ABN 33 629 034 153 | QBCC No: 15110878
PO Box 419 Cairns North QLD 4870
Mobile: 0400 392 453
Email: rebecca@bestruct.com.au

11th June 2025

Mareeba Shire Council
65 Rankin Street
Mareeba QLD 4880

Via Email: planning@msc.qld.gov.au

To Whom It May concern,

'Two Rivers Community School' – Operational Works Application

Please accept the below required documentation as an Application for Operational Works. (Link provided)

1. DA Form 1 Completed
2. Copy of Civil Documentation prepared by Lekker Urban (LU23112-DR-01 Rev A)
3. Statement of Compliance prepared by Lekker Urban
4. Cost Estimate of External Works (LU23112-DR-01 Rev A – Cost Estimate)

Please note that we would request that Mareeba Shire Council excludes the Internal cost estimate from any Application Fee and Bonds required in relation to the project. These works are located within Private property and do not affect any connections to MSC Infrastructure.

We acknowledge the required application fee is expected to be 1.5% of the costs which we estimated to be $31,593.87 subject to MSC confirmation.

Please issue the applicable Tax Invoice to:

Two Rivers Community School

C/O Bestruct

PO Box 419, Cairns North Qld 4870

Email to: sem_marvi@hotmail.com CC: rebecca@bestruct.com.au

Should you require anything further please contact the undersigned.

Kind Regards,

RJGilding

Rebecca Gilding

M 0400 392 453 | **E** rebecca@bestruct.com.au

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)*	TWO RIVERS COMMUNITY SCHOOL
Contact name *(only applicable for companies)*	C/O BESTRUCT
Postal address *(P.O. Box or street address)*	PO BOX 419
Suburb	CAIRNS NORTH
State	QLD
Postcode	4870
Country	AUSTRALIA
Contact number	0400 392 453
Email address *(non-mandatory)*	rebecca@bestruct.com.au
Mobile number *(non-mandatory)*	
Fax number *(non-mandatory)*	
Applicant's reference number(s) *(if applicable)*	
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)

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
		267	MCIVER ROAD / CHEWKO ROAD	MAREEBA
	Postcode	Lot No.	Plan Type and Number *(e.g. RP, SP)*	Local Government Area(s)
		71	SP292140	MAREEBA SHIRE
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)*:

OPERATIONAL WORKS – educational development and associated external works, including widening and upgrade of Chewko Road.

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:	WATER SUPPLY & ON SITE SEWERAGE	

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

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

$2,106,258.22 (EXCLUDES INTERNAL VALUE – BOND PROPOSED FOR EXTERNAL WORKS ONLY).

PART 4 – ASSESSMENT MANAGER DETAILS

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

MAREEBA SHIRE 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	MCU/23/0012	19/09/2024	MSC
☐ 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

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			

FNQROC DEVELOPMENT MANUAL

Council Mareeba Shire Council
(INSERT COUNCIL NAME)

STATEMENT OF COMPLIANCE
OPERATIONAL WORKS DESIGN

This form duly completed and signed by an authorised agent of the Designer shall be submitted with the Operational Works Application for Council Approval.

Name of Development Two Rivers Community School

Location of Development Chewko Road & 267 McIver Road, Mareeba QLD

Applicant Two Rivers Community School

Designer Lekker Urban

It is hereby certified that the Calculations, Drawings, Specifications and related documents submitted herewith have been prepared, checked and amended in accordance with the requirements of the FNQROC Development Manual and that the completed works comply with the requirements therein, **except** as noted below.

Compliance with the requirements of the Operational Works Design Guidelines	Non-Compliance refer to non-compliance report / drawing number
Plan Presentation	-
Geotechnical requirements	NA - Geotechnical By Others
Geometric Road Design	-
Pavements	NA - Pavement By Others
Structures / Bridges	NA - Not Included
Subsurface Drainage	-
Stormwater Drainage	-
Site Re-grading	-
Erosion Control and Stormwater Management	-
Pest Plant Management	NA - Not Included
Cycleway / Pathways	NA - Not Included

Landscaping	NA - Landscaping By Others
Water Source and Disinfection/Treatment Infrastructure (if applicable)	NA - By Others
Water Reticulation, Pump Stations and water storages	NA - By Others
Sewer Reticulation and Pump Stations	NA - By Others
Electrical Reticulation and Street Lighting	NA - By Others
Public Transport	NA - Not Included
Associated Documentation/ Specification	-
Priced Schedule of Quantities	Excluded
Referral Agency Conditions	Responses to Civil Conditions provided in Appendix A4
Supporting Information (AP1.08)	Refer Civil Report
Other	-

Conscientiously believing the above statements to be true and correct, signed on behalf of:

Designer Lekker Urban **RPEQ No** 24039

Name in Full Joshua Affleck

Signature J.affleck **Date** 13/05/2025

COST ESTIMATE

Two Rivers Community School

Chewko Road External Works

267 McIver Road, Mareeba

Our Reference: LU23112

Client: Two Rivers C/o Bestruct

Revision: A

Date of Issue: 13/05/2025

1.0	Preliminary and Early	Amount
1	Preliminary Site Works	$176,000.00
2	Topsoil	$31,890.00
3	Excavation	$45,581.00
4	Soil & Water Management	$69,501.00
5	Soft Spots	$0.00
6	Importation of Topsoil	$0.00
		$322,972.00

2.0	Road & Drainage	Amount
1	Road Pavement	$985,332.20
2	Concrete Works	$242,460.00
3	Drainage	$287,016.00
4	Incidental Works	$27,000.00
		$1,541,808.20

3.0	Electrical & Telecommunications	Amount
1	Electrical Intersection Lighting (Provisional Allowance)	$50,000.00
		$50,000.00

Sub-Total Cost (Ex. GST, Ex. Contingency)	**$1,914,780.20**
Contingency (10%)	**$191,478.02**
Sub-Total Cost (Ex. GST, Inc. Contingency)	**$2,106,258.22**
GST	**$210,625.82**
Total Cost Estimate (Inc. GST, Inc. Contingency)	**$2,316,884.04**

Notes:

1. This is an estimate only for budget purposes based on available information at the date of the estimate and our experience in previous projects of similar size. Accurate costing can only be provided once construction plans have been approved (Operational Works Permit)
2. This estimate assumes the entire development is completed concurently.
3. This summary is provided as a guide and will be progressively updated as further information comes to hand.
4. Excludes application fees, consultant costs etc.
5. Does not include treatment or protection due to contaminated site
6. Does not include reports into environmental, contamination, cultural heritage, flora and fauna etc unless shown
7. Allowance for electrical lighting upgrade has been provided for the intersection. This is indicative only and detailed design and costing is required.

Disclaimer:

These development costs are derived from information provided by usually reliable sources but are subject to variation upon formal advice from utility companies, authorities and detailed design and survey. The costings exclude interest costs, holding costs, legal fees, taxes. The costings cover engineering infrastructure and related works only.

Lekker Urban.

Our Reference: LU23112
Council Reference: MCU/23/0012

A: 60-70 Magazine Street, Cairns City QLD 4870
P: PO Box 8, Stratford QLD 4870
W: www.lekkerurban.com.au
E: contac@lekkerurban.com.au

Monday 13th May 2025

By Email: info@msc.qld.gov.au

Application for Operational Works Approval
Negotiated Decision Notice – Material Change of Use: Educational Establishment
Chewko Road and 267 McIver Road, Mareeba (Lot 71 on SP292140)

To Assessing Officer,

Lekker Urban have been engaged by the Applicant (Two Rivers Community School, c/- Bestruct) to provide civil engineering services for the subject project. The civil works application has been prepared with respect to the Negotiated Decision Notice - Material Change of Use for Educational Establishment from Mareeba Shire Council dated 19th September 2025. Please find attached Civil Engineering Design Report and associated documentation prepared for Operational Works Approval.

If you require any further information, please contact the undersigned for civil engineering related matters.

Yours faithfully,



Joshua Affleck
Civil Engineer – Civil Lead | MIEAust CPEng NER RPEQ (No. 24039)

CIVIL ENGINEERING DESIGN REPORT
OPERATIONAL WORKS

On behalf of Two Rivers Community School

C/- Bestruct

Lot 71 on SP292140

Lekker Urban.

McIver Road, Mareeba QLD

Report No. LU23112-DR-01

Cairns Office: 60 – 70 Magazine Street, Stratford QLD 4870

Postal: PO Box 8, Stratford QLD 4870

Email: contact@lekkerurban.com.au

Telephone: (07) 4027 9540

Revision

Report Title:	Civil Engineering Design Report – Operational Works
Street Address	Chewko Road & 267 McIver Road, Mareeba
RP Description	Lot 71 on SP292140
Prepared For:	Two Rivers Community School C/- Bestruct
Date:	13th May 2025
Revision No.	A
Report Status:	Issued for Approval
Prepared By:	
Name	Jarred Doyle
Qualifications	MIEAust CPEng NER RPEQ
Company	Lekker Urban
Phone No.	(07) 4027 9540
Certified By:	
Name	Joshua Affleck
Qualifications	Master of Engineering Practice/Bachelor of Engineering
Company	Lekker Urban
Phone No.	(07) 4027 9540
Industry Accreditation	RPEQ No. 24039
Signature	

Document Use and Context

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Lekker Urban accepts no liability or responsibility whatsoever for, or in respect of, any use, or reliance upon, this report by any third party. The report shall be read and used in its entirety to establish and understand the context of the assumptions and findings within. Lekker Urban does not accept any responsibility for use of any part of this report in any other context. Lekker Urban have established this report based on various sources of information provided by the client and project team. Lekker Urban accepts no responsibility as the accuracy of the supplied information and unless noted otherwise in the report, Lekker Urban has not attempted to verify the completeness of such information. It is assumed the information supplied is current and accurate at the time of issue. If the supplied information is found to be incomplete, false, outdated or inaccurate, then the conclusions and recommendations of the report may change

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1 Introduction

Lekker Urban has been commissioned by Bestruct, on behalf of Two Rivers Community School, to provide engineering services associated with the proposed educational establishment of 267 McIver Road & Chewko Road, Mareeba QLD 4880.

This design report is provided to support the Development Application (DA) for Operational Works (OPW) of the aforementioned educational establishment development and associated external works, including the widening and upgrade of Chewko Road.

1.1 Property Details

The subject site, Lot 71 on SP292140, in the locality of Mareeba and situated at 267 McIver Road, is 28.73 hectares in size and consists of a single irregularly shaped allotment. The subject site fronts the Tablelands Railway to the west, and the unbuilt McIver Road terminus to the north. A Railway Crossing that leads to Chewko Road provides current access. There are currently rural activities on the property, and Atherton Creek and Chinaman Creeks traverse the site.



Figure 1 – Location of Site (Source: Queensland Globe Interactive Maps)

1.2 Background Information

To inform the design, a desktop review of the existing site was undertaken and is summarised in the following sections.

1.2.1 Land Use, Zoning and Relevant Planning Scheme Overlays

In accordance with the Mareeba Shire Council Planning Scheme, the site is located within a Rural Zone. Chewko Road, which bounds the western edge of the site, is considered a Collector Road and McIver Road to the North is considered a Minor Rural Road under the Transport Network Overlay, neither road is identified as a Principal Cycle Route. Additionally, the site is impacted by the following planning scheme overlays:

- Environmental Significance – Waterways (Categories: *Waterway and Buffer)*
- Bushfire Hazard (Categories: *Medium & High Potential Intensity)*
- Hill and Slope (Categories: *Hill and Slope Area*)
- Regional Infrastructure Corridors & Substations (Categories: *Major Electricity Infrastructure*)

1.2.2 Topography

A detailed survey of the site was undertaken by BRZ Surveyor in November 2024. Based on this survey, it was identified that the site has a moderate slope that generally falls northeast towards Atherton and Chinaman Creek at varying grades. The site is undulated with localised low points.

1.2.3 Consideration of Adjoining Properties

The northern boundary of the site is the confluence point of Atherton & Chinaman Creeks, with the western boundary bordered by the road corridor with the Mungana Branch Line (Rail Line) and Chewko Road.

The southern boundary has an unformed access track with a barbed wire rural fence for the length of the boundary with Lot 1 on RP708284.

The eastern boundary of the site is with a barbed wire rural fence for the length Lot 72 on SP292140, the terrain slopes eastwards toward Chinaman Creek.

1.2.4 Existing Cyclist and Pedestrian Connectivity

Chewko Road is a rural collector road with an approximately 6.0 – 6.5m sealed width, with a marked centreline, no shoulder or edge line are present at this location.

Given the rural location, there is no formal cyclist and pedestrian connectivity along Chewko Road, and this section is not identified within the Queensland Principal Cycle Network Plans.

1.2.5 Existing Carparking

There is currently no formal on-street parking along Chewko Road, parking for the proposed development is contained within internal parking provisions.

1.2.6 Existing Road Safety Issues

A search of the *Road Crash* Locations in QLD Globe found no incidents within 1km of the proposed intersection upgrade. A site visit was undertaken on 10th January 2025, and it was identified that the

existing access into the site was located on the inside curve with vegetation located on the eastern side of Chewko Road both north and south of the access. There are currently no known reported road safety issues associated with the site under pre-development conditions.

1.2.7 Public Transport

There is no Public Transport operated by Translink within the Mareeba area, it is therefore unlikely that public transport will be used as the primary mode of transport for people attending the proposed educational establishment.

1.2.8 Local Authority Approvals

At present, there are no known Local Authority (Mareeba Shire Council) Approvals relevant to the proposed site.

1.3 Proposed Development

The proposed development on Lot 71 on SP292140 (267 McIver Road), is for the provision of an Educational Establishment provided onsite which is a combination of a Primary School and Secondary School of up to three hundred (300) Students under the ultimate configuration.

