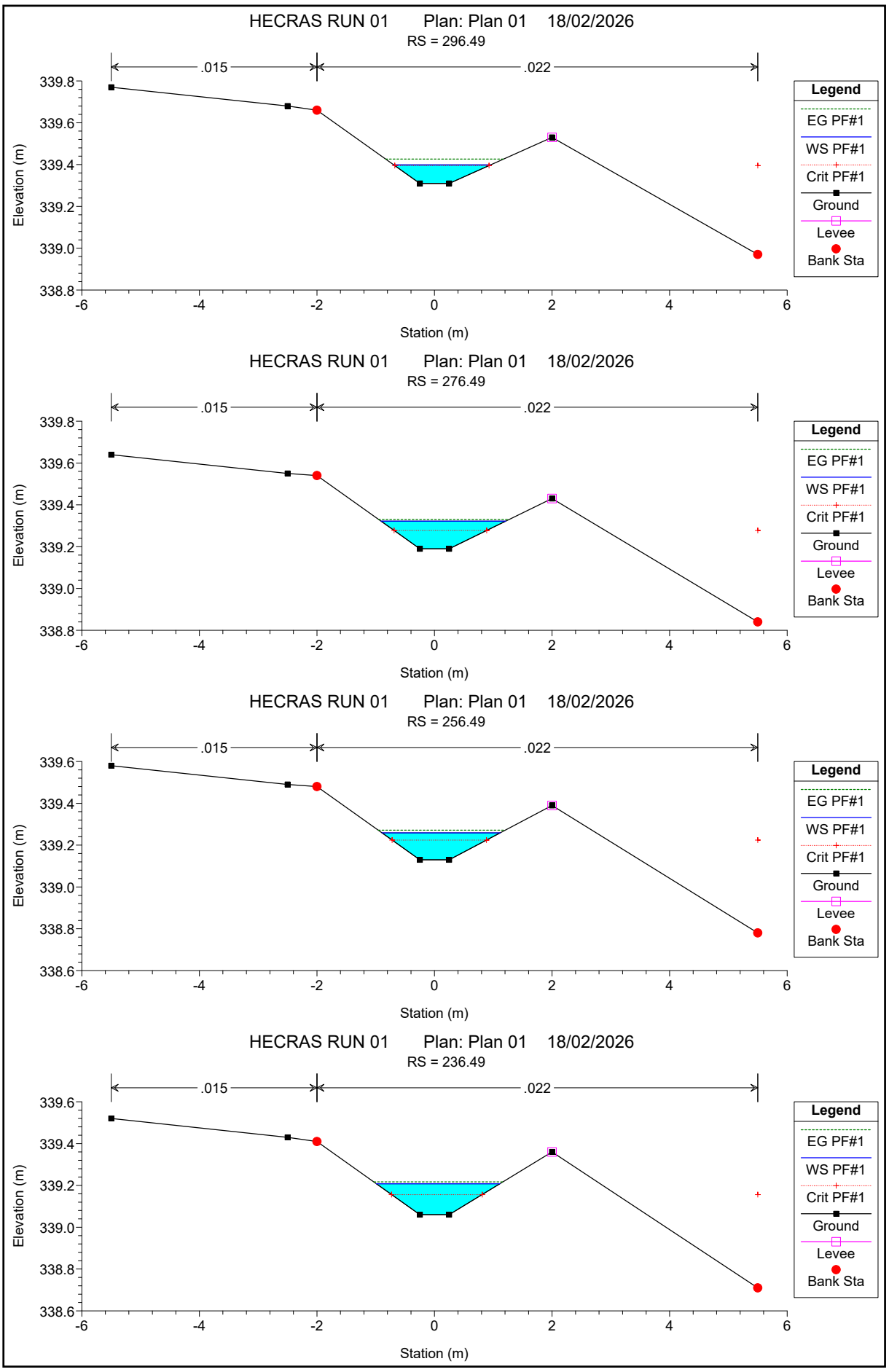
HEC-RAS Plan: Plan 01 River: RUN 01 Reach: 0 Profile: PF#1

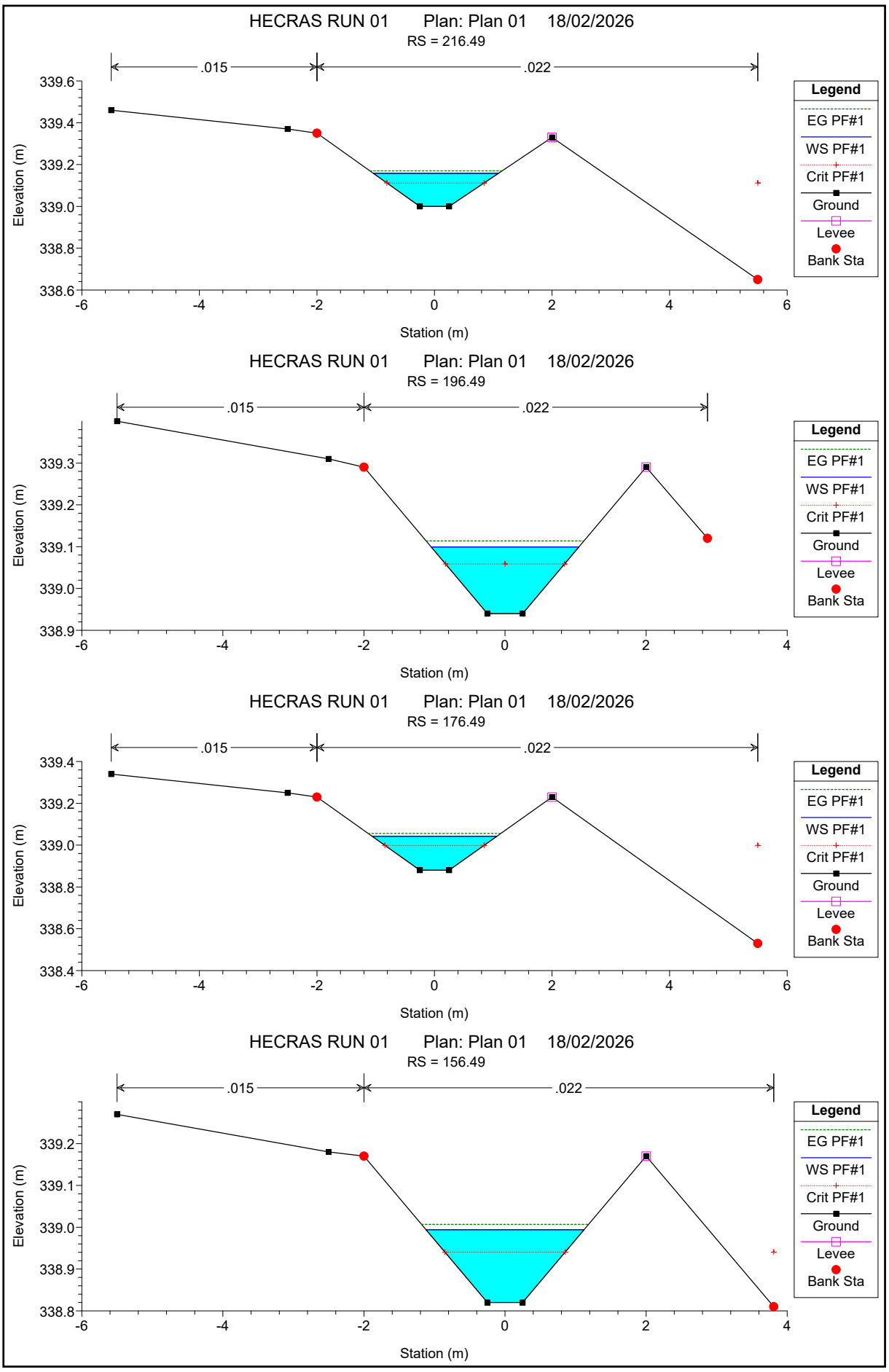
Reach	River Sta	Profile	Cum Ch Len	Q Total	Min Ch El	Max Chl Dpth	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Vel Total	Flow Area	Top Width	Froude # Chl	Trvl Tme Avg
			(m)	(m3/s)	(m)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m/s)	(m2)	(m)		(hrs)
0	419.13	PF#1	419.13	0.02	342.46	0.07	342.53		342.54	0.003033	0.34	0.34	0.06	1.20	0.48	0.20
0	405.24	PF#1	405.25	0.03	342.40	0.09	342.49		342.50	0.002621	0.36	0.36	0.08	1.39	0.46	0.19
0	391.33	PF#1	391.33	0.03	342.34	0.06	342.40	342.40	342.42	0.014502	0.66	0.66	0.05	1.08	1.02	0.18
0	385.84	PF#1	385.84	0.03	342.19	0.05	342.24	342.24	342.26	0.011819	0.53	0.53	0.06	1.62	0.90	0.18
0	380.44	PF#1	380.45	0.03	341.57	0.50	342.07	342.07	342.09	0.046955	0.62	0.62	0.05	1.51	1.11	0.17
0	357.14	PF#1	357.14	0.04	341.16	0.41	341.57	341.57	341.59	0.013899	0.62	0.62	0.06	1.62	1.00	0.16
0	336.49	PF#1	336.49	0.05	340.37	0.42	340.79	340.79	340.81	0.011510	0.64	0.64	0.08	1.66	0.93	0.15
0	316.49	PF#1	316.49	0.06	339.61	0.43	340.04	340.04	340.07	0.012950	0.71	0.71	0.08	1.62	1.00	0.14
0	296.49	PF#1	296.49	0.07	338.97	0.43	339.40	339.40	339.43	0.011945	0.74	0.74	0.09	1.65	0.98	0.14
0	276.49	PF#1	276.49	0.07	338.84	0.48	339.32	339.28	339.33	0.002285	0.41	0.41	0.17	2.12	0.45	0.13
0	256.49	PF#1	256.49	0.08	338.78	0.48	339.26	339.22	339.27	0.003447	0.49	0.49	0.16	2.01	0.56	0.11
0	236.49	PF#1	236.49	0.08	338.71	0.50	339.21	339.16	339.22	0.002081	0.42	0.42	0.19	2.10	0.44	0.10
0	216.49	PF#1	216.49	0.10	338.65	0.51	339.16	339.11	339.17	0.002536	0.48	0.48	0.21	2.13	0.49	0.09
0	196.49	PF#1	196.49	0.11	338.94	0.16	339.10	339.06	339.11	0.003057	0.53	0.53	0.21	2.10	0.54	0.08
0	176.49	PF#1	176.49	0.11	338.53	0.51	339.04	339.00	339.06	0.002814	0.52	0.52	0.21	2.13	0.52	0.07
0	156.49	PF#1	156.49	0.12	338.81	0.18	338.99	338.94	339.01	0.002469	0.50	0.50	0.24	2.24	0.49	0.06
0	136.49	PF#1	136.49	0.13	338.76	0.14	338.90	338.90	338.93	0.008036	0.79	0.79	0.16	1.88	0.86	0.05
0	116.49	PF#1	116.49	0.14	338.52	0.13	338.65	338.65	338.69	0.011102	0.91	0.91	0.15	1.82	1.00	0.04
0	96.49	PF#1	96.49	0.22	337.78	0.17	337.95	337.95	338.00	0.010388	1.00	1.00	0.22	2.16	1.00	0.04
0	76.49	PF#1	76.49	0.30	337.00	0.21	337.21	337.21	337.25	0.007459	0.96	0.96	0.31	2.55	0.87	0.03
0	67.13	PF#1	67.13	0.34	336.64	0.20	336.84	336.84	336.91	0.009723	1.09	1.09	0.31	2.54	1.00	0.03
0	59.66	PF#1	59.66	0.37	336.29	0.20	336.49	336.49	336.54	0.009891	1.05	1.05	0.35	3.10	1.00	0.03
0	47.12	PF#1	47.12	0.43	335.66	0.47	336.13		336.13	0.000114	0.19	0.19	2.27	9.22	0.12	0.02
0	43.11	PF#1	43.11	0.44	335.38	0.75	336.13	335.54	336.13	0.000010	0.08	0.08	5.50	12.70	0.04	0.01
0	40.41	PF#1	40.41	0.45	335.36	0.69	336.05	335.76	336.12	0.005581	1.16	1.16	0.39	0.56	0.44	0.01
0	39.91		Culvert													
0	19.41	PF#1	19.41	0.45	335.30	0.40	335.70	335.70	335.91	0.021071	1.99	1.99	0.23	0.56	1.00	0.01
0	15.28	PF#1	15.28	0.46	335.29	0.39	335.68		335.68	0.000033	0.11	0.11	4.05	13.94	0.07	0.01
0	9.64	PF#1	9.64	1.18	335.27	0.37	335.64		335.68	0.003114	0.89	0.89	1.33	6.39	0.62	0.00
0	0.00	PF#1		1.18	335.24	0.40	335.64	335.54	335.66	0.001001	0.57	0.57	2.08	9.88	0.36	0.00