The initial stages, and scope of this Operational Works application includes the following:

- External intersection upgrade and widening,
- External access road,
- Internal carparking, bus drop-off and vehicle set down areas.
- Internal Stages 1 & 2
    - Admin Building with entry, reception, offices and staff rooms
    - Student Amenities,
    - Four (4) Classrooms,
    - Sports area,
    - Shared open spaces (Playgrounds)

2 Basis of Design

The information presented in this section forms the basis for the civil design of the proposed development and serves as supporting documentation for the associated Development Application.

2.1 Proposed Civil Works

2.1.1 Operational Works Drawings

A set of *For Approval* Civil Engineering drawings for the proposed development is provided in Appendix A of this report for Council comment and approval.

2.1.2 Scope of the Civil Works

The scope of the Civil Subdivision Works is as follows:

- Establishment and maintain erosion and sediment control works for the duration of the construction period.
- Clearing and Grubbing
- Stripping of topsoil from areas to be cut or filled, stockpile and respread.
- Cut, fill and compaction of earthworks to the required levels.
- Trimming of final earthworks.
- Construction of stormwater drainage including pipes, pits, manholes and drains.
- Modification of existing civil services as required.
- Construction of road pavements, bituminous surfacing and concrete kerbing.
- Construction of rail crossing.
- Construction of pathways.
- Installation of pavement markings and traffic signage.

Works associated with other disciplines such as electrical and telecommunications, building hydraulics, building structures, architectural, landscaping etc. will be required to compliment the civil design in order to achieve compliance with the development approval. These works are to be designed, documented and certified by others.

2.1.3 Specifications

The project specific specifications to be used throughout construction activities will be based upon the standard FNQROC and QTMR specifications. Where required, additional specifications will be provided in the form of notes on the project drawings.

2.1.4 Adjoining Properties

The northern boundary of the site is the confluence point of Atherton & Chinaman Creeks, with the western boundary bordered by the road corridor with the Mungana Branch Line (Rail Line) and Chewko Road.

The southern boundary has an unformed access track with a barbed wire rural fence for the length of the boundary with Lot 1 on RP708284, which shall remain during construction and operation of the education facility.

The eastern boundary of the site is with a barbed wire rural fence for the length Lot 72 on SP292140, the terrain slopes eastwards toward Chinaman Creek.

2.2 Earthworks

2.2.1 Clearing Works

Clearing will be required to the site and has been identified within the Civil Engineering drawings refer drawing LU23112-2-CD201 for internal works clearing. The extent of the works and building footprint areas with respect to clearing is understood to have been assessed and nominated by others.

2.2.2 Site Regrading and Allotment Earthworks

The internal site grading has been undertaken such that it retains existing site features/vegetation as much as possible with individual pads graded for the building blocks and connection between for footpaths. Pads for building blocks tie into natural at a maximum grade of 25%. Pads for buildings have been graded as flat. The cut to fill quantities are specified in the Civil Drawings including assumptions and exclusions within the volume calculations. Localised drainage channels have been nominated between buildings in order to ensure a free draining site.

2.2.3 Imported Fill and Exported Material

Subject to confirmation on the suitability of the in-situ material, the import of fill is not anticipated for the internal works based on the quantities from the earthworks model. Excessive cut material is anticipated for the internal works and will be subject to the direction of the Superintendent on either stockpiling for future use or disposal offsite.

2.2.4 Topsoil and Grassing

Clean topsoil, in accordance with the FNQROC Regional Development Manual, shall be spread to a depth of 150mm within the lots, whilst 100mm will be applied to the verge areas.

Turfing, in accordance with the FNQROC Regional Development Manual, shall be provided to the rear of kerbs and on either side of pathways (where provided). Drill seeding, in accordance with the FNQROC Regional Development Manual, will be provided to verges, any batters flatter than 1V:4H, and allotments.

2.3 Traffic and Intersections

2.3.1 Traffic Assessment

A traffic impact assessment was undertaken by Rytenskild Traffic Engineering (RTE), report reference 23281, dated 13th September 2023.

We note that Council provided comments in relation to traffic and transport matters during the Information Request meeting held on the 2nd August 2023 and a response was provided by RTE in the aforementioned report.

2.3.2 External Intersection – Chewko Road & New Access Road

The existing rural allotment access, and the point of access for the proposed school shall be upgraded to a formalised intersection. The existing carriageway shall be widening on both approaches to the access intersection to provide a Rural Channelised Right Turn Treatment with Short Turn Slot [CHR(S)] and a Rural Auxiliary Left-Turn Treatment Short Turn Lane [AUL(S)].

Research has shown that these turn types are considerably safer than other types of turn treatments, namely basic right-turn (BAR), auxiliary right-turn (AUR) and basic left-turn (BAL). This is especially true for the right-turn treatments.

We note that the proposed intersection treatments provide a higher standard of serviceability, then those conditions in the decision notice as it is desirable to maximise the use of channelised right-turn (CHR) and auxiliary left-turn (AUL) treatments to improve safety given the intersection is within a high-speed area, 100km/hr signposted, the adjacent railway crossing and the primary access for a school.

2.3.3 Internal Roads – New Access Road

The new access road and internal road network for the proposed development generally consists of a two-way, single carriageway road suitable to accommodate the anticipated traffic volumes for the proposed education which have been designed in accordance with the FNQROC Regional Development Manual Standards for a Rural Road.

2.3.4 Cyclist and Pedestrian Access

Given the rural nature of the proposed development, and the adjacent roads high speed environment and the lack of residential areas within the vicinity of the proposed development, provision of a dedicated pedestrian and cycle access has been deemed unnecessary.

2.3.5 Road Safety Issues

A review of the "*Road Crash Locations*" dataset on QLD Globe indicates there are no road crashes within the vicinity of the proposed intersection upgrade and proposed development access within the previous five (5) year period.

A site visit was undertaken by Lekker Urban on the 7th December 2024 and the 10th January 2025, to observe the intersection function, we note that a formal Road Safety Audit was not undertaken.

2.4 Road Geometry

Road Geometry for the site has been undertaken in accordance with the FNQROC Regional Development Manual and Austroads Guidelines. This section details the road geometry utilised across the proposed development.

2.4.1 Design Criteria

2.4.1.1 Design Speed

For the external road and intersection, a design speed of 110km/hr (Posted Speed + 10km/hr) has been adopted in accordance with the Austroads Guide to Road Design.

A Design Speed of 30km/h has been adopted in accordance with FNQROC Regional Development Manual for the New Access Street and the internal carpark. Internal roads are intended to be posted at 10km/hr shared zone and XXX school zone as nominated in the design drawings.

2.4.1.2 Longitudinal Gradients

Longitudinal gradients for the external road and intersection match existing vertical grade.

The new Access Road into the site from the Intersection of Chewko Road to the internal private property has been designed in accordance with FNQROC and Austroads Guidelines.

Internal circulation roadways and carpark areas have been designed in accordance with AS2890.1 (Parking Facilities – Part 1: Offstreet Car Parking). Longitudinal road grades of the road centreline deviate from minimum between CH400-410 however this location has been designed as the low point with adequate crossfall to ensure no ponding of water occurs.

2.4.1.3 Horizontal Alignment

Horizontal alignment for the external works was undertaken in accordance with Austroads guidelines for unsignalized intersections.

The road alignment adjacent the rail level crossing is accordance with those specified within the Decision Notice – Referral Agency Conditions: Railway level crossing safety, Part 5 (a), (ii), being:

- The horizontal alignment of the New Access Road has been selected with intent of minimising disturbance to adjacent properties and the avoidance of the existing overhead electrical transmission lines.

Internal private roads and parking areas have been designed based on the turning movements as specified in Section 2.4.1.7.

2.4.1.4 Vertical Curves

Vertical curves have been provided on the New Access Road for change in grades greater than 1%, and a minimum length of vertical curve adopted as 10m as per the road longitudinal sections provided.

The minimum vertical curve has been checked for compliance against Austroads Guide to Roads Design Part 3 Geometric Design Section 8.6.2 with all vertical curves exceeding minimum requirements. Refer to Lekker Urban Civil Engineering Drawing LU23021-CD300.

Internal circulating road for the carpark has generally been designed in accordance with FNQROC for vertical curves. The vertical geometry for the fire trail generally complies with the minimum radius nominated in FNQROC, however two (2) vertical curves of less than 10m has been provided. These curves have been reviewed and meet the calculated minimum based on the intended road use.

2.4.1.5 Crossfalls

Road crossfalls of 3% generally been adopted as per FNQROC requirements for asphaltic surfaces which can be referenced as per the provided road cross sections. It is anticipated that the Chewko road will be milled and the surface reinstated as 50mm asphaltic surfacing. The existing crossfall on Chewko varies and deviates from the 3% standard crossfall. Minor correction will occur to the existing grades at the intersection when the surface is milled however it is expected that the crossfall will still vary along Ckewko Road.

The internal access generally consists of 3% crossfall except as varied around nominated curves where superelevation is applied. A flat section of the road over the rail is nominated.

2.4.1.6 Carriageway Widths

The carriageway widths adjacent the rail level crossing is accordance with those specified within the Decision Notice – Referral Agency Conditions: Railway level crossing safety, Part 5 (a), (ii), being:

Two (2) x 3.75m Traffic Lanes, with an additional 1.5m wide verge (shoulder) on each side of the road, can be referenced as per the provided road cross sections from Lekker Urban Civil Engineering Drawing LU23112-CD-1-400 series.

Carriageway widths for the remainder of the external road network are nominated in the typical section and cross sections of the design.

Internal private road widths for the circulating road, carpark areas and Fire Trail have been based on the a design vehicle turn paths, refer Section 2.4.1.7.

2.4.1.7 Design Vehicle & Turn Paths

An AUSTROADS 2023 Bus (14.5m Long Rigid Bus) has been adopted as the Design Vehicle to confirm the carriageway widths and suitability of intersections for all internal roads, noting this is the largest vehicle likely to regularly operate at a specific location rather than the largest of the vehicles that may operate at that location.

An AUSTROADS 2023 Semi-Trailer (19.0m Prime mover and semi-trailer) has been adopted as the Check Vehicle, we note this is not necessarily the largest of the vehicles that may operate at that location. Rather, it is intended to include the majority of the vehicles allowed to operate there particularly accessing rural properties and adjacent agricultural land.

Turning paths confirming that the design and check vehicles can safely navigate the proposed intersection upgrade and new Access Street are provided in the design drawings within Appendix A.

The internal circulating road, carpark area and New Fire Trail have been assessed based on the following:

- AUSTROADS 2023 Bus (14.5m Long Rigid Bus) to ensure suitable turning radius have been provided for the bus route. Additionally, the 14.5m Long Rigid Bus has been adopted for the New Fire Access Trail.
- Internal parking has been assessed with the Austroads B99 Passenger Vehicle

2.4.1.8 Local Area Traffic Management

The internal road network has been designed with consideration for the management of movement and speed for traffic within local area as per FNQROC D1.15 and in accordance with the requirements of AS2890.1 Parking facilities – Off-street car parking.

2.4.1.9 Bus Stops

School bus set down facilities to accommodate a single (1) 14.5m Long Rigid Bus have been provided internally with appropriate pavement marking and signage in accordance with AS 1742.11:2016 Manual of Uniform Traffic Control Devices - Parking Controls.

2.4.1.10 Access to Allotments

Three (3) rural accesses are impacted by the external intersection works on the western side of Chewko Road being 410, 414 & 420 Chewko Road. Additionally, the intersection of the existing access to the neighbouring property to the south, 407 Chewko Road will be affected. The accesses will be formalised and upgraded as part of the proposed works and shall be constructed in accordance with FNQROC Standard Drawing S1105F.

2.4.1.11 Parking Provisions

No on-street parking provisions have been allocated as park of the development due to the rural nature of the proposed development.

Internal, off-street parking has been proposed and designed in accordance with the requirements of AS2890.1 Parking facilities – Off-street car parking, as shown within the project drawings. The number of carparks have been specified by others and is not certified by Lekker Urban. It is understood that the carparking area has been staged with a future expansion to the parking and road network to be provided as part of subsequent development of the site.

2.4.1.12 Pathways

No pathways have been provided within verges in conjunction with the New Access Road of the adjacent Chewko Road given the rural setting of the proposed development.

Internally, pedestrian access pathways are provided internally within the proposed development and the carparking areas and shall be constructed in accordance with FNQROC Standard Drawing S1035E, where required Kerb Ramps shall be constructed in accordance with FNQROC Standard Drawing S1105F.

2.4.1.13 Kerb & Channel

Edge Restraint Kerb has been adopted for the New Access Road. Within the internal carpark Barrier Kerb & Channel, Layback Kerb & Channel and Barrier Kerb have been adopted. Kerbs will be transitioned and matched onsite.

2.5 Road Pavements

2.5.1 Geotechnical Investigations

ETS Geotechnical have been engaged by Two Rivers Community School to conduct a geotechnical investigation of the site and advise on general earthworks and pavement design which is provided in Appendix B.

2.5.2 Adopted Pavement Design

The adopted pavement design for internal and external roads have been designed by ETS with the nominated pavement profile provided in the Civil Drawings. For all design assumptions and documentation associated with the pavement design, refer geotechnical reporting.

2.6 Stormwater Drainage and Flood Modelling

2.6.1 Known Existing Flooding

No Flood Impact Assessment has been prepared for the site. A review of the Department of Resources – FloodCheck Queensland for the "Basin Level Flood Modelling" layers indicates that the extent of the flooding generally appears to be outside the developable area of the initial development stage, however detailed flood modelling would be required to definitively confirm the extent of the flooding and any potential impacts.

Arial imagery suggests that to the south of the subject site is an existing dam structure which is anticipated to have been constructed for agricultural purposes. The dam discharges into an unnamed waterway which conveys stormwater through the subject site the fire trail and proposed drainage structures. No assessment has been undertaken on a dam break scenario nor has the civil services been designed to account for such a scenario. A risk is present for downstream structures and services should the dam break.