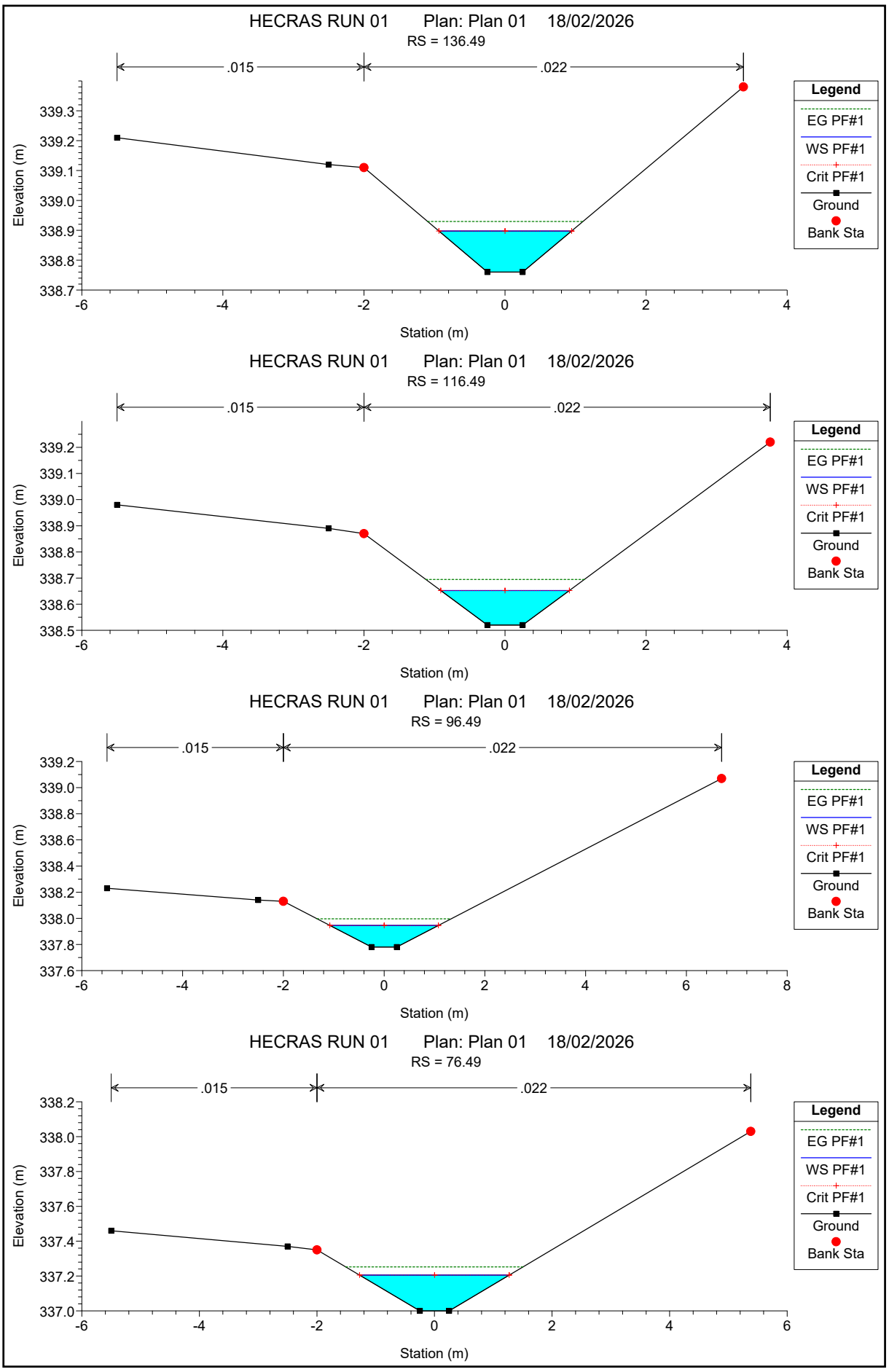


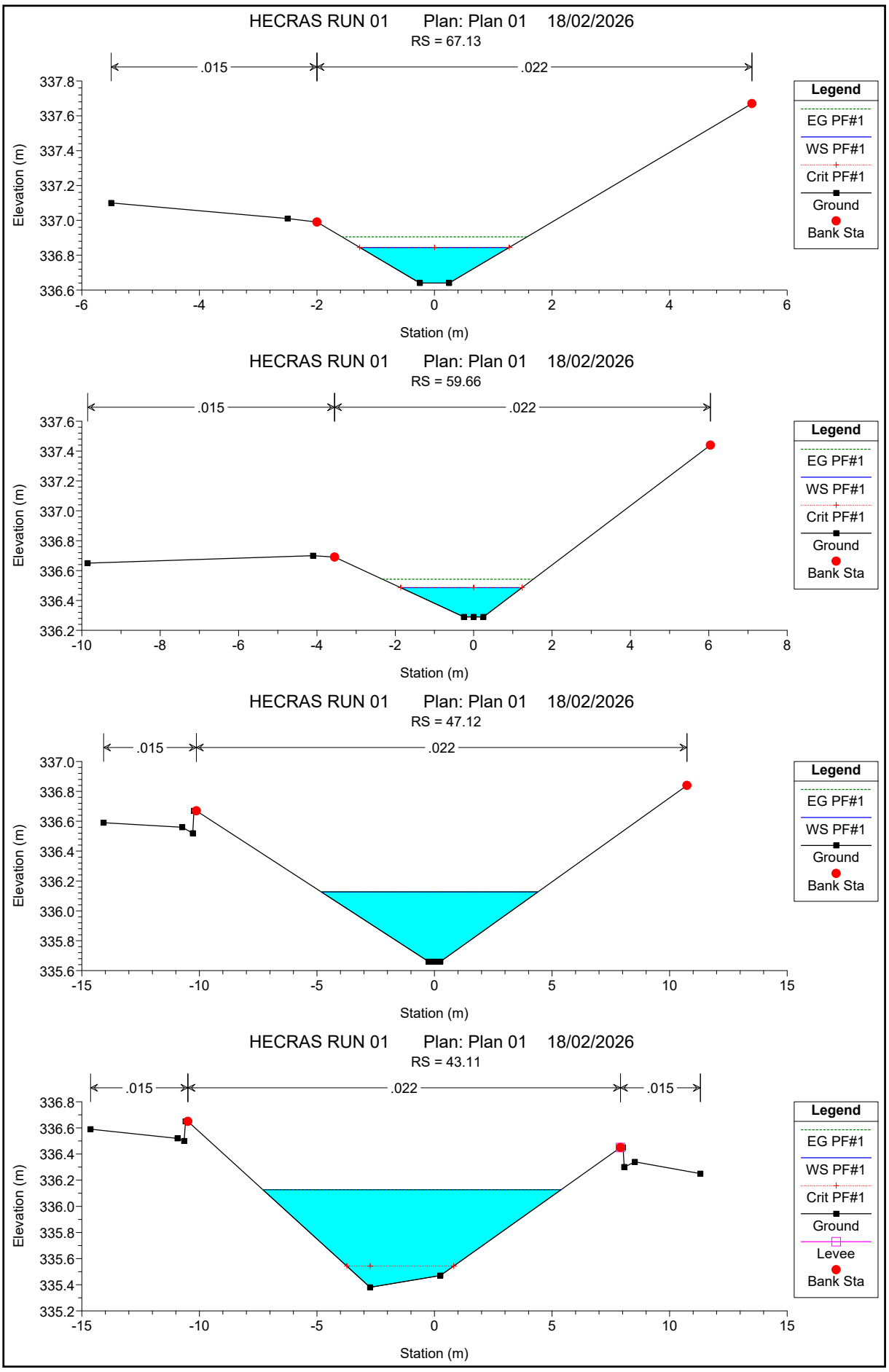


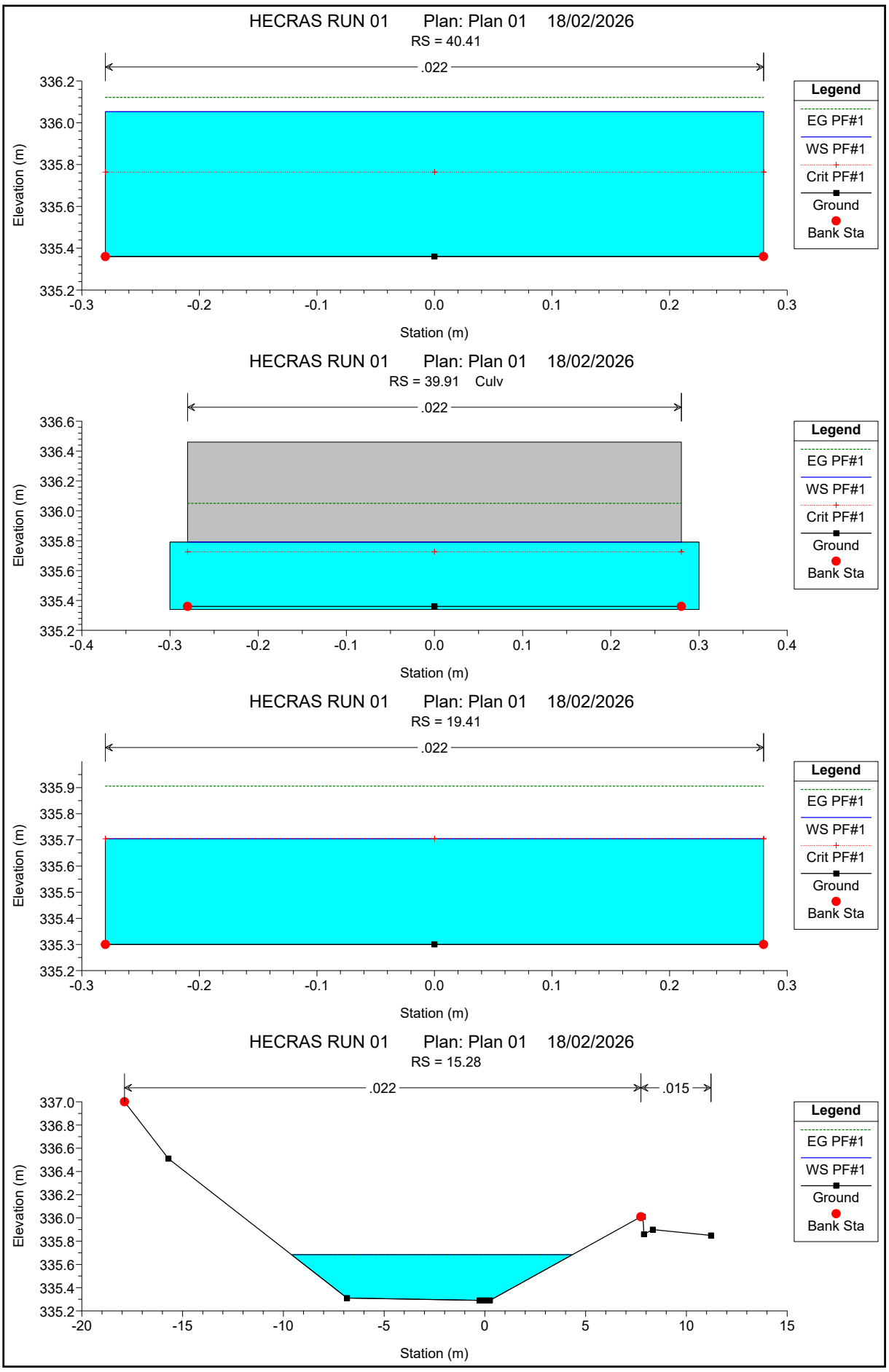


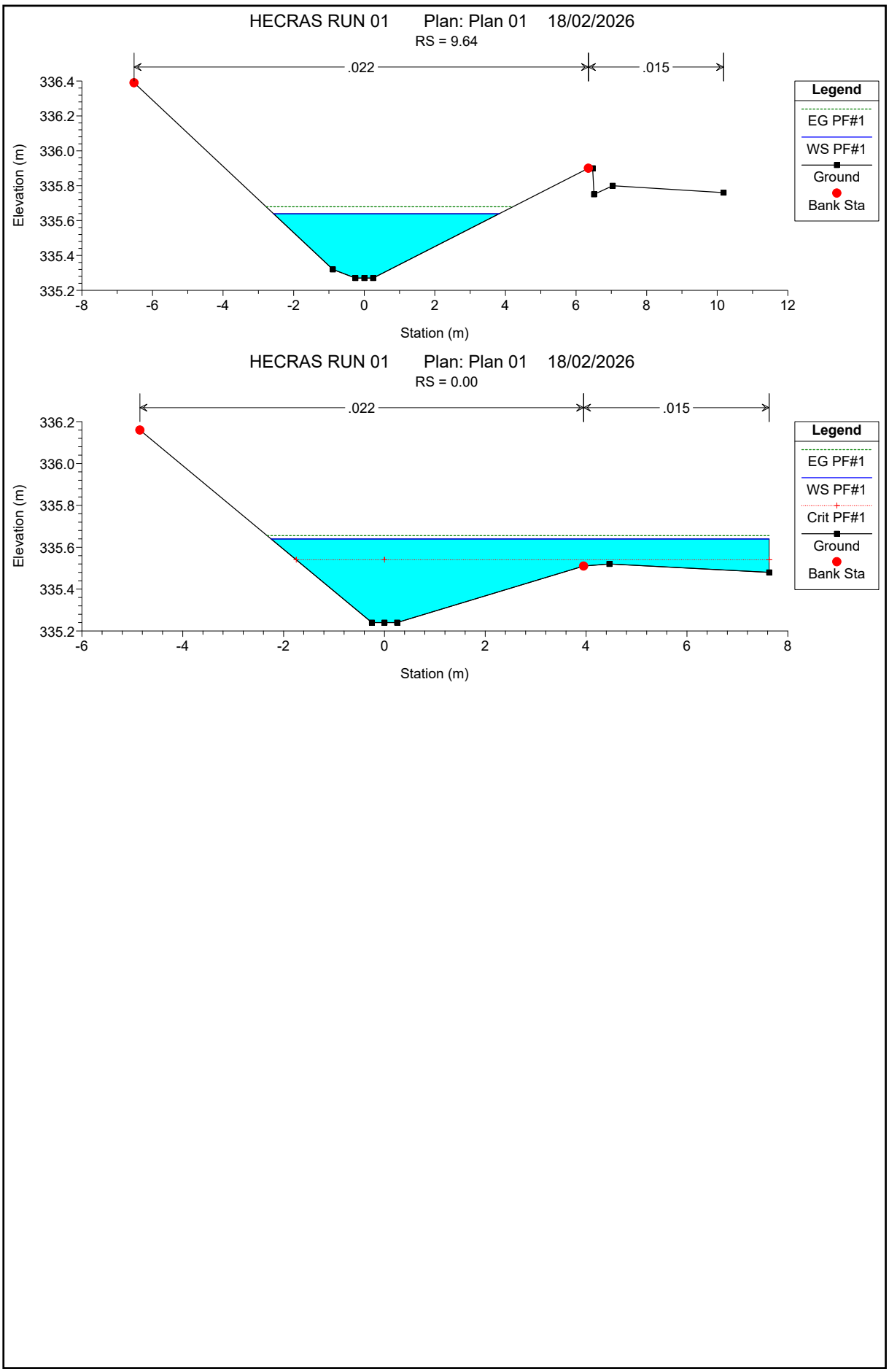






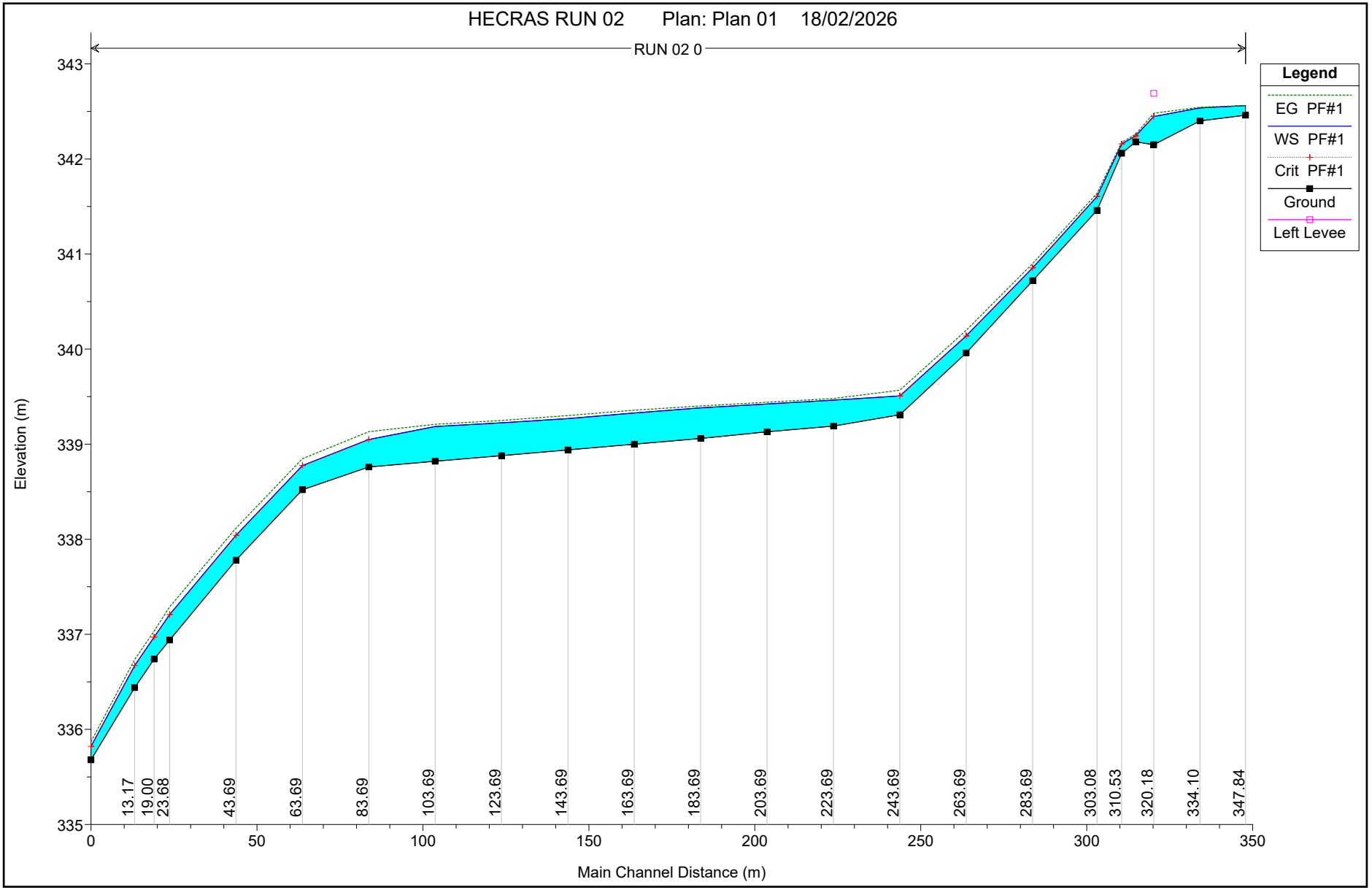


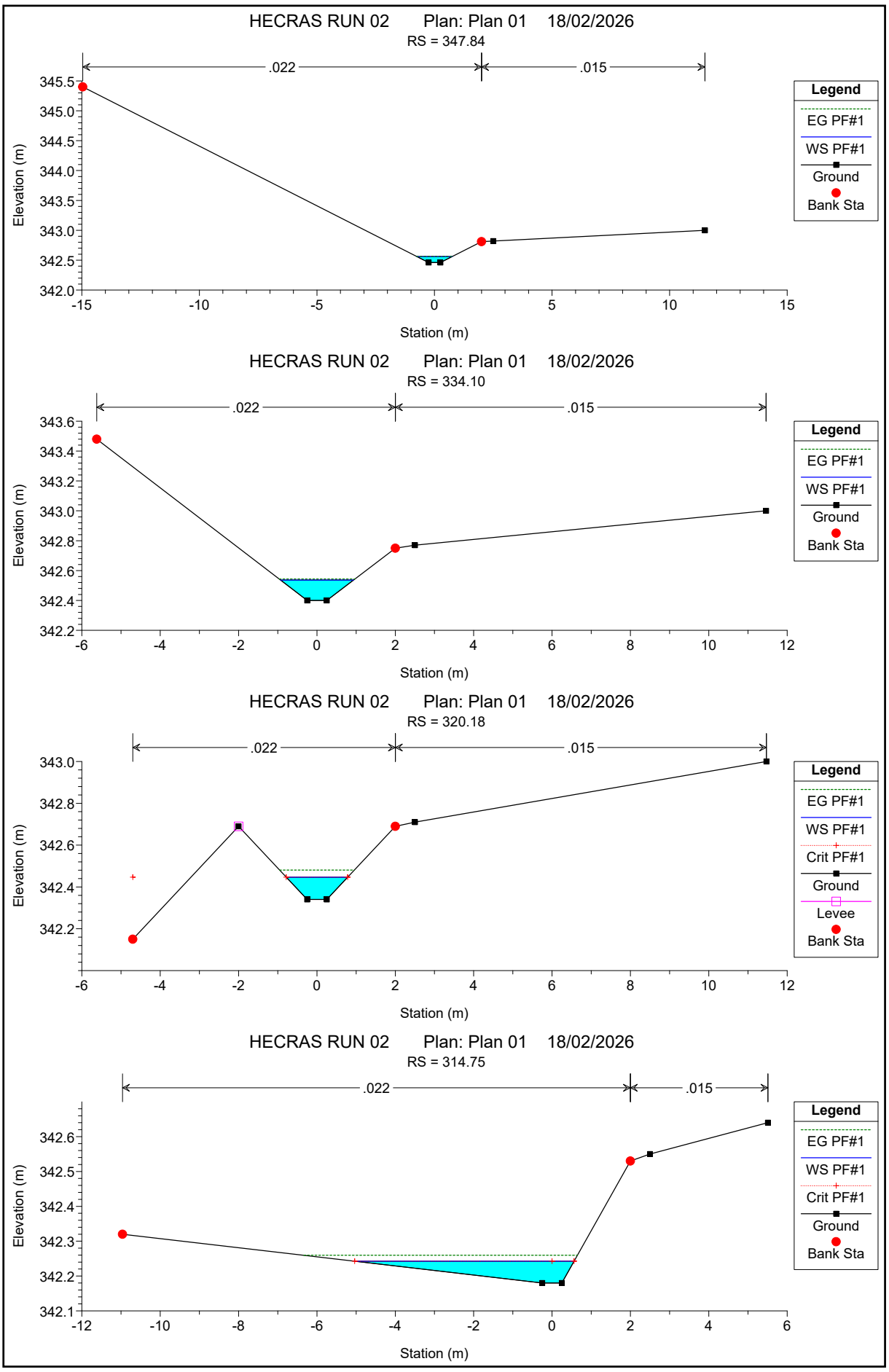


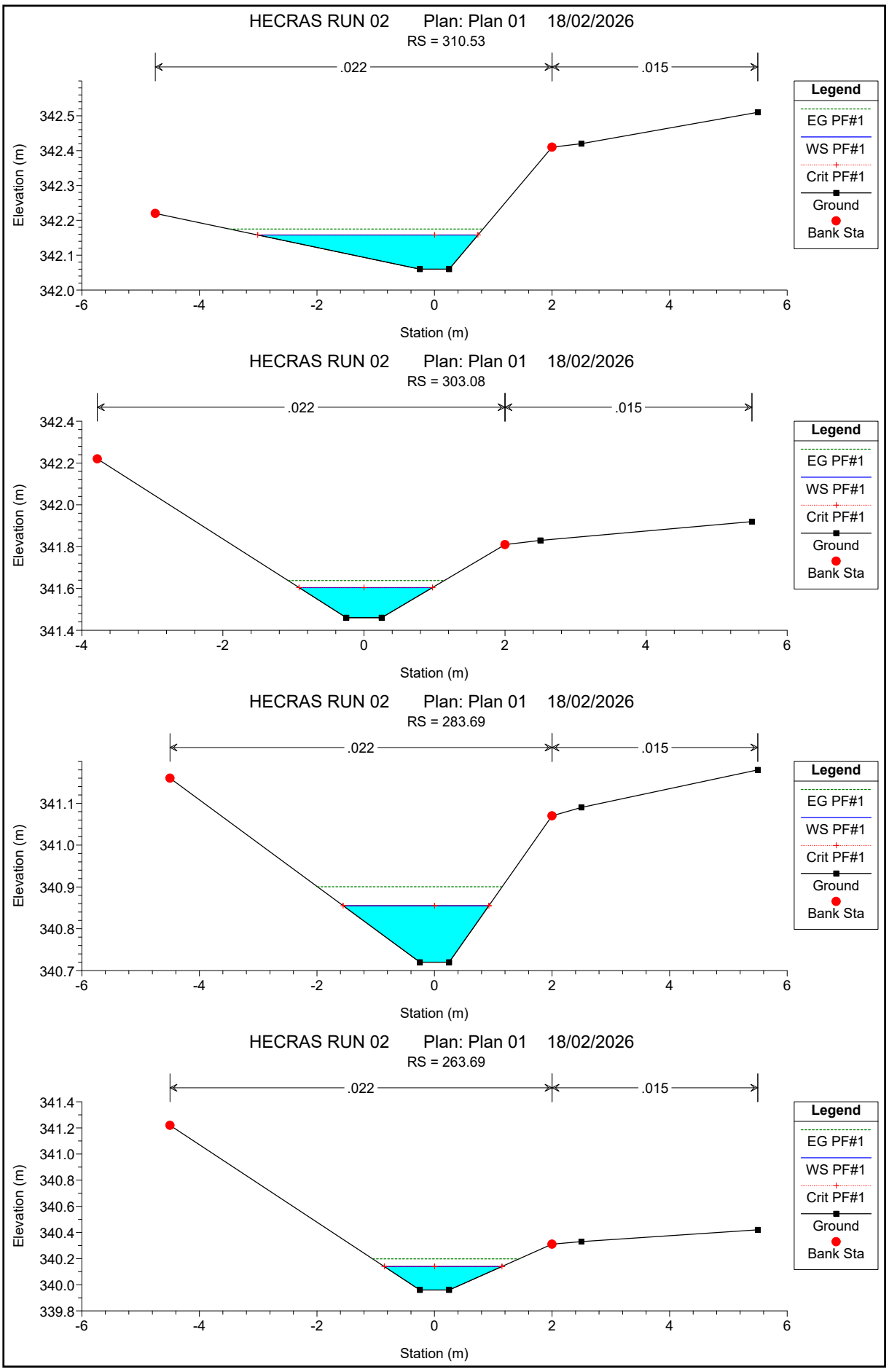


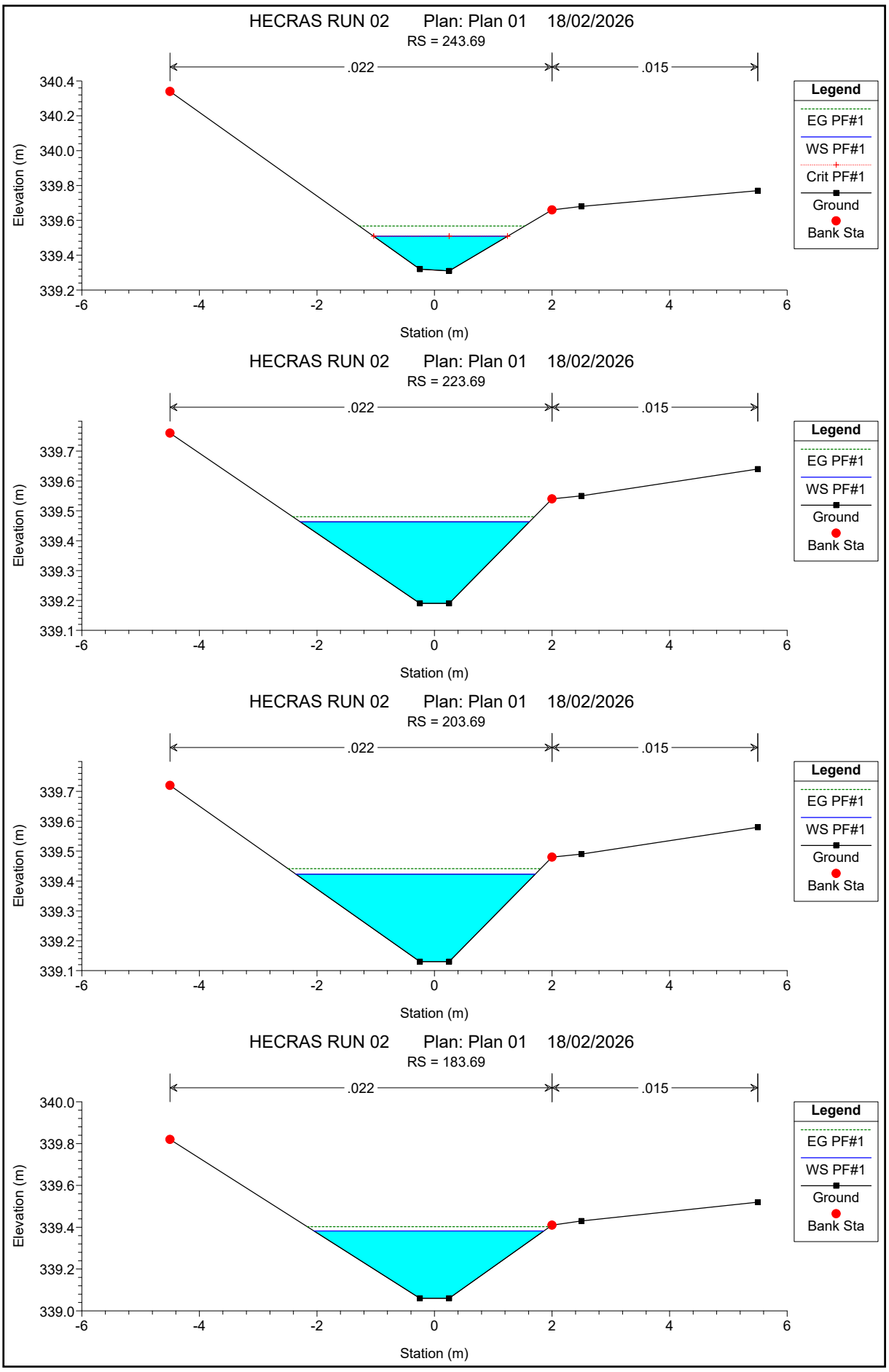
HEC-RAS Plan: Plan 01 River: RUN 02 Reach: 0 Profile: PF#1

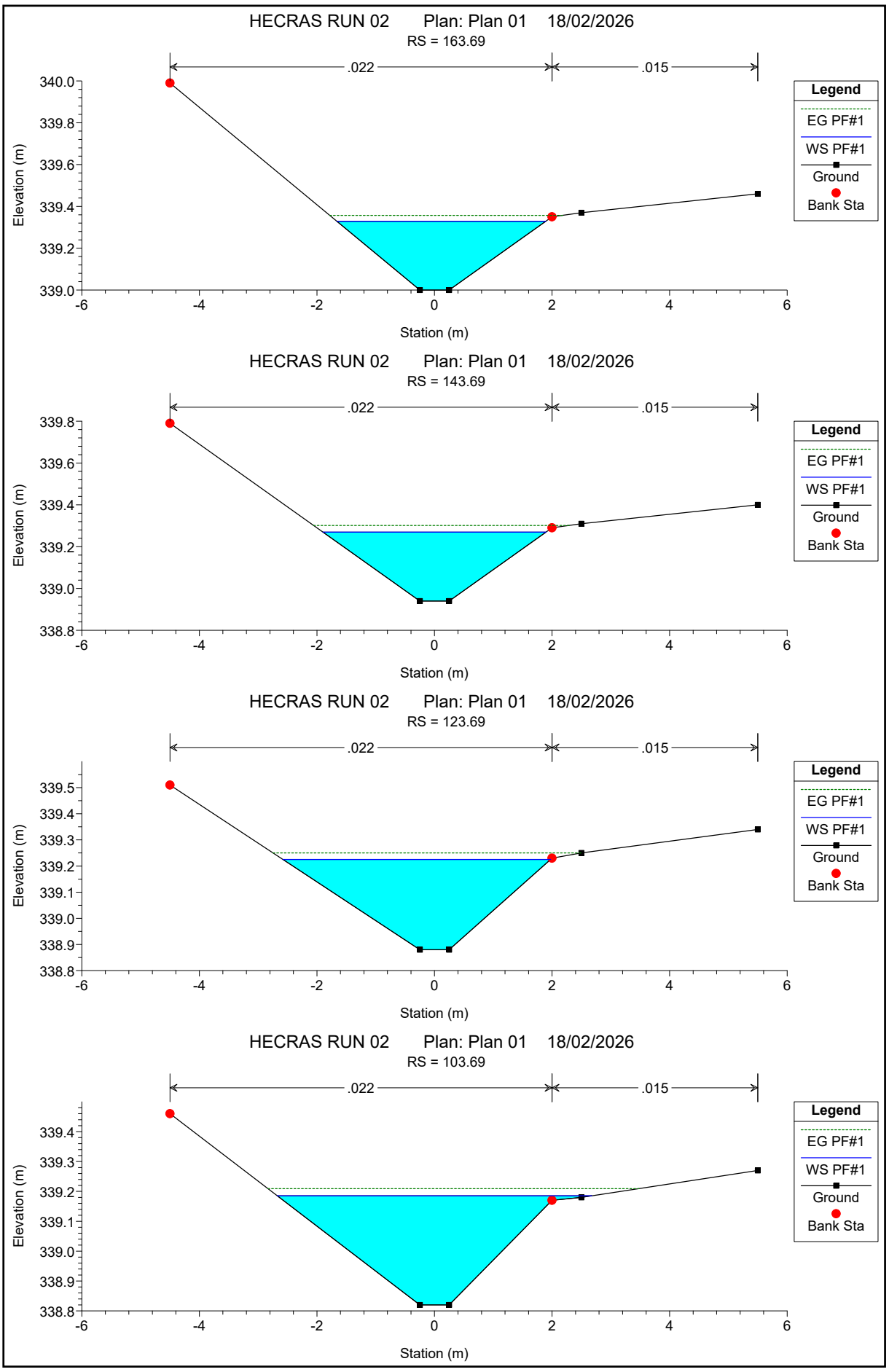
Reach	River Sta	Profile	Cum Ch Len	Q Total	Min Ch El	Max Chl Dpth	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Vel Total	Flow Area	Top Width	Froude # Chl	Trvl Tme Avg
			(m)	(m3/s)	(m)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m/s)	(m2)	(m)		(hrs)
0	347.84	PF#1	347.84	0.02	342.46	0.10	342.56		342.56	0.000700	0.20	0.20	0.10	1.51	0.24	0.13
0	334.10	PF#1	334.11	0.06	342.40	0.14	342.54		342.54	0.001789	0.37	0.37	0.16	1.86	0.40	0.11
0	320.18	PF#1	320.18	0.09	342.15	0.30	342.45	342.45	342.48	0.011211	0.81	0.81	0.11	1.57	0.98	0.11
0	314.75	PF#1	314.75	0.11	342.18	0.06	342.24	342.24	342.26	0.014599	0.58	0.58	0.19	5.60	1.00	0.10
0	310.53	PF#1	310.53	0.12	342.06	0.10	342.16	342.16	342.18	0.007615	0.58	0.58	0.21	3.75	0.78	0.10
0	303.08	PF#1	303.08	0.14	341.46	0.14	341.60	341.60	341.64	0.007949	0.81	0.81	0.17	1.89	0.86	0.10
0	283.69	PF#1	283.69	0.19	340.72	0.13	340.86	340.86	340.90	0.012459	0.95	0.95	0.20	2.48	1.06	0.09
0	263.69	PF#1	263.69	0.24	339.96	0.18	340.14	340.14	340.20	0.010514	1.07	1.07	0.22	2.00	1.02	0.09
0	243.69	PF#1	243.69	0.29	339.31	0.20	339.51	339.51	339.57	0.010003	1.08	1.08	0.27	2.27	1.00	0.08
0	223.69	PF#1	223.69	0.35	339.19	0.27	339.46		339.48	0.002018	0.58	0.58	0.60	3.90	0.47	0.07
0	203.69	PF#1	203.69	0.40	339.13	0.29	339.42		339.44	0.001944	0.60	0.60	0.67	4.07	0.47	0.07
0	183.69	PF#1	183.69	0.45	339.06	0.32	339.38		339.40	0.001931	0.63	0.63	0.71	3.91	0.48	0.06
0	163.69	PF#1	163.69	0.50	339.00	0.33	339.33		339.36	0.002623	0.75	0.75	0.66	3.55	0.55	0.05
0	143.69	PF#1	143.69	0.56	338.94	0.33	339.27		339.30	0.002901	0.79	0.79	0.71	3.80	0.58	0.04
0	123.69	PF#1	123.69	0.61	338.88	0.35	339.23		339.25	0.002181	0.70	0.70	0.87	4.55	0.51	0.03
0	103.69	PF#1	103.69	0.66	338.82	0.37	339.19		339.21	0.001927	0.69	0.68	0.96	5.35	0.49	0.03
0	83.69	PF#1	83.69	0.72	338.76	0.29	339.05	339.05	339.13	0.008785	1.27	1.27	0.57	3.41	1.00	0.02
0	63.69	PF#1	63.69	0.72	338.52	0.25	338.77	338.77	338.85	0.009370	1.19	1.19	0.60	4.24	1.01	0.02
0	43.69	PF#1	43.69	0.73	337.78	0.26	338.04	338.04	338.12	0.009260	1.21	1.21	0.60	4.12	1.01	0.01
0	23.68	PF#1	23.68	0.74	336.94	0.27	337.21	337.21	337.29	0.009781	1.26	1.26	0.59	3.88	1.04	0.01
0	19.00	PF#1	19.00	0.74	336.74	0.23	336.97	336.97	337.03	0.023939	1.11	1.11	0.67	5.29	1.00	0.00
0	13.17	PF#1	13.17	0.74	336.44	0.23	336.67	336.67	336.74	0.009421	1.11	1.11	0.67	5.23	1.00	0.00
0	0.00	PF#1		0.75	335.68	0.14	335.82	335.82	335.87	0.010940	0.98	0.98	0.76	8.11	1.02	0.00