2.6.2 Existing Site Conditions and Stormwater Network

The existing site stormwater conditions is understood to comprise of the following:

1. Internal lot flows being conveyed via overland flow to the unnamed waterways, Atherton Creek and Chinaman Creek which generally grade from the south to the north of the site.
2. External development flows for Chewko Road are conveyed via table drains on the north and south of the road, as well as either side of the rail network. Private stormwater infrastructure is present under site access off Chewko road and to the north and south of the rail network.

2.6.3 Design Requirements

2.6.3.1 Major and Minor Stormwater Drainage Design

Design for the major and minor stormwater systems shall address the requirements set out in the FNQROC Development Manual – Design Manual D4 – Stormwater Drainage and Queensland Urban Drainage Manual (QUDM) to a level acceptable for development application.

A design ARI has been adopted as a Q100 for Major Events, and Q5 for Minor Events.

2.6.3.2 Climate Change Controls

Climate change impacts, such as changes to rainfall intensity, will be incorporated into system design as per relevant policies and/or Australian Rainfall and Runoff (AR&R) guidelines.

2.6.3.3 Stormwater Quality

Queensland State Planning Policy 2017 – Part G – Appendix 2 – Stormwater Management. Table B Assessment Benchmarks have been reviewed for the post construction proposed development.

The criteria and associated responses from Lekker Urban outlined in Table 1 below.

Table 1 – Response to criteria outlined within the QLD SPP 2017 – Part G – Assessment Benchmarks – Water Quality.

SPP Assessment Benchmarks – Water Quality	Lekker Urban Response to Criteria
Application:	
(1) a material change of use for an urban purpose that involves premises 2500 m^2 or greater in size and; **(a) will result in six or more dwellings; or** **(b) an impervious area greater than 25 per cent of the net developable area.**	Not applicable. While the development will be more than 2500m^2 , however it is understood to not be intended for the use as a dwelling and will not include an impervious area of > 25%.
(2) reconfiguring a lot for an urban purpose that involves premises 2500 m^2 or greater in size and will result in six or more lots.	Not applicable as the development is not a RoL or urban purposes.

FNQROC Development Manual – Design Manual D5 – Stormwater Quality Management does not apply to the proposed development due to small increase in impervious area of the development and due to the criteria outlined within the SPP not requiring any further stormwater quality treatment.

2.6.3.4 Erosion and Sediment Control

A conceptual soil and water management plan has been prepared for the development. The concept plan has been prepared and is intended to form the baseline for construction treatment of erosion and sediment control, and should be adapted by the contractor as required based on their site specific construction activities and methodologies.

2.6.3.5 Legal Point of Discharge

The subject site has been assessed in accordance with the Queensland Urban Drainage Manual, Fourth Edition (2017). In accordance with *Section 3.9.1 – Lawful Point of Discharge Test*, the applicable regulatory and other legal requirements have been reviewed and met to allow stormwater to discharge into the surrounding properties located at the rear of the subject site.

The criteria and associated responses from Lekker Urban outlined in Table 2 below.

Table 2 – Response to criteria outlined within the Lawful Point of Discharge Test from Section 3.9.1 of QUDM.

QUDM Lawful Point of Discharge Test Criteria	Lekker Urban Response to Criteria
(i) Will the proposed development alter the site's stormwater discharge characteristics in a manner that may substantially damage a third-party property [1] *(see Section 3.6).* • **If not, then no further steps are required to obtain tenure for a lawful point of discharge (assuming any previous circumstances and changes were lawful).** • **If there is a reasonable risk of such damage, then consider issue (ii) or (iii).**	In conjunction with *QUDM Section 3.6 – Stormwater changes* the proposed development does not change the stormwater regime in its pre-developed state through: • Diversion of stormwater. • Significant concentration of stormwater flows. • Significant changes in other flow characteristics. The existing point of discharge within the site being the unnamed watercourses are intended to remain as the intended discharge point with the minor concentrated stormwater from roof(s) and minor site drainage which will be conveyed internal to the subject allotment for approximately 700m prior to its discharge from the site. Stormwater concentrated to outlets are documented with suitable energy dissipation with rock protection. The implementation of the above measures are expected to ensure a non-worsening effect (not considered a nuisance flow).
(ii) Is the location of the discharge from the development site under the lawful control of the local government or other statutory authority from whom permission to discharge has been received? This will include a park, watercourse,	The nominated discharge point is an unmapped waterway within the subject site which is conveyed to a mapped waterway under the rail and local government controlled roads.

[1] ***The issue of whether or not there is an actionable nuisance does not depend on what is demonstrated at the time the works are proposed. The issue is what in fact occurs. This is consistent with it being the developer's responsibility to not cause nuisance, rather than the regulator's responsibility to assess and condition works to prevent a nuisance.***

	drainage or road reserve, stormwater registered drainage easement, or land held by local government (including freehold land). **Note: The regulatory authority (in its capacity as land holder) is likely to require information about the potential impact of the site's stormwater discharge characteristics on third party properties (particularly those downstream of the proposed discharge point) before it will consent to the discharge entering its land.** • **If so, then no further steps are required to obtain tenure for a lawful point of discharge.** • **If not, then consider issue (iii). A landowner or regulator may require that the developer obtain an authority to discharge as described (ii).**	
(iii)	**An authority to discharge over affected properties will be necessary. In descending order of certainty, an authority may be in the form of:** • **Dedication of a drainage reserve or park** • **A registered easement for stormwater discharge/works** • **Written discharge approval**	Criteria (ii) above is satisfied and criteria (iii) is not applicable.

2.6.4 Internal Stormwater Drainage

The internal stormwater design has been undertaken generally in accordance with the FNQROC Regional Development Manual and the Queensland Urban Drainage Manual (QUDM).

The drainage design includes roads which utilise kerb and channel, kerb inlet pits and underground pipe networks. The underground drainage system has been designed for a 10-year ARI event and the major systems based on a 100-year ARI event. Internal stormwater drainage

Internal stormwater drainage is understood to be private stormwater infrastructure.

2.6.5 External Stormwater Drainage

Based on a review of the available data, the external stormwater at the Chewko Road intersection will generally flow south to north, utilising new open table drains constructed as part of the proposed works which connect to existing table drains and cross drainage to the north of the intersection.

External flows from the farmlands / orchard to the south are diverted by existing drains between the rows of plantings and a small bund to the boundary, which diverts to a small dam to the east, in turn these flows and overflows are conveyed by a culvert into Atherton Creek.

Likewise, external flows from the adjacent road and rail corridor flow to the north, before entering an existing drainage channel that then flows east to Atherton Creek.

2.6.6 Stormwater Design Calculations

Stormwater drainage calculations and catchment areas are presented as part of the Operational Works application with stormwater hydraulics for the underground pipe network calculated using Rational Method analysis within Civil Site Design stormwater analysis.

2.6.6.1 Design Rainfall Data

Design intensity duration (IFD) rainfall data has been adopted from the Bureau of Meteorology (BOM) for the site location being 17.0375 (S) and 145.3875 (E).

2.6.6.2 Catchment Area

The catchment areas have been detailed in the Civil Works drawings. Catchments include the development area, as well as external upstream catchments (where relevant) and have been formed based on design contours within the developable area and LIDAR external to the site.

2.6.6.3 Kerb Inlets and Manholes

Kerbs adopted for the design include “On Grade – Side Entry (With Grate)” with blockage factors adopted as per 20% as per Table D4.2 of FNQROC Stormwater Drainage Design Manual. Everhard (or approved equivalent) pits with Class D grates have been nominated for internal drainage purposes not in roads.

2.6.6.4 Pipes and Culverts

The external works includes the addition of rural allotment access with minor culverts which have been nominated as 600 x 300mm. The access road into the site has been provided with a minor box culverts of 600 x 300mm and 600 x 450mm to convey site stormwater.

For the internal development, the minimum pipe sizes have been nominated less than the FNQROC minimum, however as previously specified pipes within the internal site are private infrastructure. Pipe materials have been nominated where not trafficable, and RCP where trafficable. A culvert crossing of size 2 No. 1200x900mm RCBC are nominated to convey water under the Fire Trail.

2.6.6.5 Stormwater Design Calculations

Stormwater long sections have been provided displaying the flows, velocities and hydraulic grade lines within the pipes.

2.6.7 Open Channels

2.6.7.1 Drainage Channels

For the external works package, the existing open channel drains along Chewko Road have been reshaped based on the widening works, refer road cross sections for details. The access road has been designed with open channels either side of the road, refer road cross sections for details.

Internal to the site, minor drainage channels have been nominated internal to the site to convey overland flows to pit and pipe network to ensure no ponding of water occurs. Additionally, works have

been proposed to regrade and realign sections of the unnamed waterways, refer earthworks plans for details.

2.6.8 Stormwater Setout

Stormwater Setout has been detailed as part of the Civil Works Drainage Pit Schedules.

2.7 External Consultants and Other Preliminaries

2.7.1 Hydraulic Services (Water and Sewerage Reticulation)

A Sewer and Water reticulation design, documentation and certification is being undertaken by Gilboy Hydraulics.

2.7.2 Landscaping

Landscaping works have been designed, documented and certified by LandPlan Landscape Architecture.

2.7.3 Electrical and Telecommunications

Negotiations with electrical and telecommunications providers is being undertaken by SPA Consulting Engineers for the development. As part of the engagement, SPA Consulting Engineers undertook the master planning for the site. It is anticipated that the site will connect from the existing LV system located within Chewko Road, to the west. Further design, negotiations and formal applications will be required with the relevant authorities by SPA Consulting Engineers. Certification of these works is not provided by Lekker Urban.

2.7.4 Portable Long Service Leave Levy

Portable Long Service Leave Levy is understood to be a requirement where the value of the building and construction works in Queensland exceed $150,000 (Exc. GST). It is proposed that the levy be paid and the receipt provided to Council prior to the Pre-Start meeting.

APPENDIX A

Civil Engineering Documentation

Lekker Urban.

Appendix A1 – Operational Works Drawings: External Works Package

ON BEHALF OF TWO RIVERS COMMUNITY SCHOOL

STAGE 1 & 2 - EXTERNAL CIVIL WORKS

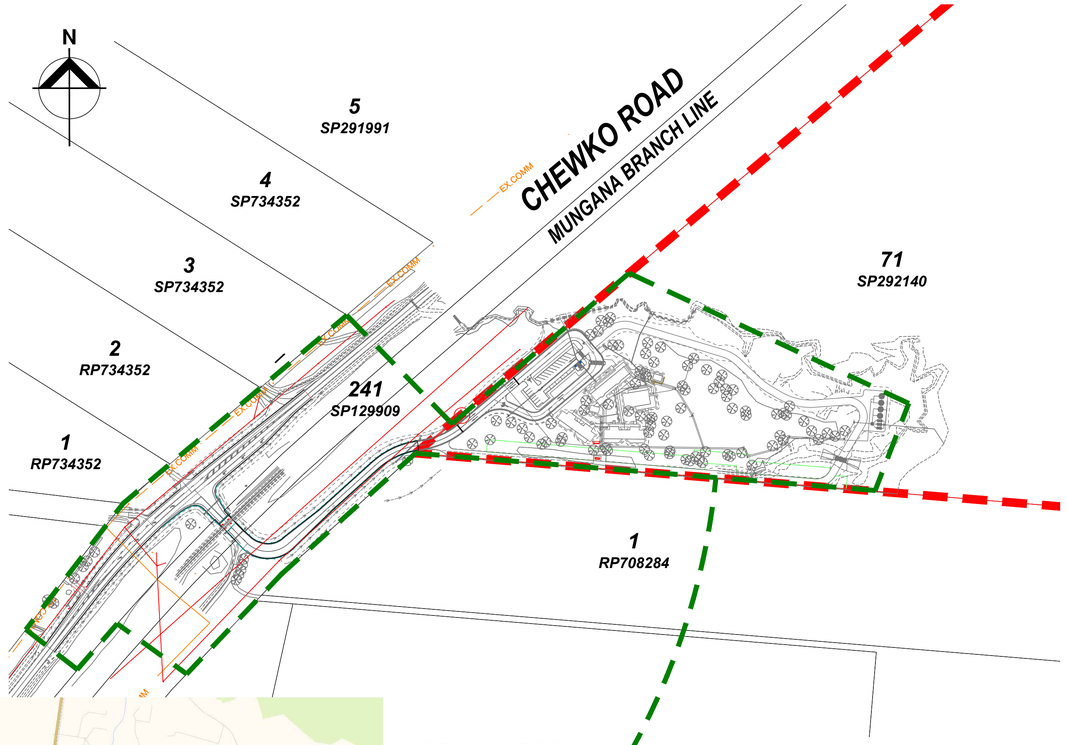
CHEWKO ROAD & 267 MCIVER ROAD, MAREEBA QLD