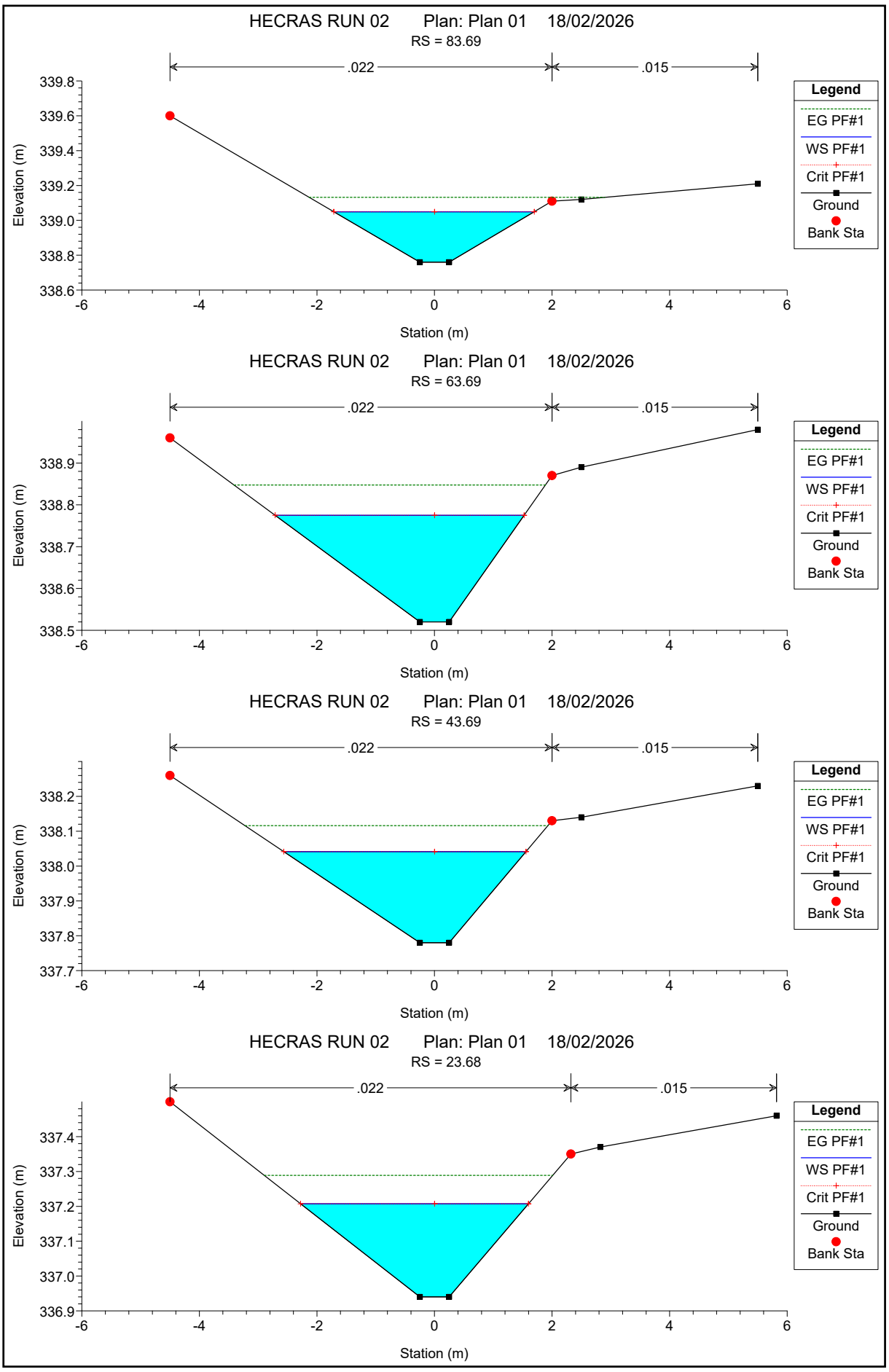


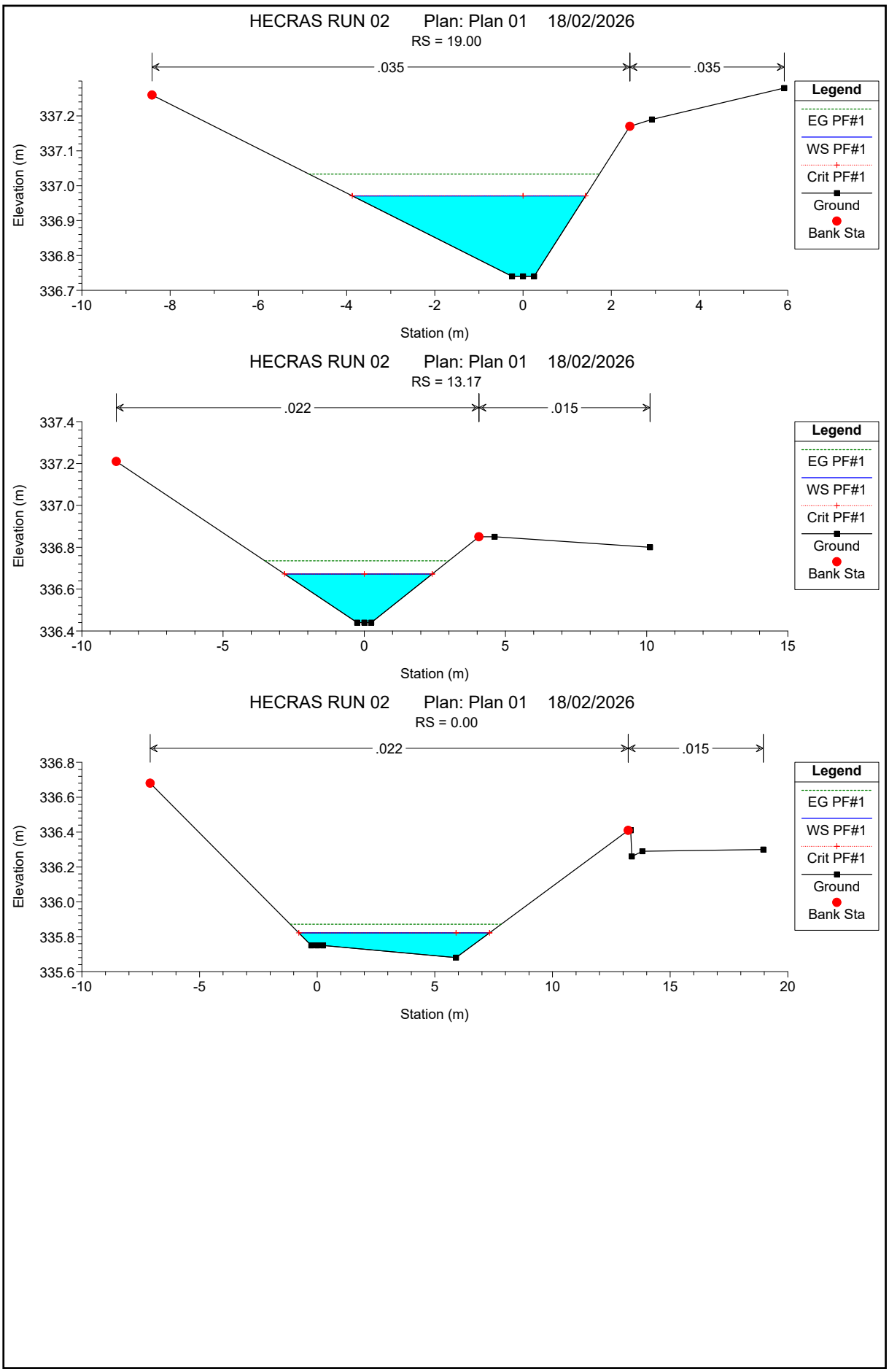












MILFORD PLANNING

Appendix 5

MENDI CONSTRUCTIONS PTY LTD

Grand Secret – Stage 2

PROJECT SPECIFICATION

Specification No: P00421501
Rev: A
6 March 2026

Premise
PART OF THE Amey GROUP

Document Authorisation				
Revision	**Revision Date**	**Revision Details**		
A	06/03/2026	For Issue		
Prepared by			**Reviewed and Authorised By**	
Jordan Peplow			Adam Pease	

CONTENTS

TABLES

1. LOCATION AND DESCRIPTION OF PROJECT

The Works comprise the construction of Grand Secret's stage 2. The Works consist of the construction of earthworks, roadworks, stormwater drainage, water reticulation, sewer reticulation and electrical and telecommunications ducting for the new allotments.

Access to the subdivision is via View Street, Charters Towers.

2. EXTENT OF WORK

Works under this Contract comprise the supply of all labour, materials and plant to construct the Works. It includes, but is not limited to, the following items of construction which shall be carried out in their entirety, in strict accordance with, and to the true intent and purpose of, the Conditions of Contract, the Townsville City Council Construction Management Quality Management and Inspection and Testing Standards (SC6.4.3 and SC6.4.23), Townsville City Council Development Manual (SC6.4), the Project Specification, the Townsville City Council Standard Drawings and related CTM and SEQ Drawings, the Project Drawings and under the supervision of the Superintendent:

2.1 General

- Provision for control, protection and safety of traffic during construction including notifications to, and obtaining approvals from, Authorities;
- Notification of all appropriate property owners adjoining, or affected by, the Works;
- Setting out the Works;
- Erosion and sedimentation control of the Works, including stockpile areas;
- Site clearing and grubbing including removal of cleared material off-site, and topsoil to stockpile;
- Earthworks to allotments and future stages including retaining walls, fence, if required;
- Site regrading;
- Topsoil spreading and revegetation to lots and all disturbed areas outside of allotments and to grassed outlet drains; and
- Irrigation, turfing, hydromulching, street trees, fencing, including acoustic, as required.

2.2 Roadworks

- Earthworks, including excavation and embankment construction and retaining structures, if required;
- Stormwater drainage, including kerb and gutter, pipes, culverts, pits and outlet structures;
- Subsurface drainage;
- Pavement, consisting of subgrade preparation, testing, in-situ stabilisation and replacement (if necessary), unbound granular base layers, cement treated base layers, bituminous surfacing asphalt, concrete wearing surface or reinforced concrete base; and
- Signposting and line marking, where required.

2.3 Provision of Services

- Water supply reticulation;
- Sewerage reticulation; and
- Pits, conduits and concrete foundations, as necessary, for installation of electricity and telecommunications.

2.4 Work by Others

- Provision of electricity and telecommunications services to the subdivision will be undertaken by a separate Electrical and Communications Contractor (i.e. – cabling, poles, cabinets);
- The excluded work will be the responsibility of the Principal, Communications and Electrical Contractor. Attention is drawn to the Conditions of Contract regarding the obligation of the Contractor to coordinate the Works with any simultaneous and / or adjacent work by others. The Contractor shall liaise with these other Contractors to avoid delays, disruption and possible conflict; and
- Landscaping and irrigation, if not part of the contract.

3. GENERAL

The current amended versions of all standards, codes, guidelines, local laws and acts apply.

The Contractor shall examine carefully any reports, maps, diagrams or other information which are made available by the Principal, to its absolute satisfaction.

The Contractor shall inform itself for its absolute satisfaction of the physical conditions upon and below the surface of the site, the climatic conditions, and to have obtained all necessary information as to risks, contingencies and other circumstances which could have an effect upon the cost of executing the work. The Principal advises that the information provided does not necessarily accurately detail the existing site or subsurface conditions. The Contractor should make its own interpretations, deductions and conclusions from the information made available and accept full responsibility for those interpretations, deductions and conclusions.

4. CONSTRUCTION STANDARDS AND GUIDELINES

The Townsville City Council Construction Standards and Guidelines, and the Queensland Department of Transport and Main Roads Standard Specifications, although not included in the documents, are deemed to form part of this Contract. Copies are available for download from the Townsville City Council and Queensland Department of Transport and Main Roads websites. The Contractor is to ensure the latest edition of the relevant specification, at the time of awarding the Contract, is available for use on the project. The following Construction Standards, Drawings, Guidelines and Specifications, including referenced documents shall apply to the Works:

Townsville City Council – Construction Standards and Guidelines (SC6.4)

SC6.4.2.9	Conduit Assessment
SC6.4.3	Standard Drawings
SC6.4.6.2	Pavement & Seal Design
SC6.4.6.3	Subsurface Drainage
SC6.4.6.4	Roadworks Construction
SC6.4.7	Clearing, Grubbing and Earthworks
SC6.4.8	Stormwater Management
SC6.4.9	Stormwater Quantity
SC6.4.10	Stormwater Quality
SC6.4.11	Water and Sewerage
SC6.4.12	Landscaping and Open Space
SC6.4.13	Irrigation
SC6.4.14	Public Utilities and Buildings Over / Near Services
SC6.4.17	Structures
SC6.4.18	Concrete Works
SC6.4.19	Noise and Vibration
SC6.4.20	Footpath Treatment
SC6.4.23	Construction Management, Quality Management, Inspection and Testing
SC6.4.24	Acceptance of Completed Works

Department of Main Roads – Construction Specifications and Associated Standard Drawings

MRTS03	Drainage Structures, Retaining Structures and Embankment Slope Protections
MRTS04	General Earthworks
MRTS05	Unbound Pavements
MRTS07A	Insitu Stabilised Subgrades using Quicklime or Hydrated Lime
MRTS07B	Insitu Stabilised Pavements using Cement or Cementitious Blends
MRTS08	Plant-Mixed Heavily Bound (Cemented) Pavements
MRTS10	Plant Mixed Lightly Bound Pavements
MRTS11	Sprayed Bituminous Surfacing (Excluding Emulsion)
MRTS12	Sprayed Bituminous Emulsion Surfacing
MRTS13	Bituminous Slurry Surfacing
MRST14	Road Furniture
MRST15	Noise Fences
MRST16	Landscape and Revegetation Works
MRTS17	Bitumen and Multigrade Bitumen
MRTS18	Polymer Modified Binder
MRTS19	Cutter Oils
MRTS20	Cutback Bitumen
MRTS21	Bituminous Emulsion
MRTS22	Supply of Cover Aggregate
MRTS23	Supply and Delivery of Quicklime and Hydrated Lime for Road Stabilisation
MRTS24	Manufacture of Precast Concrete Culverts

MRTS 25	Manufacture of Precast Concrete Pipes
MRTS 26	Manufacture of Fibre Reinforced Concrete Drainage pipes
MRTS30	Asphalt Pavements
MRTS38	Pavement Drains
MRTS39	Lean Mix Concrete Subbase for Pavements
MRTS40	Concrete Base Pavements
MRTS45	Road Surface Delineation
MRTS50	Specific Quality System Requirements
MRTS55	Use of Explosives in Roadworks
MRTS70	Concrete
MRTS71	Reinforcing Steel
MRTS72	Manufacture of Precast Concrete Elements
MRTS91	Conduits and Pits
MRTS92	Traffic Signal and Road Lighting Footings
MRTS93	Traffic Signals
MRTS94	Road Lighting
MRTS96	Management and Removal of Asbestos
MRTS101	Aggregates for Asphalt
MRTS253	Traffic Signal Lanterns
MRTS255	Traffic Signal Controllers
MRTS256	Power Cables
MRTS257	Feeder Cables and Loop Cable for Vehicle Detector
MRTS273	Fibre Reinforced Concrete

In addition, the following external Standard Specifications, while not included in these documents, shall be deemed to form part of the Contract. The Contractor is to ensure the latest edition of the Standard Specifications is available for use on the project:

- Water Services Association of Australia (WSAA)
- WSA 02 - Gravity Sewerage Code of Australia
- WSA 04 - Sewerage Pumping Station Code of Australia
- WSA 05 - Conduit Inspection Reporting Code
- WSA 07 - Pressure Sewerage Code of Australia
- Ergon Energy & Energex – Guidelines, Constructions Manuals, standard works procedures, technical documents
- NBN-TE-CTO-194 – New Developments – Deployment of NBN pit conduit networks Standard
- Telstra - Trenching Requirements – Information for Property Developers, Consultants, Builders and Customers
- Queensland Manual of Uniform Traffic Control Devices (MUTCD)
- Traffic and Road Use Management Manual (TRUM)
- Concrete Masonry Association of Australia specifications
- Austroads - Guide to Pavement Technology
- International Erosion Control Association (IECA), Best Practice Erosion and Sediment Control

- Cairns, Townsville, Mackay (CTM) Water Alliance Design and Construction Code, and
- Australian Standards – Various

4.1 Standard Drawings (SC6.4.3)

All Relevant Council Standard Drawings will show the minimum standard that Council has adopted for certain types of work. Standards have been developed for works on roads, stormwater drainage, water, sewerage, transport, landscaping and open space, irrigation, and other miscellaneous activities.

Council's Sewer and Water standard drawings can be found under the CTM Documents - Cairns, Townsville, Mackay (CTM) Water Alliance Design and Construction Code.

The Contractor is to ensure the latest edition of the relevant standard drawings, at the time of awarding the Contract, is available for use on the project.

5. PRE-CONSTRUCTION (TCC SC6.4.23.1)

The provisions of Townsville City Council's Construction Management Standard SC6.4.23.1 shall apply except where otherwise specified herein or detailed on the Drawings.

The Contractor shall supply to the Superintendent all items listed as being required for the Pre-start meeting. Once all items required for the Pre-start have been received by the Superintendent, the Pre-start Meeting will be arranged by the Superintendent.

The Contractor's Works Program shall include an appropriate allowance for all of these pre-construction Works.

The Superintendent will provide the Council with the 'Notice to commence Works' once the Contractor has supplied all of the necessary information.

6. CONSTRUCTION (TCC SC6.4.23)

The provisions of Townsville City Council's Construction Management Standard SC6.4.23 – Construction, shall apply except where otherwise specified herein or detailed on the Drawings.

All references, in all Clauses, to 'The Developer' shall be deleted and replaced with 'The Contractor'.

The appointed Superintendent and will inspect all construction Works in accordance with the requirements of the Townsville City Council construction guidelines. The Contractor shall take full responsibility for all construction work on the development site.

Clause (4c) – Relocation / alteration and repair to existing utility services, of Townsville City Council Construction Standard SC6.4.23.1 – Construction shall have the following additional paragraph:

> Should any alterations to any existing services to be required in excess of any alterations to services shown on the Drawings, such additional alterations shall be executed by the relevant Authorities

and payment for work performed shall be made by the Contractor to such Authority as directed by the Superintendent. When the Contractor is directed to make payment, reimbursement will be made in accordance with the provisions of Clause 11 of the General Conditions of Contract inclusive of a 5% allowance for Contractor's profit and attendance on the Works done by others.

7. QUALITY MANAGEMENT SYSTEM (TCC SC6.4.23)

The provisions of Townsville City Council's Construction Management Standard SC6.4.23 – Quality Management System shall apply and the Works are to be completed strictly in accordance with the requirements for a 'Quality Controlled and Assured Development'.

8. SETTING OUT THE WORKS

The property boundaries and easements will be marked on the ground by the Principal's Authorised Surveyor by pegs at the corners and changes in alignment. The Contractor shall offset these pegs, as necessary, for construction before removing them and shall, at all times, ensure that the offset pegs remain undisturbed throughout the period of the Contract. Should such pegs be removed or disturbed, they shall be reinstated by an approved Licensed Surveyor at the Contractor's expense.

All other set out of the Works must be undertaken by a Licensed Surveyor and the cost of the Surveyor shall be borne by the Contractor and be included in the respective rates set out in the Priced Bill of Quantities and Lump Sum Tender generally.

The Contractor shall give the Principal's Surveyor at least seven (7) days' notice of his intention to commence Works, in order that arrangements can be made for the appropriate allotment pegging.

8.1 Works 'As Constructed' Drawings

The 'As Constructed' details of the Works shall be surveyed and compiled on 'As Constructed' Drawings prepared by the Principal's Authorised Surveyor, checked and signed as compliant with this specification and the 'Construction Issue' Drawings by the Contractor and reviewed by the Superintendent, including the following:

- Earthworks / Roadworks
  1. Level at each allotment peg, top and bottom of batters plus other design points, as shown on the Drawings;
  2. Levels at top and bottom of retaining walls, acoustic and noise fence at each design point;
  3. Top of asphalt levels at each pegged chainage and each design point (centreline); and
  4. Lip of kerb levels at each pegged chainage and each design point (left and right).

- Stormwater Drainage
  1. Upstream and downstream invert levels of each drainage line;
  2. Location of each stormwater line end.

3. Location and level of centre of each chamber and inlet pit (centre of manhole or inlet pit lid);
4. Location and level of outlet structures including concrete scour protection, concrete flumes, concrete headwalls, wingwalls and aprons basin forebays; and
5. Top of batter, toe of batter and invert location and levels for open drains at each design point or chainage.

> Water Reticulation

1. Sufficient offsets to demonstrate alignment of mains and bends is as specified;
2. Location of each valve and hydrant (centre of cover);
3. Location of ferrule cock to each house service;
4. Location of tail end of each house service; and
5. Location of each water main end.

> Sewerage Reticulation

1. Upstream and downstream invert levels of each sewer main;
2. Sufficient offsets and levels to demonstrate alignment of rising mains and bends is as specified;
3. Location and level of each house connection branch including offset dimensions;
4. Location and level of each manhole top (centre of lid); and
5. Location of each Sewer line end.

The Contractor shall notify the Principal's Authorised Surveyor when each element of the work is available for survey.

The above 'As Constructed' information is for the purposes of auditing of construction only. It is the Contractor's responsibility to ensure that the 'As Constructed' levels and offsets comply with the design within the tolerances specified. In particular, the Contractor shall provide confirming advice that the following elements of construction are in compliance with the Specification within seven (7) days of the 'As Constructed' information being recorded. Part payment only will be made for each item until the Contractor has confirmed, in writing, that the 'As Constructed' levels and offsets comply with the design within the tolerances specified.

1. Level at each allotment peg and other design points as shown on the Drawings;
2. Top of asphalt at each pegged chainage and each design point (centreline);
3. Lip of kerb levels at each pegged chainage and each design point (left and right) prior to preseal inspection;
4. Sufficient offsets to demonstrate alignment of water mains is as specified;
5. Upstream and downstream invert levels of each sewer main prior to testing inspection;
6. Location and level of each sewerage house connection branch including offset dimensions prior to testing inspection and CCTV; and
7. Upstream and downstream, invert levels of each stormwater line prior to sealing and CCTV.

The cost of the measurement of 'As Constructed' details will be paid for by the Principal.

No work shall be covered up until accurate 'As Constructed' details have been recorded.

The Superintendent reserves the right to require the Contractor to expose, at no cost to the Principal, any services which have been laid and backfilled without the Superintendent or his Representative first obtaining all of the relevant 'As Constructed' information. The cost of uncovering any service shall be paid for by the Contractor.

9. EROSION AND SEDIMENT CONTROL (TCC SC6.4.8.11, SC6.4.7.4 AND SC6.4.23.1)

Removal of topsoil from any section of the Works shall only commence after erosion and sedimentation controls have been implemented and when clearing, grubbing and disposal of materials have been completed on that section of the works in accordance with relevant parts of Best Practice Erosion and Sediment Control.

The Contractor must produce a dust management plan prior to commencement of any clearing works onsite to satisfy compliance with council's requirement of SC6.4.7.4.

The contractor shall install all diversion devices around the active works area prior to any topsoil stripping to minimise the amount of soil disturbance generated from up-slope stormwater runoff.

Throughout the year the following revegetation timeframes shall be adhered to:

- January to February (wet season) – 2 week;
- December and March (wet season) – 4 weeks;
- April and November – 6 weeks; and
- May to October – 8 weeks.

During the above times of the year the cleared area shall be adequately stabilised within the weeks noted by means of re-vegetation (topsoil respread and hydromulch / seeding) or surface binders, suppressants with a minimum 6-month application.

To aid in minimising the duration that soils are exposed to rain, water flow and wind the following practical measures should be taken:

- Stage the earthworks as much as possible and finish to design level as soon as practical;
- Stabilise / cover the finished surface as soon as practical. A minimum of 70% cover is considered necessary to provide a satisfactorily level of erosion control; and
- Prevent machinery from trafficking over the finished surfaces

Responsibility for the implementation and maintenance of all temporary and semi-permanent ESC measures shall remain with the Contractor until the works are declared "Off-maintenance". All erosion and sediment control measures should be inspected and documented:

- At least daily when rain is occurring;
- Within 24 hours prior to an expected rainfall event;
- Within 18 hours of a rainfall event of sufficient intensity and duration to cause on-site run-off; and
- At least weekly outside of rain periods

10. CONTROL OF TRAFFIC (TCC SC6.4.6)

The provisions of Townsville City Council's Construction Standard SC6.4.6 – Roadworks and Traffic Control shall apply except where otherwise specified herein or detailed on the Drawings.

10.1 Measurement and Payment

Payment shall be made for all activities associated with completing the work detailed in this Construction Standard and shown on the Drawings in accordance with the Pay Item – Control of Traffic.

This shall be a Lump Sum item.

The Lump Sum shall include the design, construction, maintenance and removal of temporary roadways, side-tracks, detours and crossovers including the provision of traffic switching operations, traffic controllers, signposting, lights, barriers and any other items required for the safe movement of traffic and the protection of persons and property during construction of the Works, in accordance with this Construction Standard.

11. CLEARING AND GRUBBING (TCC SC6.4.7)

The provisions of Townsville City Council's Construction Standard SC6.4.7 – Clearing and Grubbing shall apply except where otherwise specified herein or detailed on the Drawings.

Any trees to be un-touched are to be adequately marked to prevent unnecessary clearing.

Grubbing operations shall be carried out to a depth of 0.5 m below the natural surface or 1.5 m below the finished surface level, whichever is the lower.

Holes remaining after trees and stumps have been grubbed shall be backfilled promptly with sound material to prevent the infiltration and ponding of water. The backfilling material shall be compacted to at least the relative density of the material existing in the adjacent ground. Should this be within the road box and in the subgrade zones the material is to be compacted to minimum 97% SDD.

Site clearing shall only occur once adequate construction phase drainage and sediment control measures have been installed, with the exception being any site clearing necessary to allow installation of these said control measures.

In addition to Clause SC6.4.7 – Clearing, the limits of clearing shall be the area required by site regrading Works, including the area occupied by the road formation, associated drainage works and erosion and sedimentation measures, plus a clearance of 2m beyond tops of cuts and toes of embankments. The Contractor shall ensure that only the absolute minimum area for construction is cleared. Before clearing

commences, the limits of clearing shall be marked by pegs placed by the Contractor at 25m intervals around the area to be cleared.

Unless otherwise specified elsewhere, all materials cleared and grubbed in accordance with this Construction Standard shall become the property of the Contractor and shall be removed from site and legally disposed of. Wherever reasonable and practical cleared vegetation should be mulched and re-used onsite as part of the erosion control measures.

The contractor must take extra care when working around tree protection zones. These zones shall be a minimum of 10 times the trunk diameter, or the width of the tree canopy at its widest point, whichever is greatest.

11.1 Measurement and Payment

Payment shall be made for all activities associated with completing the work detailed under this Construction Standard SC6.4.7 – Clearing and Grubbing, in accordance with Pay Item Clearing and Grubbing. Full payment will not be provided until all cleared materials have been removed from site. The unit of measurement shall be the hectare of plan area bounded by the limits of clearing specified.

12. EARTHWORKS (TCC SC6.4.7)

The provisions of Townsville City Council's Construction Standard SC6.4.6.7 – Earthworks shall apply except where otherwise specified herein or detailed on the Drawings.

12.1 Allotment and Footpath Earthworks

Where it is practical to do so, the Contractor shall provide a minimum fall of 1 in 200 toward street frontages on urban residential allotments unless otherwise detailed on the Drawings, to ensure all allotments are self-draining and that there are no water ponding depressions on the allotments. Filling of rural residential allotments shall be carried out to the extent required to fill depressions which pond water, unless shown otherwise on the Drawings.

12.2 Roadway Embankment

Fill material for embankment construction shall be placed in layers parallel to the grade line and compacted in accordance with SC6.4.7.9 compaction and moisture Requirements. The layers shall be of uniform compacted thickness not exceeding 200 mm, except that where more than 25% by volume of the filling consists of rock with any dimension larger than 150 mm, the Superintendent may approve an increase in the compacted layer thickness to 300 mm, provided that the relative compaction specified in SC6.4.7 compaction and moisture requirements is attained.

12.3 Excavation of Non-Rippable Material

Earthworks associated with the excavation of non-rippable material, in addition to that required for allotment and road earthworks or confined trench excavation, will be determined based on production

rates. The production rate is defined as the rate at which material can be ripped only, without regard to stockpiling, loading or carting.

The Contractor must provide all supporting rock excavation supporting information to the superintendent and client representative on a weekly basis.

Non-rippable material in road and allotment excavation shall be material which cannot be ripped at a production rate exceeding the rate specified in Table 12.3(a). The crawler tractor shall be equipped with a heavy duty, single tine, parallelogram ripper approved by the manufacturer of the crawler tractor for use with the particular model of crawler tractor.

Table 1: 12.3(a) Road excavation – Production rate limit for non-rippable material

Class of Crawler Tractor	Operating Mass (kg)	Classifying Power (kW)	Production Rate (m3/h)
150C	≥ 20 000 < 29 000	≥ 150 < 200	50
200C	≥ 29 000 < 44 000	≥ 200 < 300	75
300C	≥ 44 000 < 58 000	≥ 300 < 400	90

Non-rippable material in confined trench excavation shall be material which cannot be ripped at a production rate exceeding the rate specified in the Table 12.3(b). The crawler excavator shall be equipped with a heavy-duty bucket of width not greater than that stated in Table 11.2(b) and the bucket teeth shall be fitted with high penetration boots.

Table 2: 12.3(b) Confined excavation – Production rate limit for non-rippable material

Class Number of Crawler Excavator	Operating Mass (kg)	Net Engine Power (kW)	Maximum Bucket Width (mm)	Production Rate (m3/h)
85	≥ 19 000 < 23 000	≥ 85 < 100	600	3
115	≥ 27 000 < 31 000	≥ 115 < 135	750	4.5
155	≥ 38 000 < 44 000	≥ 155 < 175	950	47

12.4 Level 1 Control

All earthworks to allotments and road formation shall be carried out under Level 1 supervision by a NATA Certified Geotechnical Inspection and Testing Authority (GITA) in accordance with the provisions of Appendix B of *AS 3798 - Guidelines on Earthworks for Commercial and Residential Developments*. The GITA is responsible for ensuring that the inspection and testing is sufficient to express an opinion on the compliance of the Works in accordance with the specification and the Drawings.

At completion of the earthworks, the GITA will be required to provide a report setting out the inspections, sampling and testing it has carried out, and the locations and results thereof. The GITA report must express an opinion that all fill operations undertaken for the Works is controlled, structural fill.

Poor quality material unsuitable for structural filling shall be placed in stockpile as directed by the Superintendent.

All areas stripped of topsoil and vegetation shall be proof rolled by six passes of a minimum ten (10) tonne static mass roller. The final pass shall be treated as test rolling in accordance with Clause 5.4 of AS 3798 with an inspection carried out by the Geotechnical Testing Laboratory. The cost of proof and test rolling shall be included in the unit rate for earthworks in the priced Bill of Quantities.

Filling to allotments and roadway areas shall be placed in layers of not more than 300mm loose thickness and compacted in accordance with AS 1289.5.1.1 as follows:

a) Residential Allotments 95% of standard maximum dry density; and
b) Commercial / Mixed Use Allotments 98% of standard maximum dry density.

Moisture content of the clayey fill material shall be maintained within the range -2% to +2% of optimum moisture content for standard compaction.

Testing frequency shall be in accordance with Table 8.1 of AS 3798 and earthworks reports shall be commensurate with Level 1 supervision, as directed by the Superintendent. Payment will not be provided until the relevant compaction test reports are provided (minimum of 1 test per 500m^3).

The cost of Level 1 supervision and testing of earthworks to allotments and road formation, as specified herein, shall be included in the relevant unit rate in the priced Bill of Quantities for earthworks.

12.5 Limits and Tolerances (TCC SC6.4.7)

Limits and tolerances summarised in SC6.4.7

12.6 Roadworks Subgrade

The Contractor shall ask for direction from the Superintendent in relation to the provisional pavement design thicknesses and subgrade heights prior to any earthworks within the roadways.

The Contractor shall engage a NATA approved Testing Authority to test for all the Geotechnical soil properties as detailed on the Road Geometry and/or Earthworks Construction Plans. The Contractor shall ask the Superintendent prior to this soil sampling as to whether lime demand and soluble sulphates tests will be required, or any additional soil material for future testing will need to be taken. The material strength shall be determined strictly in accordance with Townsville City Council's design specification SC6.4.16 – Pavement Design requirements. The test results shall be supplied to the Superintendent to allow the depth of pavement to be determined.

Once the pavement design is provided the Contractor shall rip or loosen all material in the subgrade to a minimum depth of 200 mm below the designed subgrade level and compact the subgrade to suit the pavement thicknesses detailed in the pavement design report. The Contractor shall trim the subgrade to a level not more than +0mm to -50mm from the designed subgrade level.

Any unsuitable / Unsound material shall be replaced, only as directed by the superintendent as specified in the Standard Specification. The whole of the subgrade, including that beneath kerb and channel or the like, shall be compacted to achieve a minimum of 97% of the standard maximum dry density, as determined by AS 1289 5.1.1.

The Contractor shall arrange, and pay, for the Testing Authority to carry out subgrade compaction tests at locations as follows:

a) At maximum intervals of 1 per 500m2 of subgrade area;
b) A minimum of two (2) tests per road section; and
c) A minimum of two (2) tests in the head of each cul-de-sac, at least one being in the outer wheel path of the turning circle.

The Contractor shall provide certificates of the required compaction testing to the Superintendent prior to a joint inspection with Council being arranged by the Superintendent.