TWO RIVERS COMMUNITY SCHOOL

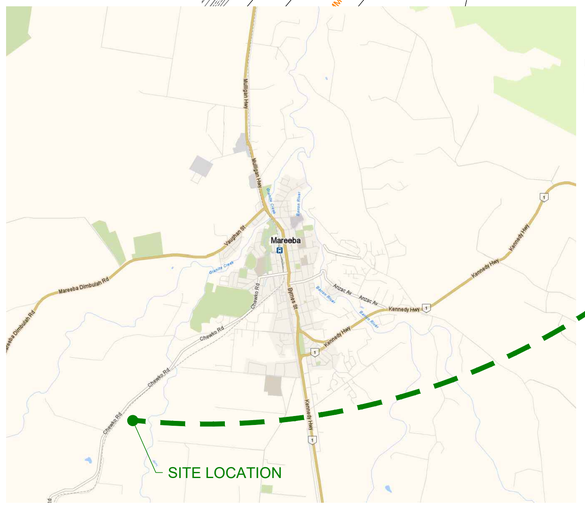
CIVIL ENGINEERING DRAWING LIST

DRAWING NUMBER	SHEET TITLE	REVISION
LU23112-1-CD-100	COVER SHEET, LOCALITY & DRAWING SCHEDULES	A
LU23112-1-CD-101	CONSTRUCTION NOTES	A
LU23112-1-CD-102	EROSION & SEDIMENT CONTROL NOTES & DETAILS	A
LU23112-1-CD-200	EROSION & SEDIMENT CONTROL PLAN	A
LU23112-1-CD-201	CLEARING & DEMOLITION PLAN	A
LU23112-1-CD-202	CIVIL SITE WORKS LAYOUT PLAN	A
LU23112-1-CD-203	SIGNAGE & LINEMAKRING LAYOUT PLAN	A
LU23112-1-CD-300	ROAD LONGITUDINAL SECTION - CHEWKO ROAD	A
LU23112-1-CD-301	ROAD LONGITUDINAL SECTION - NEW ACCESS ROAD	A
LU23112-1-CD-400	TYPICAL SECTIONS & DETAILS	A
LU23112-1-CD-401	CROSS SECTIONS - CHEWKO ROAD - SHEET 1 OF 6	A
LU23112-1-CD-402	CROSS SECTIONS - CHEWKO ROAD - SHEET 2 OF 6	A
LU23112-1-CD-403	CROSS SECTIONS - CHEWKO ROAD - SHEET 3 OF 6	A
LU23112-1-CD-404	CROSS SECTIONS - CHEWKO ROAD - SHEET 4 OF 6	A
LU23112-1-CD-405	CROSS SECTIONS - CHEWKO ROAD - SHEET 5 OF 6	A
LU23112-1-CD-406	CROSS SECTIONS - CHEWKO ROAD - SHEET 6 OF 6	A
LU23112-1-CD-407	CROSS SECTIONS - NEW ACCESS ROAD - SHEET 1 OF 6	A
LU23112-1-CD-408	CROSS SECTIONS - NEW ACCESS ROAD - SHEET 2 OF 6	A
LU23112-1-CD-409	CROSS SECTIONS - NEW ACCESS ROAD - SHEET 3 OF 6	A
LU23112-1-CD-410	CROSS SECTIONS - NEW ACCESS ROAD - SHEET 4 OF 6	A
LU23112-1-CD-411	CROSS SECTIONS - NEW ACCESS ROAD - SHEET 5 OF 6	A
LU23112-1-CD-412	CROSS SECTIONS - NEW ACCESS ROAD - SHEET 6 OF 6	A
LU23112-1-CD-500	INTERSECTION DETAIL PLAN & KERB RETURNS SECTIONS	A
LU23112-1-CD-501	RAIL CROSSING DETAIIL PLAN	A
LU23112-1-CD-600	DRAINAGE LONGITUDINAL SECTIONS	A
LU23112-1-CD-601	DRAINAGE PIT SCHEDULES	A
LU23112-1-CD-700	TYPICAL CONSTRUCTION DETAILS	A
LU23112-1-CD-800	VEHICLE TURN MOVEMENT LAYOUT PLAN - SHEET 1 OF 2	A
LU23112-1-CD-801	VEHICLE TURN MOVEMENT LAYOUT PLAN - SHEET 2 OF 2	A

REFER TO DRAWING LU23112-2-CD-100 FOR THE INTERNAL WORKS DETAILS



OVERALL SITE PLAN
NOT TO SCALE



LOCALITY PLAN

RISK / ISSUES MANAGEMENT

PROJECT DETAILS:

Risk C, H, M, L	RISKS / DESIGN ISSUES / DISCUSSIONS	RECOMMENDATION
H	WORKS WITHIN THE ROAD RESERVE FOR THE WIDENING OF CHEWKO ROAD AND THE CONSTRUCTION OF THE NEW ACCESS ROAD ARE WITHIN THE DIRECT VICINITY OF OVERHEAD POWER LINES	CONTRACTOR TO ENSURE ALL RELEVANT MEASURES ARE IN PLACE TO UNDERTAKE THE WORKS SAFELY
M	WORKS WITHIN THE RAIL CORRIDOR	IF PHYSICAL ACCESS TO LAND, CONTROLLED BY QUEENSLAND RAIL IS REQUIRED FOR ANY REASON, A LICENSE AGREEMENT WILL NEED TO BE EXECUTED BETWEEN THE THIRD PARTY AND QUEENSLAND RAIL. SIMILARLY, IF WORKS ARE OCCURRING ADJACENT TO THE RAIL CORRIDOR AND HAVE THE POTENTIAL TO INTERFERE WITH THE RAILWAY OR ANY RAIL INFRASTRUCTURE, QUEENSLAND RAIL MUST BE CONTACTED TO DETERMINE IF A LICENSE IS REQUIRED.
H	WORKS TO THE EXISTING RAIL	DETAIL FEATURE AND LEVEL SURVEY HAS BEEN OBTAINED FOR THE PROJECT. CONTRACTOR IS TO CONFIRM THE LEVELS OF THE EXISTING RAIL LINE AND INSTALLED THE CONCRETE CROSSING IN ACCORDANCE WITH QUEENSLAND GOVERNMENT DEPARTMENT OF MAIN ROADS STANDARD DRAWING 881 - FOR CONCRETE CROSSINGS
H	WORKS TO THE EXISTING RAIL CROSSING WITHIN THE ROAD RESERVE EXCEED THE LIMITS OF THE DESIGNATED PROPERTY BOUNDARY AND ENCROACH THE BOUNDARY OF THE RAIL CORRIDOR DUE TO THE REQUIREMENTS OUTLINED WITHIN THE DECISION NOTICE	CLIENT/PROJECT MANAGER/QUEENSLAND RAIL TO CONFIRM THAT WORKS CAN ENCROACH THE BOUNDARIES PRIOR TO COMMENCEMENT OF WORKS AND OWNERS CONSENT TO BE PROVIDED BY QR IN THE FORM OF WRITTEN APPROVAL

Risk Rating - C = Critical, H = High, M = Medium, L = Low

Revision	Amendments	Approved	Date
A	100% DESIGN ISSUE - FOR APPROVAL (OPW)	J.L.A	13/05/2025

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Lekker Urban.
CAIRNS: 60-70 MAGAZINE STREET STRATFORD, QLD
CONTACT@LEKKERURBAN.COM
WWW.LEKKERURBAN.COM.AU ABN 32 669 311 479

DRAWING NOT TO SCALE

Designed: A.P.B
Checked: J.L.A
Authorised: J.L.A
Date: 13/05/2025

TWO RIVERS COMMUNITY SCHOOL
STAGE 1 & 2 - EXTERNAL CIVIL WORKS
COVER SHEET, LOCALITY & DRAWING SCHEDULES

CHEWKO ROAD & 267 MCIVER ROAD, MAREEBA QLD
ON BEHALF OF TWO RIVERS COMMUNITY SCHOOL

FOR APPROVAL
DRAWING NUMBER: LU23112-1-CD-100
REV: A

1. GENERAL NOTES:

1.1. ALL WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE APPROVED CONDITIONS OF CONSENT (MAREEBA SHIRE COUNCIL NEGOTIATED DECISION NOTICE - APPLICATION NO. MCU/23/0012).

1.2. ALL DRAWINGS LISTED IN THE DRAWING SCHEDULE ARE TO BE READ AS A WHOLE AND NOT IN ISOLATION.

1.3. ALL DRAWINGS TO BE READ IN CONJUNCTION WITH PROJECT SPECIFICATION AND ALL RELEVANT STANDARD DRAWINGS.

1.4. PRIOR TO COMMENCEMENT OF WORK, FENCE OFF AND CLEARLY DELINEATE ALL AREAS WHERE WORK CANNOT BE CARRIED OUT.

1.5. SHOULD SITE WORKS EXPOSE ANY ARCHAEOLOGICAL OR CULTURAL MATERIAL, ALL WORKS SHALL CEASE AND OFFICIALS OF THE NATIONAL PARKS AND WILDLIFE, ABORIGINAL LAND COUNCIL AND LOCAL AUTHORITY TO BE NOTIFIED.

1.6. PRIOR TO ANY VEGETATION CLEARING, AN INSPECTION TO DETERMINE THE POSSIBLE PRESENCE OF NATIVE WILDLIFE AND PARTICULAR ANIMAL BREEDING PLACES MUST BE UNDERTAKEN BY A SUITABLY QUALIFIED AND EXPERIENCED SPOTTER/CATCHER. THE ASSESSMENT MUST INCLUDE THE IDENTIFICATION OF ANY BREEDING PLACES FOR ANY ENDANGERED/VULNERABLE OR NEAR THREATENED ANIMAL SPECIES. SPECIAL LEAST CONCERN OR COLONIAL BREEDING SPECIES PRIOR TO REMOVAL OF ANY TREE AND/OR VEGETATION AS PER THE REQUIREMENT OF SECT. 332 OF THE NATURE CONSERVATION (WILDLIFE MANAGEMENT) REGULATION 2006. THE DEPARTMENT OF ENVIRONMENT & SERVICE MUST BE CONTACTED WHERE ANY ENDANGERED, VULNERABLE OR NEAR VULNERABLE THREATENED NATIVE WILDLIFE IS FOUND TO BE PRESENT IN ANY AREA SUBJECT TO WORK.

1.7. ALL WORKS ARE TO COMPLY WITH THE REQUIREMENTS OF THE ENVIRONMENTAL PROTECTION ACT, 1994.

1.8. DISPOSAL/MOVEMENT OF MATERIALS IN AREAS OF YELLOW CRAZY ANTS ARE TO COMPLY WITH THE WET TROPICS MANAGEMENT AUTHORITIES (WTMA) D.A.F.F REGULATIONS. REFER TO THE DEPARTMENTS WEBSITE: www.wettropics.gov.au FOR THE CURRENT INFORMATION.

1.9. THE CONTRACTOR SHALL ADHERE TO ALL REQUIREMENTS OF THE DEPARTMENT OF ENVIRONMENT AND SCIENCE.

1.10. WHERE THIS SET OF DRAWINGS REFERENCE IS MADE TO THE ENGINEER, CONSULTING ENGINEER AND OR COUNCIL ENGINEER IT SHALL MEAN THE SUPERINTENDENT UNDER THE CONTRACT FOR THE WORKS.

1.11. WHERE IN THIS SET OF DRAWINGS REFERENCE IS MADE TO THE LOCAL AUTHORITY IT SHALL MEAN MAREEBA SHIRE COUNCIL.

1.12. THE CONTRACTOR IS TO VERIFY LOCATION AND LEVELS OF ALL SERVICES AND TO LIAISE WITH THE LOCAL AND SERVICE AUTHORITIES PRIOR TO COMMENCING CONSTRUCTION.

1.13. THE CONTRACTOR IS TO INFORM THE LOCAL AUTHORITY (INCLUDING QUEENSLAND RAIL) AND THE ENGINEER PRIOR TO COMMENCEMENT OF WORK.

1.14. PRIOR TO COMMENCEMENT OF WORK, A SIGN DETAILING THE PROJECT AND CONTAINING THE NAMES AND CONTACT NAMES OF THE DEVELOPER, CONTRACTOR AND PRINCIPAL CONSULTANT SHALL BE ERECTED AND MAINTAINED IN A PROMINENT POSITION AT THE SITE TO THE SATISFACTION OF THE LOCAL AUTHORITY. THE SIGN SHALL REMAIN IN PLACE UNTIL COMPLETION OF THE CONTRACT.

1.15. INFORMATION ON THESE DRAWINGS SHALL TAKE PRECEDENCE IF THERE IS ANY DISCREPANCY AND OR CONFLICT BETWEEN THESE DRAWINGS AND STANDARD DRAWINGS. ADVISE THE SUPERINTENDENT IMMEDIATELY OF ANY AND ALL DISCREPANCIES.

1.16. LEVELS SHOWN AT ALL INTERFACES ARE TO BE CONFIRMED PRIOR TO COMMENCEMENT OF CONSTRUCTION.

1.17. ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE RELEVANT AND CURRENT FNQROC, IPWEAQ, IWSAA, NATSPEC/AUS-SPEC, THE BUILDING CODE OF AUSTRALIA AND WITH THE POLICIES, BY-LAWS, CODES AND SPECIFICATIONS OF THE RELEVANT LOCAL AUTHORITIES.

1.18. WHERE PROVIDED, THE ACCOMPANYING BILLS OF QUANTITIES SHALL ONLY SERVE AS A SUPPLEMENT FOR PRICING PURPOSES. THE CONTRACTOR SHALL ALLOW FOR ALL WORKS REQUIRED TO COMPLY WITH THE DRAWINGS. THIS INCLUDES ANY TEMPORARY, INTERMEDIATE OR PROTECTIVE WORKS REQUIRED TO FACILITATE FINAL CONSTRUCTION.

1.19. ELECTRONIC SETOUT DATA SUPPLIED TO ASSIST WITH CONSTRUCTION SHALL BE UTILISED IN CONJUNCTION WITH THE ENGINEERING DRAWINGS. ANY INCONSISTENCIES BETWEEN THE ELECTRONIC DATA AND ENGINEERING DRAWINGS SHALL BE REFERRED TO THE SUPERINTENDENT IMMEDIATELY FOR RESOLUTION.

2. EXISTING FEATURES

2.1. UNLESS OTHERWISE SPECIFIED ALL EXISTING SERVICES AND STRUCTURES ARE TO BE MAINTAINED IN GOOD ORDER FOR THE DURATION OF THE CONTRACT AND WHERE RELOCATION IS REQUIRED REFER TO SPECIFICATION.

2.2. ALL WORK JOINING TO EXISTING CONSTRUCTION TO BE DONE NEATLY & TO THE SATISFACTION OF THE SUPERINTENDENT.

2.3. ALL BENCHMARKS TO BE LEVEL CHECKED BY CONTRACTOR PRIOR TO COMMENCEMENT OF CONSTRUCTION.

2.4. THE LOCATION OF EXISTING SERVICES AS SHOWN ON THE PLAN IS INDICATIVE ONLY AND THE CONTRACTOR MUST ASCERTAIN THE POSITION OF ALL SERVICES (I.E. WATER, ELECTRICITY, TELECOM, GAS ETC.), BEFORE COMMENCING CONSTRUCTION.