12.7 Roadworks Subgrade Inspection

The Superintendent shall inspect the completed subgrade in conjunction with Council's Inspectors. The Contractor shall give the Superintendent sufficient notice to allow the Superintendent to give the Council Inspectors a minimum of two (2) full working days' notice of the time at which the inspection is required.

The Contractor shall provide the following documentation to demonstrate compliance with this specification prior to the time of the inspection being booked:

- Compaction test reports (minimum 1 test per 500m2, RDD min. 97%). The Contractor shall ensure that a minimum of 25% or one (1), whichever is the greater number, of all subgrade compaction tests are taken within 300mm of the lip of the kerb;
- Level conformance report (by licensed surveyor) which includes all design points located on the design Drawings. Vertical tolerance 0mm to -50mm;
- Insitu Stabilisation Spread Sheets, as required;
- Road crossing compaction tests (100% MDD):
  - Stormwater road crossing – minimum 1 test per crossing;
  - Watermain road crossing – minimum 1 test per crossing;
  - Sewer road crossing – minimum 1 test per crossing. Tested at every 300mm of depth; and
  - Services road crossings (electrical, communication, subsoil, irrigation, water HC feed) – minimum 1 test every 5th crossing;
- Pavement gravel compliance test reports (includes subgrade replacement, subgrade improvement, capping layer, pavement cover, lower sub-base, sub-base and base). All reports to be current and no older than 12 months from when gravels will be used from stockpile:
  - 1 test per 1000 tonne material to be used (Liquid Limit, Plastic Limit, Plasticity Index, Grading); and
  - 1 test per 5000 tonne material to be used (CBR, 10% fine (wet), Wet / dry strength, Degradation factor, Flakiness index);
- Backfill material compliance test reports (services);
  - Bedding Sand, Crusher dust, aggregate (Grading); and
- Subsoil filter material compliance test reports:
  - 14-20mm aggregate (Grading).

Where a Subgrade Replacement, Subgrade Improvement or Capping Layer is required as part of the pavement design it shall not be placed until the above documentation, to demonstrate compliance, has been provided. The layer below the first pavement design layer material shall be treated as the hold point for the subgrade inspection.

No pavement material shall be placed until the joint subgrade inspection with Council Inspectors has been undertaken and the hold point released, in writing, by the Superintendent.

12.8 Measurement and Payment

Full payment will not be provided until all the compliance testing and 'As Constructed' levels for each Pay Item are confirmed within construction tolerance by the Contractor and provided to the Superintendent. Payment shall be made for all activities associated with completing the work detailed under this Construction Standard SC6.4.7 – Earthworks (Construction), in accordance with the relevant Pay Items.

> Removal and Respreading of Topsoil

All topsoil removed as part of the clearing and grubbing works shall be respread to all unsealed areas (i.e. batters, lots, footpath). The superintendent will provide further direction if there is not enough topsoil stripped to be respread, or there is an excess of stripped topsoil.

This Pay Item includes all activities associated with set out, stripping topsoil, carting, placing in stockpile, picking up and respreading all at the completion of the earthworks.

> General Earthworks

The unit of measurement shall be compacted in place.

The Pay Item shall include all activities associated with the set out, testing, excavation of material and construction of embankments, stock piling of spoil, the haulage of material and any pre-treatment such as breaking down or blending material or drying out material containing excess moisture.

The base of the excavation shall be the designed floor level and no account shall be taken of level tolerances.

Where unsuitable material from the foundations is required to be excavated and replaced, the volume shall be calculated from survey immediately prior to, and after, subsequent removal of the unsuitable material, or by other methods which may be agreed by the Superintendent.

Where non-rippable material from the road, allotments or trenches is required to be excavated, the volume shall be calculated from survey immediately prior to and after subsequent removal of the non-rippable material, or by other methods which may be agreed by the Superintendent prior to the works occuring.

13. PAVEMENT CONSTRUCTION (TCC SC6.4.6)

The provisions of Queensland Department of Main Roads Standard Specification MRTS05 UNBOUND PAVEMENTS, MRTS08 PLANT-MIXED HEAVILY BOUND (CEMENTED) PAVEMENTS and MRTS10 – PLANT-MIXED LIGHTLY BOUND PAVEMENTS shall be used.

The Contractor is to ensure the latest edition of the Standard Specifications is available for use on the project.

13.1 Pavement Inspection

The Superintendent shall inspect the completed pavement in conjunction with Council's Inspector. The Contractor shall give the Superintendent sufficient notice to allow the Superintendent to give the Council Inspector a minimum of two (2) full working days' notice of the time at which the inspection is required.

The Contractor shall provide the following documentation to demonstrate compliance with this specification prior to the time of the pre-seal inspection being booked:

- Compaction tests (minimum 1 test per 500m2, SDD min. 100%) on each pavement layer, including the subgrade replacement, subgrade improvement, capping layer and pavement cover (if part of the pavement design - minimum 1 test per 500m2, SDD min. 97%).
- Subbase Level conformance report (by licensed surveyor) which includes all design points located on the design Drawings. Vertical tolerance ±15mm;
- The Contractor shall ensure that one in three, or one (1), whichever is the greater number, of all pavement layer compaction tests are taken within 300mm of the lip of the kerb, or for roads with no kerb and channel or edge constraint then 300mm from edge of seal, or edge Line;
- Each pavement layer to be compacted with no less than a mechanical roller of gross weight 12 tonne;
- The final base course layer's surface must be compacted and finished with the addition of a multi-tyred roller; and
- deviation under a 3 m straight edge placed in any direction does not exceed 5 mm. This will be required to be performed at the preseal inspection at Superintendent / council's inspector discretion.

If any of the pavement layers are a cement treated gravels (modified or bound) then the Contractor shall provide the following documentation to demonstrate compliance with this specification prior to the time of the inspection being booked:

- Stabilising agent content (1 set of tests per 300 tonnes delivered, minimum 2/day's production); and
- Unconfined compressive strength (1 test per 1,000 tonnes delivered, minimum 1/day's production).

No bituminous surfacing shall be placed until the joint pavement inspection has been undertaken with Council's Inspector and the hold point released, in writing, by the Superintendent.

13.2 Measurement and Payment

Full payment will not be provided until all the compliance testing and 'As Constructed' levels for each Pay Item are confirmed within construction tolerance by the Contractor and provided to the Superintendent. Payment shall be made for all activities associated with completing the work detailed under the relevant Construction Standards.

This Pay Item includes all activities associated with the set out, supply, place, compaction of the concrete base including, but not limited to, all reinforcing, curing, finish, trimming, jointing, and testing.

14. STABILISATION (TCC SC6.4.6)

The provisions of Queensland Department of Main Roads Standard Specification MRTS07A - INSITU STABILISED SUBGRADES USING QUICKLIME OR HYDRATED LIME and MRTS07B – INSITU STABILISED SUBGRADES USING CEMENT OR CEMENTITIOUS BLENDS shall be used.

Insitu Stabilisation works shall be done at the percentage rate as per the approved pavement design.

Spreading shall not proceed during windy conditions which may cause loss of stabilising agent or cause nuisance or danger to people or property.

The stabilised work shall be protected against rapid drying out by keeping it continuously wet or damp during the period prior to the provision of a subsequent gravel layer. Water curing shall consist of frequent light uniform spraying (using fine spray jets) that will not produce significant run off or flooding on sections of the area. Conventional spray bars and high-pressure nozzles are not permitted. Slurrying of the surface or leaching of the stabilising agent shall be avoided.

Insitu Lime Stabilisation shall be done over two days, whether Hydrated or quicklime is used.

The supply, placement and compaction of the material, including the stabilisation service and stabilising agent, is measured and paid in accordance with the requirements of this Specification for measurement and payment for Flexible Pavement and Earthworks as appropriate for a pre-mix product. Supply and placement in these circumstances includes all testing.

15. SPRAYED BITUMINIOUS SURFACING (TCC SC6.4.6)

The provisions of Queensland Department of Main Roads Standard Specification MRTS11 – SPRAYED BITUMINOUS TREATMENTS (EXCLUDING EMULSION), MRTS12 – SPRAYED BITUMINOUS EMULSION SURFACING, MRTS17 – BITUMEN AND MULTIGRADE BITUMEN, MRTS20 – CUTBACK BITUMEN, MRTS21 – BITUMINOUS EMULSION and MRTS22 – SUPPLY OF COVER AGGREGATE shall be used.

The final seal design will be provided by the superintendent once approval is provided by council of the pavement design report.

Before the application of primer, primerseal or binder, the pavement surface shall be tight, uniform and free from excess loose gravelly materials. The Superintendent will instruct at the preseal inspection whether or not the surface shall be swept by the use of a mechanically operated rotary road broom or suction broom to provide a uniformly clean surface. If necessary, additional sweeping shall be done by hand, using stiff brooms. Sweeping shall, where possible, extend at least 300mm beyond each edge of the area to be sprayed

Spraying shall not be carried out on a wet pavement, while rain appears imminent or during high winds or dust storms. Aggregate must be precoated and not wet.

Cutter Oil, Flux Oil and Adhesion Agent shall be added to all binders at the specified default rate.

Care shall be taken to ensure that bitumen is not sprayed on, or allowed to coat, any services or exposed fixtures including concrete kerbs, guard fence, or bridge handrails. Appurtenances susceptible to overspray shall be protected with suitable paper, plastic.

Waiting times (minimum and maximum) between seal coats are as per standards noted above.

15.1 Measurement and Payment

Full payment will not be provided until all the compliance testing and as constructed levels for each Pay Item are confirmed within construction tolerance by the Contractor and provided to the Superintendent. Payment shall be made for all activities associated with completing the work detailed under the relevant Construction Standards.

- Supply and Application of Prime; and
- Supply and Application of Primerseal and /or Seal.

The unit of measurement shall be square metres and no account shall be taken of allowable tolerances.

The area shall be determined by the length and width as specified on the Drawings or as directed by the Superintendent.

This Pay Item includes all activities associated with the set out, supply and spraying the bitumen, and supply and spreading the aggregate including any testing and traffic control required.

16. ASPHALT (TCC SC6.4.6)

The provisions of Queensland Department of Main Roads Standard Specification MRTS30 – ASPHALT PAVEMENTS and MRTS101 – AGGREGATES FOR ASPHALT shall be used.

Placing of asphalt shall not be permitted when the surface of the road is wet or while rain appears imminent, or when cold winds chill the asphalt to such an extent that spreading and compaction will be adversely affected.

The existing surface shall be dry, clean, and free from any loose stones, dirt, and foreign matter. The surface shall be swept beyond the edge of the proposed asphalt layer by at least 300 mm. Any foreign matter adhering to the pavement and not swept off shall be removed by other means. Any areas significantly affected by oil contamination shall be cleaned off as well.

Any surface depressions greater than 25 mm in depth and any uneven surface shall be brought to the general level of the surrounding pavement/deck surface (corrector course). Where a corrector course is used to modify the shape of an existing surface, the course shall be laid to the reduced levels and/or the road.

If the Prime or Primerseal sprayed surface gets damaged during the asphalt works a bitumen emulsion tack coat shall be sprayed and left to penetrate the gravels surface prior to the asphalt being laid. Over application of tack coat, due to surface depressions, shall be removed or dispersed by brushing.

Waiting times (minimum and maximum) between seal and Asphalting are as per standards noted above.

16.1 Limits and Tolerances

The finished surface of the asphalt, after compaction/rolling is complete, shall be a minimum 5mm proud of the lip of the kerb and channel at the time of the 'On Maintenance' inspection.

At the 'Off Maintenance' inspection' the asphalt/pavement shall not have greater than 5mm subsidence/deviation at any point measured from the crown of the road to the lip of kerb and channel. Any subsidence greater than 5mm will be deemed a defect of the Contract and is to be rectified by milling out and disposing of the asphalt, priming, placing and re-compacting asphalt to a minimum width of 1.0m for the extent of the defect.

Following placement of the asphalt surfacing the Contractor shall provide a Insitu Air Void and Core Density test reports (minimum 1 test per 500m2). The Contractor shall ensure that a minimum of one (1) compaction test is taken within 300mm of the lip of the kerb.

Prior to the 'Off-Maintenance Inspection' any surface cracks in the Asphalt ≤10mm and that don't show signs of deformation, subsidence greater than 5mm shall be crack sealed with an approved polymer-modified bitumen product.

16.2 Measurement and Payment

Full payment will not be provided until all the compliance testing and 'As Constructed' levels for each Pay Item are confirmed within construction tolerance by the Contractor and provided to the Superintendent. Payment shall be made for all activities associated with completing the work detailed under this Construction Standard.

This Pay Item includes all activities associated with the set out, supply, placement and compaction of the asphalt including any testing and traffic control required.

17. PAVEMENT MARKING (TCC SC6.4.6)

The provisions of Queensland Department of Main Roads Standard Specification MRTS45 – ROAD SURFACE DELINEATION shall be used.

Painted markings shall be the correct colour code, or equivalent as per the relevant Australian standard, MUTCD, or TRUM. Glass Beads and Raised reflective pavement markers (RRPM) shall be installed as specified.

Surfaces which are to receive pavement markings shall be cleaned of all dirt, loose material, and other contaminants. Pavement surfaces shall be thoroughly dry immediately prior to the application of pavement markings. Pavement marking shall not be carried out during wet weather or if rain is likely to fall during the process.

Approved method of removal of existing pavement marking on asphalt include either line grinder or profiling off. No black paint, or emulsion will be accepted.

The Contractor shall be responsible for the maintenance and replacement, if necessary, of raised pavement markers and all pavement marking during the contract period and the contract defects liability period. Council requires all line marking to be refreshed prior to the end of the Defects Liability Period.

This Pay Item includes all activities associated with pavement marking paint, raised pavement markers, and specialised surface treatments.

17.1 Limits and Tolerances (TCC Table SC6.4.6.52)

18. STORMWATER DRAINAGE (TCC SC6.4.8, SC6.4.9, SC6.4.10, SC6.4.17, AND SC6.4.18)

The provisions of Townsville City Council's Construction Standard SC6.4.8 – Stormwater Management, SC6.4.9 & SC6.4.10 – Stormwater Quality, SC6.4.17 - Drainage Structures and SC6.4.18 – Stormwater Concrete Works shall apply, except where otherwise specified herein or detailed on the Drawings.

18.1 Backfilling under Pavements

All trenches under road and concrete pavements shall be backfilled with crusher dust, from the side zone to subgrade level.

Side cover from outside of pipe to face of trench is to be minimum 300mm, or 0.2D (diameter of pipe), whichever is greater to allow for adequate compaction equipment in the haunch and side zones.

The Contractor shall arrange for the Testing Authority to carry out backfill compaction tests at locations as follows:

a) At maximum depth intervals of 300mm;
b) At maximum intervals of 1 per 45 linear metres of trench length (minimum 1 test per line from manhole to manhole); and
c) A minimum of one (1) test per road crossing at subgrade level.

The Contractor shall provide certificates of required compaction testing to the Superintendent prior to the time of the subgrade inspection.

Full payment for the backfilling of trenches under pavements will not be provided until the compaction tests are provided.

18.2 CCTV

The CCTV report of the stormwater drainage system must be undertaken by a suitably qualified person in accordance with Council's requirements SC6.4.2.9 and SC6.4.14.5. One hard copy and one electronic copy

of the subsequent report are to be submitted to the Superintendent for submission to Council for review. The 'On Maintenance' CCTV report is to be done immediately prior to commencement of the defects liability period and following the total completion and cleaning of the asset (including culvert lines).

The Contractor shall undertake the 'Off Maintenance' CCTV report of the stormwater drainage system one month prior to the due date for 'Off Maintenance'. This CCTV review is required for all stormwater lines (including culvert lines).

The Contractor shall provide the Superintendent with one hard copy and one electronic copy of the subsequent 'Off Maintenance' report for submission to Council for review.

Full payment for the CCTV reports of the stormwater system will not be provided until Council have completed their review of the report and there are nil defects.

18.3 Measurement and Payment

Full payment will not be provided until all the compliance testing and 'As Constructed' levels for each Pay Item are confirmed within construction tolerance by the Contractor and provided to the Superintendent. Payment shall be made for all activities associated with completing the work detailed under the relevant Construction Standard and in accordance with the following Pay Items.

TCC Construction Standard SC6.4.9.14 – Precast Box Culverts

Foundations shall be inspected by the Superintendent to determine the bedding material requirements.

Precast Culvert units shall not be placed on the base slab until a minimum 20Mpa compressive strength has been achieved. Backfill shall not be placed against wingwalls, headwalls and retaining walls until 85% of the Concrete compressive strength has also been achieved.

The unit of measurement shall be cubic metre of concrete in place and no account shall be taken of allowable tolerances.

The volume shall be determined by calculation using the width, length and depth.

Where the concrete base thickness is less than the specified thickness, the concrete shall be removed, and no payment shall be made.

Where the 28-day compressive strength of test cylinders for any lot is less than the specified compressive strength (min. 40 MPa), the lot represented by the test cylinder shall be removed, and no payment shall be made.