2.5. LEVELS AND GRADIENTS AT JUNCTIONS WITH EXISTING WORKS MAY BE VARIED AS REQUIRED TO ACHIEVE SATISFACTORY CONNECTIONS AND THE COSTS DEEMED INCLUDED IN THE RELEVANT SCHEDULE ITEMS;

2.6. IF THE LOCATION, LINE AND / OR LEVEL OF ANY EXISTING SERVICE IS NOT AS DESCRIBED ON THE DRAWINGS THE SUPERINTENDENT IS TO BE NOTIFIED IMMEDIATELY AND PRIOR TO PROCEEDING WITH FURTHER WORK;

2.7. IT IS THE CONTRACTORS RESPONSIBILITY TO ENSURE REPAIR OR REPLACE EXISTING SERVICES DAMAGED DURING THE WORKS TO THE SATISFACTION OF THE SUPERINTENDENT.

2.8. EXISTING DRIVEWAYS AFFECTED BY WORKS SHALL BE RECONSTRUCTED IN THE SAME MATERIAL AS EXISTING OR AS DIRECTED BY THE LOCAL AUTHORITY.

2.9. CLEARING AND GRUBBING AS DIRECTED, INCLUDING REMOVAL AND DISPOSAL OF CLEARED VEGETATION SHALL BE CARRIED OUT USING METHODS APPROVED.

2.10. SERVICES SHOWN ON THESE PLANS ARE ONLY THOSE EVIDENT AT THE TIME OF SURVEY, FROM AS CONSTRUCTED SURVEY AND FROM 'DIAL BEFORE YOU DIG' SEARCHES. THERE MAY BE ADDITIONAL SERVICES WHICH ARE NOT SHOWN ON THESE DRAWINGS.

2.11. 80mm CONDUITS ARE TO BE SUPPLIED AND INSTALLED UNDER CONCRETE FOOTPATHS FOR THE PURPOSE OF FUTURE WATER SERVICE. CONFIRM WITH THE HYDRAULIC CONSULTANT OF THE FINAL LOCATIONS OF THE CONDUITS PRIOR TO CONSTRUCTION OF ALL PATHS/SLABS.

3. SAFETY IN DESIGN NOTES:

3.1. POTENTIAL SAFETY HAZARDS CONSIDERED BY THE DESIGNERS TO HAVE A HIGHER RISK THAN NORMAL CONSTRUCTION ACTIVITY ARE THAT IDENTIFIED WITH APPROPRIATE NOTES ON THESE DRAWINGS. IT SHOULD BE NOTED THAT DESIGNERS HAVE A LOWER LEVEL OF UNDERSTANDING OF THE RISKS INVOLVED IN CONSTRUCTION COMPARED TO THAT OF A COMPETENT CONTRACTOR. IT IS THEREFORE ESSENTIAL THAT AN ADEQUATE SAFETY PLAN IS PREPARED BY THE CONTRACTOR FOR THE WORKS. THE DESIGNERS MAY NOT BE AWARE OF ALL SAFETY RISKS AND HAZARDS INVOLVED IN THIS PROJECT AND THE ABSENCE OF COMMENT DOES NOT IMPLY THAT THERE ARE NO RISKS OR HAZARDS INVOLVED IN THIS PROJECT.

3.2. THE CONTRACTOR SHALL COMPLETE AND WILL SOLELY BE RESPONSIBLE FOR THE IMPLEMENTATION OF ANY NECESSARY SAFETY PLANS TO COMPLETE THE WORKS.

3.3. THE CONTRACTOR MUST COMPLY WITH ANY GUIDELINE ACTS OR CODE OF PRACTICE AND OTHER RELEVANT DOCUMENTS REGARDING SAFE WORK PRACTICES.

3.4. THE CONTRACTOR WILL HAVE A NOMINATED WH&S OFFICER FOR THE DURATION OF THE CONTRACT. THE WH&S OFFICER WILL BE RESPONSIBLE FOR ALL THE WH&S ISSUES ON THE SITE.

3.5. ALL PERSONS ENTERING THE SITE SHALL COMPLETE A SAFETY INDUCTION WITH THE NOMINATED WH&S OFFICER. THIS IS TO INCLUDE REFERENCE TO SAFETY IN DESIGN ISSUES RELEVANT TO THE PROJECT.

3.6. ALL CONSTRUCTION UNDERTAKEN BY THE CONTRACTOR IS TO COMPLY WITH THE REQUIREMENTS OF THE CURRENT EDITION OF THE WORKPLACE HEALTH AND SAFETY ACT.

3.7. ALL BUILDING SITE MANAGERS MUST TAKE ALL ACTION NECESSARY TO ENSURE BUILDING MATERIAL AND/OR MACHINERY ON CONSTRUCTION SITES ARE SECURED IMMEDIATELY FOLLOWING THE FIRST CYCLONE WATCH AND THAT RELEVANT EMERGENCY TELEPHONE CONTACTS ARE PROVIDED TO COUNCIL OFFICERS, PRIOR TO COMMENCEMENT OF WORKS.

3.8. EXCAVATIONS WORKS CARRIED OUT BY CONTRACTORS AT DEPTH OF 1.5m OR GREATER MUST PROVIDE A "SAFE WORK PLAN" AS PER WORKPLACE HEALTH AND SAFETY LEGISLATION PRIOR TO COMMENCING ANY WORK.

4. GENERAL SERVICES:

4.1. ELECTRICAL AND COMMUNICATIONS CONDUIT LOCATIONS ARE SHOWN FOR INFORMATION ONLY. FOR EXACT LOCATIONS REFER TO ELECTRICAL CONSULTANTS LAYOUT PLANS. FOR WATER CONDUIT LOCATIONS REFER HYDRAULIC CONSULTANT DRAWINGS.

4.2. ALL CONDUITS ARE TO HAVE BRASS CONDUIT MARKERS INSTALLED IN THE KERB AND CHANNEL FOR THE APPROPRIATE SERVICE.

4.3. SERVICE AUTHORITY INFRASTRUCTURE ADJUSTMENTS ARE TO BE PERFORMED BY AUTHORIZED CONTRACTORS APPROVED BY THE RELEVANT SERVICE AUTHORITY.

5. EARTHWORKS NOTES

5.1. GENERAL

5.1.1. BULK EARTHWORKS IS TO BE CARRIED OUT IN ACCORDANCE WITH THE FNQROC SPECIFICATION 'S1 EARTHWORKS' AND THE REQUIREMENTS OF AS3798-2007.

5.1.2. GEOTECHNICAL INVESTIGATIONS HAVE BEEN UNDERTAKEN BY ETS GEOTECHNICAL. REFER TO PAVEMENT INVESTIGATION & DESIGN REPORT (REPORT NO. GT25-011-001R) ISSUED IN APRIL 2025 FOR ALL EARTHWORKS RECOMMENDATIONS PRIOR TO COMMENCEMENT OF WORKS ONSITE.

5.1.3. NOT WITHSTANDING THE LIMITS OF EARTHWORKS SHOWN ON THE DRAWINGS, THE ACTUAL LIMIT SHALL BE DETERMINED ON SITE BY THE SUPERINTENDENT, THE ACTUAL LIMITS SHALL BE DETERMINED ON SITE BY THE SUPERINTENDENT DURING CONSTRUCTION.

5.1.4. FINISHED SURFACE LEVELS MAY BE ADJUSTED BY A WRITTEN DIRECTION OF THE SUPERINTENDENT DURING CONSTRUCTION WITH PRIOR APPROVAL FROM THE LOCAL AUTHORITY;

5.1.5. ALL EARTHWORKS QUANTITIES ARE NET VOLUMES. CONTRACTOR TO MAKE ALLOWANCE FOR BULKING AND COMPACTION'

5.1.6. ADDITIONAL DETAILED TRIMMING WILL BE REQUIRED TO ACHIEVE FINISHED SURFACE LEVELS AND TO ACCOMMODATE LANDSCAPING WORKS.

5.1.7. GEOTECHNICAL SUPERVISION OF EARTHWORKS IS TO BE CARRIED OUT IN ACCORDANCE WITH THE EARTHWORKS SPECIFICATION BY A N.A.T.A. REGISTERED GEOTECHNICAL TESTING AUTHORITY AT THE CONTRACTORS COST.

5.1.8. THE CONTRACTOR SHALL PROVIDE DETAILS OF ALL TESTING TO THE ENGINEER PROGRESSIVELY THROUGH THE WORKS AND NOTIFY THE ENGINEER OF ANY NON-CONFORMANCES.

5.1.9. ALL NON CONFORMING WORK IS TO BE RECTIFIED AS DIRECTED BY THE ENGINEER.

5.1.10. CONTRACTOR SHALL (IF IN DOUBT) DURING EARTHWORK OPERATION DIRECT CONCERN TO THE SUPERINTENDENT WHO SHALL SEEK ADVICE FROM THE GEOTECHNICAL CONSULTANT.

5.1.11. EARTHWORKS SHALL BE CARRIED OUT TO THE FINISHED SURFACE LEVELS SHOWN. CUT AND FILL BATTERS ARE NOT TO EXCEED 1 IN 4 SLOPE UNLESS INDICATED OTHERWISE. TRANSFORMER SITE CROSSFALL MAXIMUM OF 300mm. WHERE REQUIRED, BATTERS OF 1 IN 4 TO BE USED TO TIE BACK TO FSL.

5.1.12. THE CONTRACTOR SHALL INFORM THE LOCAL AUTHORITY, AND ALL RELEVANT SERVICE PROVIDERS AND THE SUPERINTENDENT OF THE START DATE PRIOR TO COMMENCEMENT OF WORKS;

5.1.13. ALL EARTHWORKS TESTING TO BE SUPERVISED TO LEVEL 1. FREQUENCY OF FIELD DENSITY TESTING TO BE TYPE 1 IN ACCORDANCE WITH TABLE 8.1 OF AS 3798-2017;

5.2. FILLING AND COMPACTION

5.2.1. FILLING IS TO BE CARRIED OUT IN STRICT ACCORDANCE WITH THE SPECIFICATIONS AND AS3798-2017, APPENDIX B, LEVEL 1 & AS DIRECTED BY ETS GEOTECHNICAL INVESTIGATION REPORT.

5.2.2. ALL FILL UNDER ROADS SHALL BE COMPACTED TO 100% STANDARD COMPACTION;

5.2.3. FILLING ON ROAD EMBANKMENT TO BE COMPACTED TO 95% STANDARD DRY DENSITY AS1289 5.1.1 - 2017 AND TRIMMED TO BE FREE DRAINING. ALL ROAD EMBANKMENT FILL SHALL BE SUPERVISED BY A QUALIFIED GEOTECHNICAL ENGINEER TO LEVEL 1 REQUIREMENTS IN ACCORDANCE WITH THE AS.3798-2007.

5.2.4. PLACE FILL IN LAYERS OF LOOSE AGGREGATES OR GRANULAR MATERIAL THICKNESS APPROPRIATE TO THE TYPE OF COMPACTION EQUIPMENT BEING USED AND NOT GREATER THAN 200mm. COMPACT EACH FILLING LAYER TO THE MINIMUM DRY DENSITY SPECIFIED. THE MOISTURE CONTENT OF FILL MATERIAL SHOULD BE MAINTAINED WITHIN THE RANGE OF -1% TO +2% OF THE OPTIMUM MOISTURE CONTENT.

5.2.5. FILLING MATERIAL AS REQUIRED TO COMPLETE THE WORKS SHALL BE SOURCED FROM MATERIAL EXCAVATED FROM SITE OR IMPORTED FROM A SUITABLY APPROVED SUPPLIER. ALL FILLING MATERIAL MUST BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO ITS INCORPORATION INTO THE WORKS.

5.2.6. FILL SHALL BE PLACED AND COMPACTED TO THE FOLLOWING STANDARDS:

a. COHESIVE MATERIALS: ALLOTMENT FILL SHALL ACHIEVE A MINIMUM DRY DENSITY RATIO (M.D.D.R.) OF 98% STANDARD. COMMERCIAL ALLOTMENT FILL SHALL ACHIEVE A 98% STANDARD.ROAD EMBANKMENTS SHALL ACHIEVE THE FOLLOWING MINIMUM STANDARDS.

-- GREATER THAN OR EQUAL TO 0.3m BELOW PAVEMENT SUBGRADE: 95% STD. M.D.D.R.

-- LESS THAN 0.3m BELOW PAVEMENT SUBGRADE: 100% STD. M.D.D.R.

-- NON COHESIVE MATERIALS:- FILL SHALL ACHIEVE A MINIMUM DENSITY INDEX RATIO OF 75%.

5.1. STRIPPING, STOCKPILE AND TOPSOIL

5.1.1. PRIOR TO THE COMMENCEMENT OF FILLING THE SITE IS TO BE STRIPPED - DEPTH TO BE NOTED & CONFIRMED BY CONTRACTOR. PLACEMENT OF FILL ON PREPARED AREAS SHALL NOT COMMENCE UNTIL AUTHORISED BY A LEVEL 1 GEOTECHNICAL ENGINEER. EARTHWORKS SPOIL IS TO BE STOCKPILED AS DIRECTED BY THE SUPERINTENDENT;

5.1.2. ALL VERGES AND PUBLIC OPEN SPACES AREAS CLEARED OF VEGETATION MUST BE COVERED FOR THE FULL WIDTH WITH TOPSOIL IN ACCORDANCE WITH AS 4419:2018 SOIL FOR LANDSCAPING AND GARDEN USE, TO A DEPTH OF NOT LESS THAN 40mm, LIGHTLY COMPACTED AND GRASSED IN ACCORDANCE WITH THE FNQROC DEVELOPMENT MANUAL AT THE WORK ACCEPTANCE AND MAINTAINED BY THE CONTRACTOR UNTIL FINAL WORK ACCEPTANCE.

5.1.3. SILT FENCING IS TO BE PLACED ON THE DOWNSTREAM SIDE OF ALL STOCKPILE SITES AND AN ADEQUATE CUTOFF DRAINS ARE TO BE PLACED ON THE UPSTREAM SIDE OF ALL STOCKPILE SITES;

5.2. PROTECTION DURING WORKS

5.2.1. ALL EXPOSED SURFACES APART FROM SWALE DRAINS ARE TO BE GRASS SEEDED AS A SEDIMENT AND EROSION CONTROL MEASURE.

5.2.2. ALL OPEN DRAINS ARE TO BE TURFED AS SOON AS PRACTICAL, AFTER THE OPEN DRAIN IS COMPLETED.

5.2.3. IT IS THE CONTRACTORS RESPONSIBILITY TO PROTECT THE SITE AND SURROUNDING AREAS FROM DAMAGE RESULTING FROM STORMWATER RUNOFF. TEMPORARY DIVERSION DRAINS AND OR OTHER DRAINAGE CONTROL DEVICES ARE TO BE IMPLEMENTED BY THE CONTRACTOR DURING CONSTRUCTION TO MINIMISE THE EFFECTS OF WEATHER. NO EXTENSIONS OF TIME WILL BE GRANTED SHOULD DAMAGE TO THE WORKS AND SURROUNDING AREAS RESULT FROM THE CONTRACTOR'S NEGLIGENCE IN NOT PROVIDING ADEQUATE PROTECTION.

5.2.4. ALL AREAS ARE TO BE FREE DRAINING.

5.2.5. BATTER SLOPES TO BE 1 IN 4 MAX UNLESS SPECIFIED OTHERWISE;

5.2.6. SETOUT OF EARTHWORKS IS TO THE CORNER OF BUILDING PADS, DRIVEWAY AND BATTERS AS SHOWN;

5.2.7. ALL ALLOTMENTS DISTURBED DURING EARTHWORKS ARE TO BE HYDROMULCHED

5.3. GRASSING

5.3.1. TURF STRIPS TO BE PROVIDED TO BACK OF KERB ON EACH SIDE OF FOOTPATHS & KERB/CHANNEL.

6. ROADWORKS

6.1. GENERAL:

6.1.1. WARNING AND DIRECTIONAL TACTILE GROUND SURFACE INDICATORS (TGSI'S) SHALL CONFORM WITH AS/NZS 1428.4

6.2. KERB \ KERB AND CHANNEL NOTES AND SET-OUT

6.2.1. ALL KERB RADII SHOWN ARE TO LIP LINE.

6.2.2. ALL LEVELS SHOWN REFER TO: LIP OF KERB AND CHANNEL - EDGE OF BITUMEN

6.2.3. SUBSOIL DRAINS TO BE PROVIDED UNDER ALL KERB AND CHANNEL AND KERB ONLY.

6.2.4. WHERE DIFFERENT KERB TYPES MEET, TRANSITION TO BE TAKEN OUT OVER 1.0m (MIN).

6.2.5. FOR RESIDENTIAL AND COMMERCIAL DRIVEWAY CROSSOVERS, REFER TO FNQROC STANDARD DRAWINGS S1015.

6.2.6. FOR DETAILS OF KERBS AND CHANNELS REFER TO FNQROC STANDARD DRAWING S1000.

6.2.7. ALL KERBS TO BE CONSTRUCTED IN ACCORDANCE WITH FNQROC STANDARD DRAWINGS.

6.2.8. THE CONTRACTOR SHALL ENSURE THAT ALL KERB AND CHANNEL GRADES SHALL NOT FALL BELOW 0.5% AT ANY POINT IRRESPECTIVE OF ROAD CENTRE LINE GRADING SHOWN ON LONGITUDINAL SECTIONS.

6.2.9. WHERE NEW KERB AND CHANNEL AND/OR AC MEET EXISTING SURFACES THE CONTRACTOR SHALL VERIFY THE LEVELS WITH THE SUPERINTENDENT.

6.2.10. SUBSOIL DRAINAGE SHALL BE CONTINUOUS WITH ADJOINING KERB AND CHANNEL WHERE CONCRETE INVERT IS CONSTRUCTED. REFER FNQROC STANDARD DRAWING S1095. FOR KERB / KERB AND CHANNEL SETOUT REFER BELOW.

7. PAVEMENT

7.1. THE CONTRACTOR SHALL INITIALLY EXCAVATE THE PAVEMENT BOX TO THE FOLLOWING DEPTHS:

- IN CUT AREAS - FNQROC MINIMUM BOX PAVEMENT BOX DEPTH
- IN FILL AREAS - PROPOSED PAVEMENT DESIGN BOX DEPTH

7.1. FOLLOWING THE COMPLETION OF EXCAVATION THE CONTRACTOR SHALL NOTIFY THE SUPERINTENDENT WHO SHALL CONFIRM THE PAVEMENT THICKNESS TO BE CONSTRUCTED FOLLOWING JOINT INSPECTION AND APPROVAL FROM LOCAL AUTHORITY INSPECTOR.

7.2. REFER PAVEMENT DRAWING FOR TYPES. FINAL MAKE UP TO BE DETERMINED BY THE SUPERINTENDENT

7.3. FINAL PAVEMENT DEPTHS AND MATERIAL TYPES SHALL BE DETERMINED BY THE SUPERINTENDENT AFTER EXISTING SUB-GRADE TESTING IS COMPLETED BY THE CONTRACTOR.

7.4. PAVEMENT MATERIALS SHALL BE PER FNQROC SPECIFICATION 'S2 ROAD PAVEMENTS'.

8. STORMWATER NOTES

8.1. GENERAL

8.1.1. STORMWATER STRUCTURES AND CONNECTIONS ARE TO BE LOCATED AS INDICATED ON THE PLAN. ADJUSTMENTS TO THE DESIGN LAYOUT WHERE REQUIRED TO SUIT ACTUAL AS-CONSTRUCTED GEOMETRY SHALL REQUIRE THE ENGINEERS APPROVAL.

8.2. STRUCTURES

8.2.1. ALL DRAINAGE STRUCTURES SHALL BE IN ACCORDANCE WITH FNQROC DEVELOPMENT MANUAL STANDARDS.

8.2.2. ALL GULLIES ARE TO BE LIP IN LINE GRATED GULLY UNLESS SHOWN OTHERWISE. REFER FNQROC STANDARD DRAWINGS FOR DETAILS.

8.2.3. ALL DRAINAGE STRUCTURES WITHIN TRAFFICABLE AREAS (WITHIN PAVEMENT, VERGE AND OPEN SPACE WITH VEHICULAR ACCESS) TO HAVE AS3996-2019, CLASS D (TRAFFICABLE) COVERS / GRATES & FRAMES UNLESS NOTED OTHERWISE.

8.2.4. FOR STORMWATER PIT SETOUT LOCATIONS REFER BELOW.

8.2.5. FINAL PIT LOCATION AND ORIENTATION TO BE CONFIRMED ON SITE BY THE SUPERINTENDENT.

8.3. PIPES

8.3.1. ALL REINFORCED CONCRETE PIPES TO COMPLY WITH AS 4058-2007 AND AS 4139-2003.

8.3.2. ALL REINFORCED CONCRETE BOX CULVERTS AND LINK SLABS TO COMPLY WITH AS 1597.1-2010 AND AS 1597.2.2-2013.

8.3.3. ALL REINFORCED CONCRETE PIPES UP TO 600mm NOMINAL DIAMETER ARE TO BE RCP CLASS 3 - OVER 600mm NOMINAL DIAMETER ARE TO BE RCP CLASS 2 UNLESS NOTED OTHERWISE.

8.3.4. PIPES SHALL BE BEDDED IN ACCORDANCE WITH AS3725 - 2007, THE MINIMUM PIPE SUPPORT TYPE SHALL BE HS2 WITHIN ROAD RESERVES AND H1 ELSEWEHERE.

8.3.5. uPVC PIPES SHALL BE CLASS SN8 UNLESS NOTED OTHERWISE.

8.3.6. WHERE ROOFWATER DRAINS AND SEWER MAINS ARE TO BE CONSTRUCTED PARALLEL TO EACH OTHER, THE ROOFWATER DRAINAGE CONNECTION SHALL EXTEND 1.00 BEYOND THE SEWER MAIN.

8.3.7. MINIMUM COVER TO ROOFWATER PIPES TO BE 450mm EXCEPT WHERE LESS COVER IS NECESSARY TO DISCHARGE TO STREET KERB AND CHANNEL.

8.4. TRENCHES

8.4.1. THE WIDTH OF TRENCHING EXCAVATION SHALL BE IN ACCORDANCE WITH FNQROC STANDARD DRAWINGS S1045 AND S1046 AT THE TRENCH BASE AND COMPLY WITH ALL REGULATIONS OF WORKPLACE HEALTH AND SAFETY ACT.

8.4.2. ALL TRENCHES SHALL BE BACKFILLED IN LAYERS OF LOOSE THICKNESS APPROPRIATE TO THE TYPE OF COMPACTION EQUIPMENT BEING USED AND NOT GREATER THAN 150mm.

8.5. SCOUR PROTECTION

8.5.1. ROCK PROTECTION TO BE PROVIDED AROUND THE HEADWALL, WINGWALLS AND APRON AND WHERE APPLICABLE ABOVE THE HEADWALL WHERE THE HEADWALL IS LOCATED WITHIN AN OVERLAND FLOW PATH.

8.5.2. GEOTEXTILE TO BE CONSTRUCTED OUT OF WATER PERMEABLE MATERIAL USUALLY SYNTHETIC MATERIAL SUCH AS POLYPROPYLENE. TO BE USED AS PART OF EROSION AND SEDIMENT CONTROL METHOD IN CONSTRUCTION AND STORMWATER MANAGEMENT SITUATIONS TO TRAP OR PREVENT CLOGGING OF AGGREGATES BY SOIL/CLAY/SILT PARTICLES.

8.5.3. GEOTEXTILE MUST BE OF SUFFICIENT STRENGTH/DURABILITY TO WITHSTAND BREAKAGE FROM WATER FLOW, SEDIMENT BUILDUP, AND EXPOSURE TO SUNLIGHT.

8.5.4. CONSULT WITH MANUFACTURER OF GEOTEXTILE TO VERIFY THAT IT CAN PERFORM THE FUNCTION THAT IS REQUIRED OF IT.

8.5.5. IF SLOPE OF CHANNEL / TABLE DRAIN IS BETWEEN 1:1 AND 1:10 , EXCAVATE OUT TO A DEPTH OF 300mm WHERE THE ROCK CHECK DAMS ARE GOING TO BE EMBEDDED.

8.5.6. LAY DOWN GEOTEXTILE OVER THE WHOLE AREA THE ROCK CHECK DAMS IS TO BE CONSTRUCTED UPON.

9. OPEN DRAINS

9.1. SWALE DRAINS ARE TO BE GRADED EVENLY BETWEEN INVERT LEVELS PROVIDED

9.2. UNLESS NOTED OTHERWISE, DRAINS SHALL BE TURFED.

10. COMPACTION

10.1. THE CONTRACTOR IS RESPONSIBLE FOR COMPACTION TECHNIQUES OVER ALL STORMWATER PIPES TO BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS;

10.2. FOR COMPACTION FILL DEPTHS OVER PIPES REFER TO TABLE B1 AS/NZS 3275:2007

10.3. BACKFILL MATERIAL TYPE AND COMPACTION SHALL BE IN ACCORDANCE WITH FNQROC STD DRAWINGS S1045B AND S1046B.

10.4. MINIMUM FILL OVER PIPE INCLUDES MATERIAL BEING COMPACTED, AS MEASURED AFTER COMPACTION.

10.5. THE BEDDING SUPPORT TYPE CHOSEN HAS LITTLE OR NO EFFECT ON THE CLASS OF THE PIPE FOR LOW FILLS AND HIGH TRAFFIC LOADS.

10.6. ANY AREAS WHERE WATER MAINS OR SEWER MAINS ARE CONSTRUCTED IN FILL MATERIAL THE COMPACTION OF THE FILLED AREA IS TO HAVE MINIMUM LEVEL 2 SUPERVISION IN ACCORDANCE WITH AUSTRALIAN STANDARDS AND VERIFICATION OF THE COMPACTION INCLUDED IN THE ITP.

11. CONCRETE NOTES:

11.1. NON-VEHICULAR PATHS ONLY, MAY USE DANLEY 'EXPANDA' JOINT SYSTEMS.

11.2. GRANULAR SUB-BASE UNDER CONCRETE TO BE CRUSHED ROCK, ROADBASE OR APPROVED ALTERNATIVE (CBR15 MIN.) FOR VEHICLE PAVEMENTS. 'CRUSHER DUST' TO BE USED UNDER PATHS AND NON TRAFFICABLE CONCRETE.

11.3. GRANULAR SUB-BASE SHALL BE COMPACTED AS SPECIFIED, TO A UNIFORMLY SMOOTH, FLAT SURFACE TO THE SATISFACTION OF THE SUPERINTENDENT PRIOR TO CONCRETE PLACEMENT.

11.4. ALL SERVICE COVERS WITHIN SHARED / BICYCLE PAVEMENTS TO BE INFILL TYPE, WHERE POSSIBLE, TO MINIMISE SLIP HAZARD

11.5. FIXED INTERNAL PENETRATIONS AND EDGES ABUTTING STRUCTURES TO BE ISOLATED WITH A 10mm FLEXIBLE (ABLEFLEX) JOINT. VALVE COVERS AND OTHER 'FLOATING' SERVICES MAY BE CAST DIRECTLY INTO THE SLAB.

11.6. ALL INTERNAL CORNERS AND PENETRATIONS REQUIRE 2X PARALLEL N12 TRIMMERS (900mm LONG) ACROSS EACH CORNER TO CONTROL CRACKING, UNLESS ALIGNED WITH AN APPROPRIATE FORMED OR INDUCED JOINT.