This Pay Item includes all activities associated with the set out, excavation, supply, place, compaction of the concrete including, but not limited to, formwork, reinforcing, curing, finishing, stripping, jointing, subsoil drains, weepholes, backfilling and testing.

TCC Construction Standard SC6.4.9.16 Open Drains

> Excavation of Inlet, Outlet and Diversion Channels

The unit of measurement shall be cubic metre of measured from cross sections on the Drawings using the end area method or as 'each' where minor work is involved.

This Pay Item includes all activities associated with the set out, excavation of all types of material including rock, placement and compaction of the excavated material and any temporary measures for the control of stormwater runoff.

> Concrete lining of Open Drains

The unit of measurement shall be square metre of concrete in place.

This Pay Item includes all activities associated with the set out, surface preparation, supply, place, compaction of the concrete including, but not limited to, formwork, reinforcing, curing, finishing, stripping, jointing, subsoil drains, weepholes, backfilling and testing.

> Stone Pitching of Open Drains

The unit of measurement shall be square metre of stone pitching in place.

This Pay Item includes all activities associated with the set out, surface preparation, supply and placing of stone, subsoil drains, weepholes, backfilling and mortar jointing.

> Rock Filled Gabions

The unit of measurement shall be cubic metre of rock filling.

This Pay Item includes all activities associated with the set out, supply and placement of geotextile material behind the gabions, the supply and assembly of the gabions and the supply and placing of the rock fill in the gabions.

> Rock Filled Wire Mattresses

The unit of measurement shall be square metre of rock filled mattresses complete.

This Pay Item includes all activities associated with the set out, supply and placement of geotextile material, the supply and assembly of the mattresses and the supply and placing of the rock fill in the gabions.

19. WATER SUPPLY (TCC SC6.4.11 & CTM WATER ALLIANCE DESIGN AND CONSTRUCTION CODE)

The provisions of the *WSAA Water Supply Code of Australia* and Townsville City Council's Construction Standard SC6.4.11 – Water supply and the CTM Water Alliance Design and Construction Code (Addenda to SEQ Water Supply and Sewerage Design and Construction Code (SEQ WS&S D&C Code) shall apply, except where otherwise specified herein or detailed on the Drawings.

19.1 Testing and Flushing of Mains

Pressure testing of the mains and service connections shall be made in the presence of the Superintendent and Council's Asset Inspectors. The testing shall be in accordance with SC6.4.11.3. Disinfection and Flushing of pipelines shall be done in accordance with WSA 03 – 2011 Part 2, Section 20. Satisfactory Bacteriological Test shall be in accordance with Table SC6.4.11.3. Additional requirements that shall apply refer to the CTM Water Alliance Design and Construction Code (Addenda to SEQ Water Supply and Sewerage Design and Construction Code (SEQ WS&S D&C Code).

19.2 Connection to Existing

Unless otherwise directed by council, the connection of new mains to existing mains shall be carried out by the Council, at the Contractor's expense.

19.3 Backfilling under Pavements

The Contractor shall commission a NATA-certified Geotechnical Testing Authority to carry out compaction testing of the backfilling to water trenches at locations, as follows:

a) At maximum depth intervals of 300mm;
b) At maximum intervals of 1 per 45 linear metres of trench length; and
c) A minimum of one (1) test per road crossing at subgrade level.

The Contractor shall provide certificates of required compaction testing to the Superintendent prior to the time of the subgrade inspection.

19.4 Minimum Cover

The Contractor shall ensure that the following minimum depths of pipe cover are achieved:

Table 3: Minimum depths of pipe cover required.

LOCATION	≤150mm NB	≥200mm NB
Non-Roadways (i.e. – Footpaths, table drains)	600mm	1000mm
Sealed Roads	600mm	1000mm
Major Roadways / Embankments	750mm	1000mm
Freeways	1200mm	1200mm

For mains ≤300mm ID the maximum depth to invert shall not exceed 1.5m. For mains >300mm ID the maximum pipe cover shall not exceed 1.5m, unless a special design for the pipeline installation is submitted and approved by the local authority.

For acceptable clearances between watermain and other underground services refer to Table 5.5 of the CTM Water Services D&C Code under section 5.12.5.2 of the Amendments to the SEQ WS&S D&C Water Supply Code.

Minimum Trench Widths shall be in accordance with Table SC6.4.11.

All PVC watermains are to be Class M.

19.5 Measurement and Payment

Full payment will not be provided until all the compliance testing and 'As Constructed' levels for each Pay Item are confirmed within construction tolerance by the Contractor and provided to the Superintendent.

Payment shall be made for all activities associated with completing the work detailed under this Construction Standard SC6.4.11 – Water Supply, in accordance with the relevant Pay Items.

> Supply and Lay Pipe and Fittings

The unit of measurement shall be linear metre measured along the centreline of the pipe.

This Pay Item includes all activities associated with the set out, excavation, supply, bed, place, supply and place concrete, backfill, compaction, sterilisation and testing.

> Supply and Install Valves

The unit of measurement shall be per 'each' stop, air or scour valve, hydrant and associated chamber or box installed.

This Pay Item includes all activities associated with the set out, excavation, supply and installation of valves and hydrants, supply and installation of cover and frames, supply and installation of marker plates, backfilling, compaction and testing.

> Connect to Existing

The unit of measurement shall be per 'each' connection to existing pipe.

This Pay Item includes all activities necessary to arrange and liaise with the appropriate Authority, cut into or otherwise modify and finish the system as shown on the Drawings.

20. SEWERAGE SYSTEM (TCC SC6.4.11 & CTM WATER ALLIANCE DESIGN AND CONSTRUCTION CODE)

The provisions of *WSAA Sewerage Code of Australia WSA 02-2002* and Townsville City Council's Construction Standard SC6.4.11 – Sewerage System and the CTM Water Alliance Design and Construction Code (Addenda to SEQ Water Supply and Sewerage Design and Construction Code (SEQ WS&S D&C Code) shall apply, except where otherwise specified herein or detailed on the Drawings.

20.1 Supply and Lay Sewer

For acceptable clearances between gravity Sewer and other underground services refer to Table 4.2 of the CTM amendments to SEQ Sewerage Code under section 4.4.5.2 of the Amendments to the SEQ WS&S D&C Water Supply Code.

20.2 Connection to Existing Sewers

Unless otherwise directed by the Superintendent and council, the connection of new mains to existing mains shall be carried out by the Contractor under Council supervision.

20.3 Backfilling under Pavements

The Contractor shall commission a NATA-certified Geotechnical Testing Authority to carry out compaction testing of the backfilling to sewer trenches at locations, as follows:

a) At maximum depth intervals of 300mm;
b) At maximum intervals of 1 per 45 linear metres of trench length; and
c) A minimum of two (2) tests per road crossing.

The Contractor shall provide certificates of required compaction testing to the Superintendent prior to the time of the subgrade inspection.

20.4 Testing and Restoration

Pressure testing of the mains and service connections shall be made in the presence of the Superintendent and Council's Asset Inspectors. The test shall be in accordance with SC6.4.11, with Reference to WSA 02-Sect 22.4 and WSA 02-2014, Part 2, Section 21. Additional requirements that shall apply refer to the CTM Water Alliance Design and Construction Code (Addenda to SEQ Water Supply and Sewerage Design and Construction Code (SEQ WS&S D&C Code).

20.5 CCTV

The CCTV report of the sewerage system must be undertaken by a suitably qualified person in accordance with Council's requirements SC6.4.2.9, SC6.4.11.5 and SC6.4.14.5 and Clauses 22.7.1 and 36.8 amendments to SEQ WS&S D&C code sewerage supply code 1.2. One hard copy and one electronic copy of the subsequent report are to be submitted to the Superintendent for submission to Council for review. The On Maintenance' report is to be done immediately prior to commencement of the defects liability period and following the total completion, cleaning, and testing of the asset.

The Contractor shall undertake the 'Off Maintenance' CCTV review of the sewerage system up to one month prior to the due date for 'Off Maintenance'. This CCTV review is required for all sewers lines. The Contractor shall provide the Superintendent with one hard copy and one electronic copy of the subsequent 'Off Maintenance' report for submission to Council for review.

20.6 Measurement and Payment

Full payment will not be provided until all the compliance testing and 'As Constructed' levels for each Pay Item are confirmed within construction tolerance by the Contractor and provided to the Superintendent. Payment shall be made for all activities associated with completing the work detailed under this Construction Standard SC6.4.11 – Sewerage System, in accordance with the relevant Pay Items.

- Sewer Pipe

The unit of measurement shall be linear metre measured along the centreline of the pipe.

This Pay Item includes all activities associated with the set out, excavation, bedding, supply and place pipe, supply and place concrete, supply and install property junctions, anchor blocks, bulkheads, backfill, compaction and testing.

- Maintenance Holes

The unit of measurement shall be per 'each' maintenance hole installed.

This Pay Item includes all activities associated with the set out, excavation, bedding, supply and placement precast unit, supply and place cast-insitu concrete, supply and install property junctions, backfill, compaction and testing.

21. CONDUIT TRENCHES

21.1 Electricity Ducting

The Contractor shall install underground power ducting under road pavements and along allotment frontages in locations, and to dimensions, as detailed on the 'For Construction' electrical Drawings and the current version of the Ergon Energy / Energex Specifications.

21.2 Backfilling of Electrical Ducting

Backfilling is to be completed as soon as is practical after the installation of the foundations, conduits and earthing at pad mounted substation sites, and the installation and auditing of conduits in trenches by the nominated electrician and the relevant Ergon works inspector.

Polymeric cable protection cover and bare earthing cable shall be installed, where required. Orange Caution Tape shall be installed everywhere the conduits are installed.

Footpath trenches may be backfilled with excavated material approved by the Ergon works inspector, or if unsuitable, imported fill. Backfill shall be placed in layers, with each layer compacted to meet Local Authority requirements. Rock, sharp objects or any other material that could damage conduit is not permitted in backfill within 200mm of the conduit.

Roadway trenches shall be backfilled with imported backfill material placed in layers and each layer compacted. Backfill material and compaction shall be in accordance with the applicable Local Authority's requirements. Rock, sharp objects or any other material that could damage conduit is not permitted in backfill within 200mm of the conduit.

All haul pits and new (not existing) transformers, padmounts, substations, GMS and distribution cabinet sites shall be excavated and backfilled with sand to the FSL once the electrical contractor has completed all the associated electrical works. This is the responsibility of the contractor as part of their contract measurement and payment items.

21.3 Communication Cable Ducting

The Contractor shall install underground communication ducting under road pavements and along allotment frontages in locations, and to dimensions, as detailed on the 'For Construction' communication Drawings and the current version of the NBN and/or Telstra Specifications.

21.4 Backfilling under Pavements

The Contractor shall commission a NATA-certified Geotechnical Testing Authority to carry out compaction testing of the backfilling of ducting trenches at locations as follows:

a) At subgrade level; and
b) Test every fifth (5th) service road crossing at subgrade level.

The Contractor shall provide Certificates of required compaction testing to the Superintendent prior to the time of the subgrade inspection.

21.5 Measurement and Payment

Full payment will not be provided until all the compliance testing and 'As Constructed' levels for each Pay Item are confirmed within construction tolerance by the Contractor and provided to the Superintendent. Payment shall be made for all activities associated with completing the work detailed under the current Ergon Specification in accordance with the relevant Pay Items.

Full payment for the supply and installation of the various items of work will not be provided until the testing results are provided.

> Conduit Trench Excavation

The unit of measurement shall be linear metre measured along the centreline of the trench.

This Pay Item includes all activities associated with the set out, excavation and disposal of material.

> Conduits

The unit of measurement shall be linear metre measured along the centreline of the conduit.

This Pay Item includes all activities associated with the set out, bedding, supply and place conduit, supply and place concrete, supply and install pits, marker tape, backfill, compaction and testing/inspection by Ergon.

22. BIORETENTION SWALES, BASINS AND SEDIMENT BASINS (TCC SC6.4.10)

The provisions of Townsville City Council's Construction Standard SC6.4.10 – Bioretention Swales and Bioretention Basins shall apply except where otherwise specified herein or detailed on the Drawings.

The Contractor shall install all pipework, filter media, pits, inlets (forebays) and outlets as detailed on the Project Drawings and the current standard drawings and associated specifications referenced in the Water Sensitive Urban Guidelines.

The provisions the International Erosion Control Association (IECA) – Manual for 'Best Practice Erosion and Sediment Control' shall apply except where otherwise specified herein or detailed on the Drawings.

The Sediment Basin/s must be on a maximum 5-day cycle meaning that filling (from rainfall and associated site runoff), treatment (in the form of a flocculating agent) and discharging shall be completed within a 5-day period. During the heights of the wet season shorter time periods between rainfall events may result in fast-acting flocculants being required, along with a much higher degree of environmental management being performed.

The contractor should perform sufficient jar testing on the representative soil types onsite and complete the associated Floc Performance Reports in order to select the appropriate coagulants / Flocculants and optimum dosage rates.

It is recommended that either a flow or rainfall activated system be set up for the basin/s to aid in evenly mixing, incorporating and spreading the flocculant over the entire basin/s surface to assist in decreasing the time required for the suspended solids to settle out.

A Total Suspended Solids (TSS) concentration of no greater than 50mg/L and a Turbidity of no greater than 60 Nephelometric Turbidity Units (NTU) is required prior to any discharging from the basin/s. The treated

water should also be analysed for PH and any residual chemicals from the flocculant should also be tested to make sure there is no adverse side-effects prior to discharging.

It is recommended that to enable a site-specific calibration between the TSS and the NTU readings a minimum of 5 differing samples must be taken between 20-150mg/L for a reliable relationship to be determined. This will allow the utilisation of a turbidity meter to determine when the water quality reaches 50mg/L. Regardless of which system is used to determine the treated water level prior to discharging the TSS concentration must be taken every day during the de-watering operations and recorded along with the NTU readings.

Sediment Basin Maintenance must occur during the following periods:

- Inspect and repair any erosion damage to the inlet and outlet points after each rainfall event;
- Perform weekly inspection of the basin/s overall condition during the wet season and at other periods of the year fortnightly; and
- Remove all accumulated sediment deposits prior to the sediment storage zone being reached (90% maximum) and place in nominated areas, where it won't create an erosion or pollution hazard and can be either disposed of or mixed with dry materials onsite.

22.1 Measurement and Payment

Full payment will not be provided until all the compliance testing and 'As Constructed' levels for each Pay Item are confirmed within construction tolerance by the Contractor and provided to the Superintendent. Pay Item includes all activities associated with the set out, bedding, supply and place pipework, supply and place filter media layers, supply and install pits, inlets and outlet structures and any associated landscape works.

23. LANDSCAPING (TCC SC6.4.12 AND SC6.4.13)

The provisions of Townsville City Council's Construction Standard SC6.4.12 – Landscaping and SC6.4.13 - Irrigation shall apply except where otherwise specified herein or detailed on the Drawings.

Turf strips shall consist of 25 mm depth of dense, well rooted, vigorous grass growth with 25 mm depth of topsoil. Turf shall be free of weeds, soil pests and diseases. Kikuyu grass shall not be used.

Irrigation conduit crossings shall be a minimum white Class 9 PVC SW pipe with the ends sealed with expanding foam. The Contractor shall install 'I' kerb markers at each irrigation conduit road crossing and finish the conduit/s a minimum of 500mm past the back of kerb.

Street Trees shall have the following setbacks and distances from other services:

- minimum 5 m from an electricity pole or pillar box;
- minimum 7 m from a street light pole;
- minimum 2 m from side entry stormwater pits;
- minimum 2.5 m from either side of a driveway;

- minimum 1.05 m from back of kerb; and
- minimum 0.5 m from a footpath.

Should there be issue relating to not being able to achieve all these setback minimum then make contact with the Superintendent for further direction.

24. CONSTRUCTION MANAGEMENT, QUALITY MANAGEMENT, INSPECTION AND TESTING (TCC SC6.4.23)

Hold and Witness Points are those stages during the construction process where the TCC Construction Standards require the 'written approval of the Superintendent / Council' to proceed past certain work activities.

24.1 Witness and Holdpoints

The Contractor is to comply with the mandatory hold and witness point requirements which apply in accordance with Townsville City Council's Construction Standard SC6.4.23 – Maximum Lot Sizes and minimum Test Frequencies.

Below is a summary table of SOME of the hold point, witness points, construction standards and tolerances. The contractor must make themselves very familiar with ALL the required Quality Inspection and Testing requirements spelled out in the section.

Table 4: Summary of hold points, witness points, construction standards and tolerances.