11.7. FOR SLABS ≤100mm THICK, SUFFICIENT COMPACTION IS ACHIEVED THOUGH SCREENING PROCESS. FOR >100mm THICK AN IMMERSION VIBRATOR MUST BE USED TO ADEQUATELY DISPEL ENTRAINED AIR

11.8. SURFACE SHALL BE TREATED WITH A MOISTURE EVAPORATION RETARDANT (ALIPHATIC ALCOHOL) AFTER SCREEDING AND PRIOR TO FLOATING.

11.9. AN ADDITIONAL CURING COMPOUND MUST BE APPLIED OVER FINISHED WORKS. THE PRODUCT MUST BE APPROPRIATE FOR THE NOMINATED ARCHITECTURAL FINISH AND APPLIED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS

11.10. LMC SUB-BASE TO BE CURED BY THE APPLICATION OF A WAX EMULSION HYDROCARBON RESIN.

11.11. CONCRETE CUTTING SHALL BE UNDERTAKEN WITHIN 8 HOURS OF PLACEMENT. A SOFF-CUT SAW IS RECOMMENDED TO ENSURE CORRECT DEPTH OF CUTS, MINIMISE SPALLING THAT ARISES AND PERMIT CUTTING WITHIN THE APPROPRIATE TIME.

11.12. FINISHED SURFACE SHALL NOT BE TRAFFICKED EARLIER THAN 10 DAYS AFTER PLACEMENT.

11.13. BEFORE STARTING THE CONSTRUCTION OF THE CONCRETE PATHWAYS, ENSURE THE BEDDING COMPLIES WITH A MINIMUM STANDARD OF DENSITY, AND THE COMPACTED MATERIALS MEET THE SPECIFIED REQUIREMENTS IN TERMS OF SHEAR STRENGTH, STIFFNESS, PERMEABILITY, AND DEFORMATION RESISTANCE, REFER TO TECHNICAL SPECIFICATION.

11.14. CURING OF ALL CONCRETE IS TO BE ACHIEVED BY KEEPING SURFACES CONTINUOUSLY WET FOR A PERIOD OF 3 DAYS OR BY PREVENTION OF LOSS OF MOISTURE FOR A TOTAL OF SEVEN DAYS FOLLOWED BY A GRADUAL DRYING OUT.

12. SITE ACCESS

12.1. CONSTRUCTION VEHICLES SHALL ACCESS THE SITE FROM CHEWKO ROAD. THE CONTRACTOR IS TO CONSTRUCT AND MAINTAIN ACCESS AS REQUIRED DURING CONSTRUCTION AND REINSTATE THE VERGE FOLLOWING COMPLETION OF WORKS.

13. SEWER DETAIL

13.1. REFER TO HYDRAULIC DOCUMENTATION FOR THE SEWER DESIGN FOR THE ENTIRE PROJECT. LONGITUDINAL SECTIONS PROVIDED ON LEKKER URBAN DRAWINGS ARE IN CO-ORDINATION WITH THOSE FROM GILBOY HYDRAULIC CONSULTANTS. LEKKER URBAN TAKE NO RESPONSIBILITY FOR THE DESIGN OF THE SEWER AND WATER INFRASTRUCTURE FOR THIS PROJECT.

13.2. THE FOLLOWING NOTES ARE TO BE READ IN CONJUNCTION WITH THE HYDRAULIC DOCUMENTATION, WHICH SHALL TAKE PRECEDENCE OVER THE FOLLOWING.

13.3. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH CURRENT FNQROC S06 SEWERAGE RETICULATION SPECIFICATION, AND UNLESS SPECIFIED OTHERWISE ALL MATERIALS AND WORK SH

EROSION AND SEDIMENT CONTROL PLANS

PROGRESSIVE EROSION AND SEDIMENT CONTROL PLANS (ERSED) PLANS SHALL BE DEVELOPED AND IMPLEMENTED AS REQUIRED BY THE SITE SUPERVISOR BASED ON THIS PLAN AND FOLLOWING PRINCIPLES AND STANDARD SITE CONTROL MEASURES.

1. MINIMISE EXTENT AND DURATION OF DISTURBANCE

1.1. CONSTRUCTION WORKS TO BE MANAGED SUCH THAT AREAS OUTSIDE SCOPE OF WORKS REMAIN UNDISTURBED WHERE POSSIBLE.
1.2. MINIMISE EXTENT OF DISTURBANCE WITHIN CONSTRUCTION SITE AT ANY ONE TIME BY STAGING THE WORKS (EG. RIP EXISTING BITUMEN IN SECTIONS, MOVING ON TO NEW SECTIONS FOLLOWING COMPLETION OF PREVIOUS STAGE).
1.3. MINIMISE DISTURBANCE OF VEGETATION ALONG THE ROAD VERGE WITH SPECIAL EMPHASIS ON MANAGEMENT OF CONSTRUCTION ACTIVITIES ADJACENT TO TO WATERCOURSES (E.G. MAINTAIN GRASSY BUFFER WHERE POSSIBLE).

2. CONTROL STORMWATER FLOWS ONTO, THROUGH AND FROM THE SITE

2.1. SEPARATE 'CLEAN' RUN-ON WATER FROM 'DIRTY' (E.G. TURBID) CONSTRUCTION AREA RUNOFF (MAINTAIN CLEAN WATER PASSAGE THROUGH CULVERT CROSSING THROUGHOUT CONSTRUCTION WORKS).
2.2. CONSTRUCT PERMANENT DRAINAGE STRUCTURES EARLY IN THE PROJECT INCLUDING:
2.2.1. KERB ON DOWN SLOPE SIDE OF ROAD
2.2.2. CULVERTS, HEADWALLS AND ASSOCIATED INLET AND OUTLET PROTECTION (E.G. DISSIPATERS)
2.3. MAXIMISE THE SHEET FLOW OF TURBID CONSTRUCTION RUNOFF INTO EXISTING SPOON DRAIN (ON UP SLOPE SIDE OF ROAD) BY MAINTAINING IN-FALL DRAINAGE WHERE POSSIBLE AND INTO NEW GUTTERS AS CONSTRUCTED.

3. USE EROSION CONTROL MEASURES TO PREVENT ON-SITE DAMAGE

3.1. THE INSTALLATION OF ALL EROSION AND SEDIMENT CONTROLS TO OCCUR IMMEDIATELY POST CLEARING AND STRIPPING.
3.2. SITE STOCKPILES OF SOIL MATERIAL IN LOW-HAZARD AREAS CLEAR OF WATERCOURSES. ADDITIONAL PROTECTION TO BE AFFORDED WITH TEMPORARY VEGETATION, DIVERSION BANKS AND SEDIMENT CONTROL MEASURES, IF REQUIRED. SEED STOCKPILES WITH ANNUAL GRASS IF THEY ARE TO BE STORED LONGER THAN 10 DAYS.
3.3. CONSTRUCT A RANGE OF EROSION CONTROLS WITHIN THE VARIOUS ROAD SUB-CATCHMENTS TO COMPLEMENT AND INCREASE THE EFFECTIVENESS AND EFFICIENCY OF SEDIMENT CONTROLS IN THE LOWER AREAS.

4. USE SEDIMENT CONTROL MEASURES TO PREVENT OFF-SITE DAMAGE

4.1. THE INSTALLATION OF ALL EROSION AND SEDIMENT CONTROLS TO OCCUR IMMEDIATELY POST CLEARING AND STRIPPING.
4.2. CONSTRUCT CONTROL MEASURES AS CLOSE TO THE POTENTIAL SOURCE OF SEDIMENT AS POSSIBLE.
4.3. CONTROL THE DEPOSITION OF MUD AND SOIL MATERIAL ONTO LOCAL ROADS.

5. STABILISE DISTURBED AREAS QUICKLY

5.1. ALL BATTER STABILISATION AND REINSTATEMENT WORKS ADJACENT TO NEW CONSTRUCTION SHALL BE CARRIED OUT AS SOON AS POSSIBLE AFTER COMPLETION OF CONSTRUCTION WORKS.
5.2. ALL DISTURBED VERGES AND FILL BATTERS TO BE STABILISED BY REVEGETATING WITH APPROPRIATE SPECIES (E.G. ANNUAL GRASS SEED SUCH AS ANNUAL RYEGRASSS OR JAPANESE MILLET, OR TURF) AS SOON AS PRACTICAL AFTER REINSTATEMENT.
5.3. THE USE OF IMPORTED QUALITY TOPSOIL TO A.S.4419 TO BE OF A SANDY LOAM, FREE FROM NUT GRASS
5.4. ENSURE THE SUCCESS OF THE LATER REVEGETATION PROGRAM BY UTILISING A GOOD TOPSOIL MANAGEMENT PROGRAM.
5.5. CONTROL DUST THROUGH PROGRESSIVE REVEGETATION TECHNIQUES, WATER TANKERS ETC.

6. INSPECT AND MAINTAIN CONTROL MEASURES

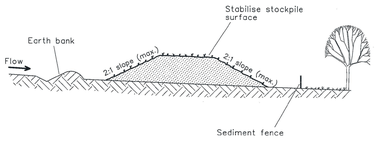
6.1. ENSURE THE PROGRESSIVE AND CONTINUAL IMPLEMENTATION AND MAINTENANCE OF TEMPORARY EROSION AND SEDIMENT CONTROLS (E.G. SEDIMENT FENCES, DIVERSION BANKS, DIVERSION DRAINS, SEDIMENT TRAPS).
6.2. INITIATE A PROGRAM TO ENSURE REGULAR MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL MEASURES. SEDIMENT CLEANED FROM STRUCTURES (E.G. SCRAPE AWAY ACCUMULATED SEDIMENT UPSTREAM OF CHECK DAMS AND REPLACE/REPAIR AS NECESSARY) TO MAINTAIN FUNCTIONALITY.
6.3. ARRANGE REGULAR INSPECTIONS BY AN ENVIRONMENTAL SCIENTIST TO REVIEW AND UPDATE CONTROL MEASURES. ADDITIONAL INSPECTIONS WILL BE CONDUCTED DURING AND/OR IMMEDIATELY FOLLOWING SIGNIFICANT RAINFALL EVENTS TO MONITOR THE FUNCTIONING OF CONTROLS.
6.4. ALL EROSION AND SEDIMENT CONTROLS TO BE MAINTAINED IN PLACE UNTIL ALL WORKS ARE COMPLETED AND DISTURBED AREAS HAVE STABILISED.

EXTRACT FROM LANDCOM (2004). MANAGING URBAN STORMWATER: SOIL AND CONSTRUCTION. VOLUME 2D MAIN ROADS CONSTRUCTION 2008

THIS SEDIMENT AND EROSION CONTROL PLAN CONTAINS COUNCIL'S MINIMUM REQUIREMENTS FOR ENVIRONMENTAL PROTECTION; HOWEVER, IT IS STILL THE PRINCIPAL CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE WORKS AND MITIGATION STRATEGIES ARE PERFORMED IN A MANNER THAT COMPLIES WITH ALL RELEVANT ENVIRONMENTAL LEGISLATION, INCLUDING ANY DEVELOPMENT APPROVAL REQUIREMENTS.

7. EROSION AND SEDIMENT CONTROL COMMENTARY

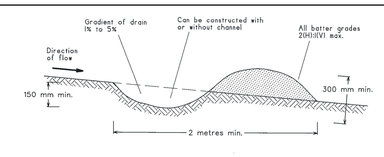
7.1. MONITOR THE 7 DAYS RAIN FORECAST TO DETERMINE TIMING OF WORKS, AND 24 HOUR FORECAST FOR PREPARATION OF EROSION & SEDIMENT CONTROL (ESC) MEASURES.
7.2. LIMIT AREAS OF DISTURBANCE AT ANY ONE TIME WHERE POSSIBLE, AND IDENTIFY VEGETATION NO GO AREAS. ENSURE THAT GUTTERS, PATHWAYS, ROADS ARE SWEPT CLEAN PRIOR TO RAIN OR BEFORE THE END OF THE DAYS SHIFT. HARD SURFACES CLEAN OF SOIL WILL REDUCE THE NEED FOR CONTROLS AND ELIMINATE POTENTIAL TRIP HAZARDS TO PEDESTRIANS AND ROAD HAZARDS FOR DRIVERS.
7.3. DIVERT CLEAN WATER AROUND EXCAVATIONS (WHERE POSSIBLE) TO LIMIT MANAGEMENT OF CONSTRUCTION WATER EG DEWATERING OF OPEN TRENCH OR EXCAVATIONS.
7.4. INSTALL SANDBAGS, COIR LOGS OR SEDIMENT FENCES AS REQUIRED
7.5. STOCKPILES, IF ANY, WILL BE MANAGED AS PER SD4-1.
7.6. AS WORKS ARE COMPLETED ADJACENT TO KERBS, INSTALL TURF TO STABILISE AREAS AS PER SD6-13.
7.7. PROGRESSIVELY INSTALL AND REMOVE CONTROLS AS WORK PROGRESSES ALONG THE ALIGNMENT.



Construction Notes

1. Place stockpiles more than 2 (preferably 5) metres from existing vegetation, concentrated water flow, roads and hazard areas.
2. Construct on the contour as low, flat, elongated mounds.
3. Where there is sufficient area, topsoil stockpiles shall be less than 2 metres in height.
4. Where they are to be in place for more than 10 days, stabilise following the approved ESCP or SWMP to reduce the C-factor to less than 0.10.
5. Construct earth banks (Standard Drawing 5-5) on the upslope side to divert water around stockpiles and sediment fences (Standard Drawing 6-8) 1 to 2 metres downslope.

STOCKPILES **SD 4-1**

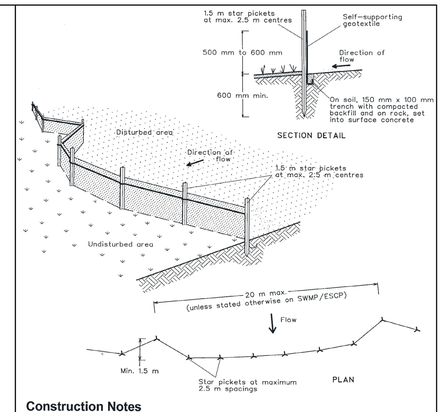


NOTE: Only to be used as temporary bank where maximum upslope length is 80 metres.