Activity	Inspection By	Critical Standards and Details
Detours, Altered Traffic Conditions, Traffic Management Plans	Premise Townsville City Council	SC6.4.6 To be provided prior to commencement of Works/Pre-start meeting.
Erosion and Sediment Controls	Premise Townsville City Council	SC6.4.7.4 & SC6.4.8.11 - To be reviewed at Pre-start meeting and installed prior to commencement of any earthwork activities.
Earthworks Residential Allotments / Footpaths and Roadworks up to 300mm below subgrade Roadworks to top 300mm below subgrade	Geotechnical Testing Authority Premise Townsville City Council	Table SC6.4.7 95% Standard (residential) 97% Standard from subgrade to 300mm below subgrade 98% Standard (commercial, industrial)
Topsoiling & Grassing	Premise Townsville City Council	SC6.4.7 - Minimum 80% coverage Indian Bluegrass (at Off Maintenance)

Subgrade	Premise Townsville City Council	SC6.4.7 97% Standard (1 test per 500m^2) Levels +0mm -50mm. Provide level check by Licensed Surveyor
Subgrade Insitu Stabilisation	Premise	SC6.4.6 and relevant TMR Standards Levels ±15mm. Provide level check by Licensed Surveyor
Subgrade Replacement	Premise Townsville City Council	SC6.4.6 and relevant TMR Standards 97% Standard (1 test / 500m^2)
Sub-base	Premise	SC6.4.6 and relevant TMR Standards 100% Standard (1 test / 500m^2) Levels ±15m. Provide level check by Licensed Surveyor
Base	Premise	SC6.4.6 and relevant TMR Standards 100% Standard (1 test / 500m^2)
Pre-seal	Premise Townsville City Council	SC6.4.6 and relevant TMR Standards Levels +0mm/- 5mm at lip of kerb Levels -0mm/+20mm at crown. String line to check profiles (-3mm tolerance).
Prime, Primer Seal and Seal coats	Premise	SC6.4.6 and relevant TMR Standards. Demonstrate compliance with design bitumen spray rate and aggregate spread rate.
Asphalt Surfacing	Premise	SC6.4.6 and relevant TMR Standards. Demonstrate correct asphalt mix placed. Asphalt must be minimum 5mm proud at the lip of K&C. Asphalt shall not deviate from the bottom of a 3m straight edge by more than 5mm. Thickness AC10 ±3mm, AC14 ±4mm Air Voids = AC10, VL = 3.0 and VU = 8.0 Air Voids = AC14, VL = 3.0 and VU = 7.0
Subsurface Drainage (Subsoil)	Premise	SC6.4.6.3 Provide level check to ensure minimum grades (0.5%) on subsoil drains have been achieved

Constructed Kerb & Channel	Premise Townsville City Council	SC6.4.6.9 Level tolerance +/- 6mm 0.2 % minimum grade Demonstrate compliance of levels tolerance prior to pre-seal inspection
Prior to Concrete Placements	Premise Townsville City Council	2 sets of compressive strength tests per 15m^3 (excludes Kerb and Channel). Stormwater Manholes 32 MPa Sewer Manholes 32 MPa Kerb & Channel 32 MPa Thrust Blocks 20 MPa
Prior to backfilling stormwater pipes	Premise Townsville City Council	
CCTV of Stormwater Lines (On and Off Maintenance)	Premise Townsville City Council	One hard copy and an electronic copy
Backfilling of stormwater trenches other than roadway & concrete pavement	Geotechnical Testing Authority Premise	Test every metre of depth at 45m intervals, 95% SDD. Minimum 1 per line.
Backfilling of stormwater trenches under roadway & concrete pavement	Geotechnical Testing Authority Premise Townsville City Council	Test every crossing at 300mm of depth, or subgrade level, whichever is less. 100% SDD
Notice of intention to install water mains - accreditation	Premise Townsville City Council	SC6.4.11
Prior to backfilling water main trenches	Premise Townsville City Council	SC6.4.11
Testing of water mains	Premise Townsville City Council	CTM water Alliance Design and Construction Code As per AS/NZS 2566.2
Cleaning and sterilisation of water mains	Premise	As per WSA 03-Section 20
Backfilling of water main trenches other than roadways	Premise Geotechnical Testing Authority	Test at 45m intervals, 95% SDD
Backfilling of water main trenches under roadways	Geotechnical Testing Authority Premise Townsville City Council	Test every crossing at subgrade level, 100% SDD

Backfilling of water house service connection trenches under roadway	Premise Geotechnical Testing Authority	Test every 5th service crossing at subgrade level, 100% SDD
Prior to connection to existing water mains	Townsville City Council - Water and Waste	
Notice of intention to install sewer mains - accreditation	Premise Townsville City Council	SC6.4.11
Prior to backfilling sewer main trenches	Premise Townsville City Council	SC6.4.11
Benching of manholes, check sewers internally	Premise Townsville City Council	
CCTV of Sewer Lines (On and Off Maintenance)	Premise Townsville City Council	One hard copy and an electronic copy
Testing of sewer mains and house connections	Premise Townsville City Council	Refer to WSA 02-Sect 22.4 and WSA 02-2014, Part 2, Section 21. CTM water Alliance Design and Construction Code
Testing of sewer manholes	Premise Townsville City Council	Refer to WSA 02-Sect 22.4 and WSA 02-2014, Part 2, Section 21. CTM water Alliance Design and Construction Code
Backfilling of sewer trenches other than roadways	Geotechnical Testing Authority Premise	Test every metre of depth at 45m intervals, 95% SDD. Minimum two per line.
Backfilling of sewer trenches under roadway (crusher dust)	Geotechnical Testing Authority Premise	Test every crossing at 300mm of depth at 45m intervals, 100% SDD
Prior to connection to existing sewers	Townsville City Council - Water and Waste	
Prior to backfilling Ergon conduit trenches	Premise Ergon Electrical Contractor	
Backfilling of Ergon trenches other than roadways	Premise Ergon Electrical Contractor	Refer Ergon Energy / Energex underground construction manual
Backfilling of Ergon trenches under roadway (sand, crusher dust)	Premise Ergon Electrical Contractor	Test every 5th service crossing at subgrade level, 100% SDD

Prior to backfilling NBN/Telstra conduit trenches	Premise	
Backfilling of NBN/Telstra trenches other than roadways	Premise	
Backfilling of NBN/Telstra trenches under roadway (sand, crusher dust)	Premise	Test every 5th service crossing at subgrade level, 100% SDD
Backfilling of OTHER (irrigation, subsoil, etc.) service trenches under roadway (sand, crusher dust)	Premise	Test every 5th service crossing at subgrade level, 100% SDD
Prior to lining a Bioretention Swale or Basin	Premise	

24.2 Non-Conformances

The Contractor must make themselves familiar with the Non-Conformance procedures and requirements detail within this section. Refer to attachments E to H for relevant certificates and reports.

The contractor should aim for NIL Non-conforming construction works being raised by setting up correct Inspection and test plans detailing excellent work procedures performed by competent, high-class works and sub-contractors.

25. WORKMANSHIP GUARANTEE (TCC SC6.4.6.4 AND SC6.4.24)

As part of the Contractual requirements between the Principal and the Contractor, at the completion of the Works, Townsville City Council require a certificate (Workmanship Guarantee) from the Contractor guaranteeing that the Works have been constructed in accordance with the Drawings and Specifications approved for construction by Council. An example of such form can be found in SC6.4.6.4.

The Superintendent and Principal also requires the Contractor to issue a 'Progress Claim Workmanship Guarantee' certificate to the Superintendent with each payment claim guaranteeing the satisfactory completion of the Works to the date of the claim.

WORKMANSHIP GUARANTEE

Contractor:

Project:

Contract Number:

I/We being a Civil Engineering Construction Firm (Contractor) and having been commissioned by way of Contract, or otherwise, to carry out the construction of the Works comprising of ALL CIVIL CONSTRUCTION do hereby certify that:

The Works within this progress claim number (# claim number #) have been constructed in accordance with the drawings and documents approved by Council for the construction of the project and relevant Australian Standard Codes of Practice, and further, during the course of construction, I/we have called for the inspections and testing required in the documentation and confirm that the inspections and tests have met the Specifications in all respects. We further guarantee that the standard of workmanship between inspections has been maintained at all times and that the materials used in the construction have been approved, are in compliance with the specification and, where required, stamped by the manufacturer to guarantee their authenticity.

Name: Signature:

Authorised Company Representative:

Date:

26. QUALITY CONTROL DOCUMENTS (SC6.4.23)

The below list is a summary of the minimum records of the Work Quality Plan required to be submitted to the Superintendent in a single document, following the completion of the project. This is in addition to the Project Quality Plan documents that are required to be submitted prior to the relevant hold point inspections during construction.

- Workmanship Guarantee;
- Subgrade check level sheets (by Licensed Surveyor);
- Subsoil drainage trench check level sheets;
- Bitumen prime / primerseal, seal spray sheets and material compliance reports;
- Asphalt tonnage delivery dockets
- Asphalt compliance test reports (compaction, core thickness, Voids, grading and bitumen content);
- Subgrade Improvement, subgrade replacement, capping layer, pavement cover material (if required), Compliance test reports (Grading, CBR, atterbergs, stabilising agent content, UCS) and delivery dockets showing type of material;
- Sub-base, Type 2 gravel, Compliance test reports (Grading, CBR, atterbergs, stabilising agent content, UCS) and delivery dockets showing type of material;
- Base, Type 2 Subtype 2.1 gravel, Compliance test reports (Grading, CBR, atterbergs) and delivery dockets showing type of material;
- Subgrade compaction tests;
- Lime or cement stabilising dockets, spreadsheets, material compliance reports (if required)
- Subgrade Improved, subgrade replacement, capping layer, pavement cover compaction tests (if required);
- Lower Sub-base Type 2 compaction tests;
- Sub-base Type 2 compaction tests;
- Base Type 2 compaction tests;
- Concrete delivery dockets;
- Concrete test reports;
- Level 1 supervision certificate for Earthworks;
- Lot fill compaction tests;
- Sewer trench compaction tests;
- Stormwater trench compaction tests;
- Water main Quality tests (PH, Chlorine free, Total coliform count, E.Coli Count, Heterotrophic plate count);
- Service trenches under roads compaction tests (watermain, water HC, irrigation, Electrical, communication, subsoil);
- Backfill material compliance test reports (1 Grading compliance test report per material for crusher dust, sand, subsoil aggregate, Bioretention filter media); and
- Contractor's Inspection and Test Plans.

MILFORD PLANNING

Appendix 6

MENDI CONSTRUCTIONS PTY LTD
GRAND SECRET - STAGE 2
P004215

ESTIMATE OF COSTS
SUMMARY PAGE
REV A 11/03/2026

Section	Description	Totals
A	GENERAL	$ 67,550.00
B	SOIL EROSION AND SEDIMENT CONTROL	$ 161,825.00
C	EARTHWORKS	$ 46,300.50
D	ROADWORKS	$ 141,448.50
E	STORMWATER DRAINAGE	$ 137,480.00
F	WATER RETICULATION	$ 132,664.00
SUB-TOTAL (EX GST)		**$ 687,268.00**
G.S.T (10%)		**$ 68,726.80**
TOTAL (INCL GST)		**$ 755,994.80**

PREPARED : J.Jones

RPEQ : K.De Lacey

KATIE DE LACEY RPEQ 31559

This estimate of cost of construction is based on an assessment of infrastructure services detailed on the drawings.

The information contained herein is for the use of the client only, and Premise Townsville Pty Ltd and its officers and employees, assume no responsibility for interpretations made or use of the information.

The estimate of cost may be affected by changes in statutory requirements of the local authority or state agencies.

A GENERAL

Item	Description	Unit	Quantity	Rate	Amount
1	**Commencement of works**				
(a)	Site establishment & disestablishment	Lump Sum	1	$ 25,000.00	$ 25,000.00
(b)	Insurance in accordance with contract provisions	Lump Sum	1	$ 25,000.00	$ 25,000.00
(c)	Implement provisions of the Workplace, Health and Safety Act	Lump Sum	1	$ 10,000.00	$ 10,000.00
(d)	Temporary site security fencing	Lump Sum	1	$ 5,000.00	$ 5,000.00
2	**Control of traffic in accordance with MUTCD**				
(a)	Control of traffic including Traffic Management Plan, traffic control and traffic control devices	Lump Sum	1	$ 2,550.00	$ 2,550.00

TOTAL A GENERAL **$ 67,550.00**

B SOIL EROSION AND SEDIMENT CONTROL

Item	Description	Unit	Quantity	Rate	Amount
1	**Site access**				
(a)	Temporary construction exit sediment trap	Lump Sum	1	$ 2,200.00	$ 2,200.00
2	**Silt control**				
(a)	Turf strips to kerbing (1000mm wide)	m	25	$ 15.00	$ 375.00
(b)	Silt fences	m	290	$ 15.00	$ 4,350.00
3	**Revegetation including establishment**				
(a)	Hydromulching	m^2	6,320	$ 5.00	$ 31,600.00
(b)	Tackifier Agent	m^2	3,850	$ 5.00	$ 19,250.00
4	**Scour Protection**				
(a)	Dumped rock - 400mm thick (D_{50} 200mm) on geotextile fabric (Type ?)	m^2	690	$ 145.00	$ 100,050.00
5	**Maintenance**				
(a)	Soil erosion and sediment control devices	Lump Sum	1	$ 4,000.00	$ 4,000.00

TOTAL B SOIL EROSION AND SEDIMENT CONTROL **$ 161,825.00**

C EARTHWORKS

Item	Description	Unit	Quantity	Rate	Amount
1	**Clearing and grubbing including vegetation clearing, demolition and removal of existing structures, fences, etc to allow construction of all works**				
(a)	Roads and allotments	Ha	1.01	$ 8,500.00	$ 8,585.00
2	**Topsoil removal, stockpiling and respreading**				
(a)	75mm thick	m^3	760	$ 10.80	$ 8,208.00
3	**General earthworks including level 1 control to AS3798 and haul route maintenance if required**				
(a)	Cut to fill on site	m^3	2,400	$ 8.10	$ 19,440.00
(b)	Imported fill	m^3	475	$ 8.90	$ 4,227.50
4	**Final trimming**				
(a)	Allotments, allotment batters, footpaths and open drains	Ha	0.73	$ 8,000.00	$ 5,840.00

TOTAL C EARTHWORKS **$ 46,300.50**

D ROADWORKS

Item	Description	Unit	Quantity	Rate	Amount
1	**Subgrade treatment**				
(a)	Roll, grade and trim pavement bed	m^2	3,880	$ 5.30	$ 20,564.00
2	**Gravel pavement (Provisional quantity)**				
(a)	Base, unbound pavement, Type 2, Subtype 2.1	m^3	425	$ 107.00	$ 45,475.00
(b)	Sub-base, unbound pavement, Type 2, Subtype 2.3	m^3	545	$ 99.50	$ 54,227.50
3	**Temporary turnaround**				
(a)	100mm minimum thick gravel Type 2, Subtype 2.3	m^3	32	$ 85.00	$ 2,720.00
4	**Kerb / Kerb and channel**				
(a)	Barrier kerb and channel - Type B1	m	66	$ 74.00	$ 4,884.00
5	**Supply and application of prime coat including preparation of surface**				
(a)	Prime Coat 0.2L/m2 (C170E CRS Emulsion Primer)	m^2	2,460	$ 4.30	$ 10,578.00
6	**Supply and install signs and road furniture**				
(a)	Double street name signs on single post	Each	1	$ 500.00	$ 500.00
7	**Pavement marking**				
(a)	Linemarking complete including RRPM's	Lump Sum	1	$ 2,500.00	$ 2,500.00

TOTAL D ROADWORKS **$ 141,448.50**

E STORMWATER DRAINAGE

Item	Description	Unit	Quantity	Rate	Amount
1	**Supply, lay and joint RCBC culverts, including trench excavation, sand bedding and surround to trenches, cast in situ base slab, crusher dust under roads and disposal of spoil as specified for reinforced concrete box culverts:**				
(a)	375 x 300 RCBC	m	64.8	$ 1,000.00	$ 64,800.00
(b)	600 x 450 RCBC	m	19.2	$ 2,500.00	$ 48,000.00
2	**Supply and construct cast in situ concrete headwall, wingwall and apron to match the following RCBC sizes**				
(a)	370 x 300 RCBC	Each	18	$ 1,000.00	$ 18,000.00
(b)	600 x 450 RCBC	Each	2	$ 2,500.00	$ 5,000.00
3	**CCTV**				
(a)	On maintenance	m	84.0	$ 10.00	$ 840.00
(b)	Off maintenance	m	84.0	$ 10.00	$ 840.00

TOTAL E STORMWATER DRAINAGE **$ 137,480.00**

F WATER RETICULATION

Item	Description	Unit	Quantity	Rate	Amount
1	**uPVC water mains Class 16 including excavation and disposal of spoil, bedding and surround, supply, lay, joint, backfill, test, sterilise and flush and including DICL special pipes, bends and fittings including anchor blocks and crusher dust backfill of trenches for mains under road pavements**				
(a)	DN100	m	1,116	$ 104.00	$ 116,064.00
2	**Sluice valves including supply, installation, chamber, margin block, surface block and marker**				
(a)	DN100	Each	10	$ 730.00	$ 7,300.00
3	**Hydrants including supply, installation, hydrant tee and riser, gasket and bolts, chamber, margin block, surface block and marker**				
(a)	DN100	Each	5	$ 740.00	$ 3,700.00
4	**Connection to existing water mains by Contractor under Council supervision**				
(a)	DN100	Each	2	$ 2,800.00	$ 5,600.00

TOTAL F WATER RETICULATION **$ 132,664.00**