Construction Notes

1. Build with gradients between 1 percent and 5 percent.
2. Avoid removing trees and shrubs if possible - work around them.
3. Ensure the structures are free of projections or other irregularities that could impede water flow.
4. Build the drains with circular, parabolic or trapezoidal cross sections, not V shaped.
5. Ensure the banks are properly compacted to prevent failure.
6. Complete permanent or temporary stabilisation within 10 days of construction.

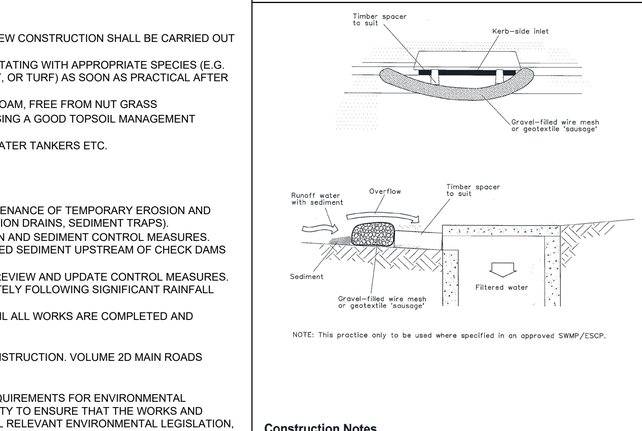
EARTH BANK (LOW FLOW) **SD 5-5**



Construction Notes

1. Construct sediment fences as close as possible to being parallel to the contours of the site, but with small returns as shown in the drawing to limit the catchment area of any one section. The catchment area should be small enough to limit water flow if concentrated at one point to 50 litres per second in the design storm event, usually the 10-year event.
2. Cut a 150-mm deep trench along the upslope line of the fence for the bottom of the fabric to be entrenched.
3. Drive 1.5 metre long star pickets into ground at 2.5 metre intervals (max) at the downslope edge of the trench. Ensure any star pickets are fitted with safety caps.
4. Fix self-supporting geotextile to the upslope side of the posts ensuring it goes to the base of the trench. Fix the geotextile with wire ties or as recommended by the manufacturer. Only use geotextile specifically produced for sediment fencing. The use of shade cloth for this purpose is not satisfactory.
5. Join sections of fabric at a support post with a 150-mm overlap.
6. Backfill the trench over the base of the fabric and compact it thoroughly over the geotextile.

SEDIMENT FENCE **SD 6-8**

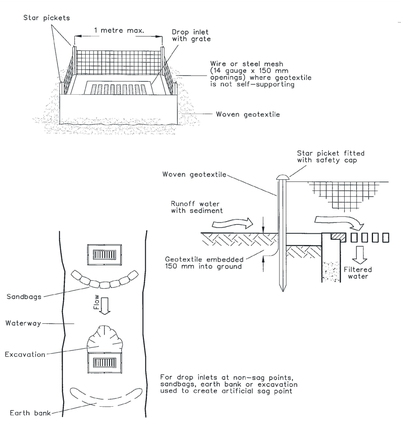


NOTE: This practice only to be used where specified in an approved SWMP/ESCP.

Construction Notes

1. Install filters to kerb inlets only at sag points.
2. Fabricate a sleeve made from geotextile or wire mesh longer than the length of the inlet pit and fill it with 25 mm to 50 mm gravel.
3. Form an elliptical cross-section about 150 mm high x 400 mm wide.
4. Place the filter at the opening leaving at least a 100-mm space between it and the kerb inlet. Maintain the opening with spacer blocks.
5. Form a seal with the kerb to prevent sediment bypassing the filter.
6. Sandbags filled with gravel can substitute for the mesh or geotextile providing they are placed so that they firmly abut each other and sediment-laden waters cannot pass between.

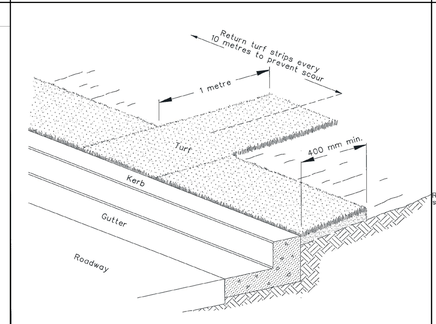
MESH AND GRAVEL INLET FILTER **SD 6-11**



Construction Notes

1. Fabricate a sediment barrier made from geotextile or straw bales.
2. Follow Standard Drawing 6-7 and Standard Drawing 6-8 for installation procedures for the straw bales or geofabric. Reduce the picket spacing to 1 metre centres.
3. In waterways, artificial sag points can be created with sandbags or earth banks as shown in the drawing.
4. Do not cover the inlet with geotextile unless the design is adequate to allow for all waters to bypass it.

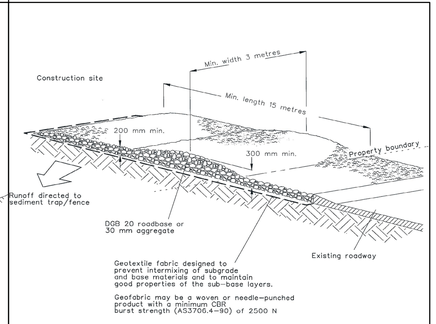
GEOTEXTILE INLET FILTER **SD 6-12**



Construction Notes

1. Install a 400-mm minimum wide roll of turf on the footpath next to the kerb and at the same level as the top of the kerb.
2. Lay 1.4 metre long turf strips normal to the kerb every 10 metres.
3. Rehabilitate disturbed soil behind the

KERBSIDE TURF STRIP **SD 6-13**



Construction Notes

1. Strip the topsoil, level the site and compact the subgrade.
2. Cover the area with needle-punched geotextile.
3. Construct a 200-mm thick pad over the geotextile using road base or 30-mm aggregate.
4. Ensure the structure is at least 15 metres long or to building alignment and at least 3 metres wide.
5. Where a sediment fence joins onto the stabilised access, construct a hump in the stabilised access to divert water to the sediment fence

STABILISED SITE ACCESS **SD 6-14**

Revision	Amendments	Approved	Date
A	100% DESIGN ISSUE - FOR APPROVAL (OPW)	J.L.A	13/05/2025

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CONTACT@LEKKERURBAN.COM
WWW.LEKKERURBAN.COM.AU ABN 32 669 311 479

DRAWING NOT TO SCALE

Designed: A.P.B
Checked: J.L.A
Authorised: J.L.A
Date: 13/05/2025

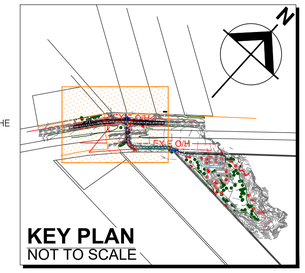
TWO RIVERS COMMUNITY SCHOOL
STAGE 1 & 2 - EXTERNAL CIVIL WORKS
EROSION & SEDIMENT CONTROL NOTES & DETAILS
SHEET 1 OF 2
CHEWKO ROAD & 267 MCIVER ROAD, MAREEBA QLD
ON BEHALF OF TWO RIVERS COMMUNITY SCHOOL

FOR APPROVAL
DRAWING NUMBER: LU23112-1-CD-102
REV: A

NOTE:
1. REFER TO LU23112-1-CD-102 FOR EROSION & SEDIMENT CONTROL NOTES.
2. THE LAYOUT PROVIDED IN THIS CONCEPTUAL EROSION AND SEDIMENT CONTROL PLAN IS INDICATIVE AND SERVES AS A PRELIMINARY GUIDE ONLY. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PREPARE AND SUBMIT THEIR OWN DETAILED EROSION AND SEDIMENT CONTROL PLAN, TAILORED TO THE SPECIFIC SITE CONDITIONS AND PROJECT REQUIREMENTS. THE CONTRACTOR'S PLAN MUST COMPLY WITH ALL RELEVANT REGULATIONS AND STANDARDS, AND SHOULD BE APPROVED BY THE SUPERINTENDENT BEFORE IMPLEMENTATION.

LEGEND:

- NEW SEDIMENT FENCING AS PER SD 6-8
- NEW TEMPORARY SITE SECURITY FENCE
- NEW MESH AND GRAVEL INLET FILTER AS PER SD 6-11 AND 6-12
- NEW LOW FLOW CHANNEL
- NEW COIR LOG



2
SP173566

12
SP158013

1
RP734352

2
RP734352

3
RP734352

Walkamin
CHEWKO ROAD

Mareeba
CHEWKO ROAD

WARNING: THE LOCATION OF EXISTING TELECOMMUNICATIONS & ELECTRICAL SERVICES ARE SHOWN INDICATIVELY ONLY (FROM SURVEY & BEFORE YOU DIG AUSTRALIA). NO RESPONSIBILITY IS TAKEN FOR THE ACCURACY OF THE INTERPOLATED INFORMATION SUPPLIED. ENSURE ALL SERVICES ARE ACCURATELY LOCATED PRIOR TO COMMENCEMENT OF WORKS.

PROVIDE COIR LOGS TO ROADSIDE TABLE DRAINS

NEW LOW FLOW CHANNEL

NEW LOW FLOW CHANNEL

PROVIDE COIR LOGS TO ROADSIDE TABLE DRAINS

NEW LOW FLOW CHANNEL

LIMIT OF WORKS (EXTERNAL)

LIMIT OF WORKS (EXTERNAL)

MUNGANA BRANCH RAILWAY LINE

MUNGANA BRANCH RAILWAY LINE

25
SP129910

241
SP129909

NEW LOW FLOW CHANNEL

NEW TEMPORARY SITE SECURITY FENCE

NEW ACCESS ROAD

PROVIDE 2 KERBSIDE TURF STRIPS BEHIND ALL NEW KERB AS PER SD6-13 ON SHEET CD-102 TO BE INSTALLED AS SOON AS PRACTICAL FOLLOWING KERB CONSTRUCTION AND BATTER SHAPING

NEW TEMPORARY SITE SECURITY FENCE

LIMIT OF WORKS (INTERNAL)

21
SP181634

1
RP708284

THIRD PARTY ACCESS FOR CONSTRUCTION WORKS ON OR NEAR THE RAIL CORRIDOR
IF PHYSICAL ACCESS TO LAND, CONTROLLED BY QUEENSLAND RAIL IS REQUIRED FOR ANY REASON, A LICENSE AGREEMENT WILL NEED TO BE EXECUTED BETWEEN THE THIRD PARTY AND QUEENSLAND RAIL.

SIMILARLY, IF WORKS ARE OCCURRING ADJACENT TO THE RAIL CORRIDOR AND HAVE THE POTENTIAL TO INTERFERE WITH THE RAILWAY OR ANY RAIL INFRASTRUCTURE, QUEENSLAND RAIL MUST BE CONTACTED TO DETERMINE IF A LICENSE IS REQUIRED.

REFER TO DRAWING SET LU23112-2-CD FOR INTERNAL WORKS

Revision	Amendments	Approved	Date
A	100% DESIGN ISSUE - FOR APPROVAL (OPW)	J.L.A	13/05/2025

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CONTACT@LEKKERURBAN.COM
WWW.LEKKERURBAN.COM.AU
ABN 32 669 311 479

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0 10 20 30 40 50 m

Designed: A.P.B
Checked: J.L.A
Authorised: J.L.A
Date: 13/05/2025

TWO RIVERS COMMUNITY SCHOOL
STAGE 1 & 2 - EXTERNAL CIVIL WORKS
EROSION & SEDIMENT CONTROL PLAN

CHEWKO ROAD & 267 MCIVER ROAD, MAREEBA QLD
ON BEHALF OF TWO RIVERS COMMUNITY SCHOOL

FOR APPROVAL

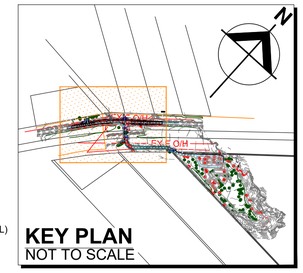
DRAWING NUMBER: LU23112-1-CD-200
REV: A

NOTE:

1. TOPOGRAPHIC SURVEY HAS BEEN UNDERTAKEN BY BRZ SURVEYING ON 20TH NOVEMBER 2024 AT THE SUBJECT SITE. REFER TO BRZ SURVEY DOCUMENTATION (24_055_01) FOR FURTHER INFORMATION.LEKKER URBAN TAKE NO RESPONSIBILITY FOR THE ACCURACY OF EXISTING FEATURES WITHIN THE SURVEY INFORMATION PROVIDED.
2. EXISTING CONTOURS HAVE BEEN PROVIDED:
- MAJOR CONTOURS: 1m INTERVAL
- MINOR CONTOURS: 0.5m INTERVAL
4. THIS PLAN IS TO BE UTILISED AS A GUIDE ONLY AND DOES NOT REPRESENT THE FINAL LOT LAYOUT.
5. CONFIRMATION OF LOCATION AND DEPTH OF ALL EXISTING SERVICES ARE REQUIRED PRIOR TO COMMENCEMENT OF WORKS.
6. ALL PROPOSED WORKS ARE SUBJECT TO: DISCUSSIONS AND MEETINGS WITH AUTHORITIES, APPROVAL FROM AUTHORITIES, RELEVANT CONSULTANT INFORMATION AS PER COUNCIL REQUIREMENTS. FEASIBILITY COMPLETED BASED ON INFORMATION PROVIDED BY CLIENT.
7. ALL CLEARING IS TO BE UNDERTAKEN IN CONJUNCTION WITH THE ARBORIST REPORT.
8. UNLESS OTHERWISE ADVISED BY QUEENSLAND RAIL, ALL ENTRANTS TO THE RAIL CORRIDOR MUST HAVE COMPLETED SAFELY ACCESS THE RAIL CORRIDOR (SARC) TRAINING AND BE ABLE TO PRESENT THE QUALIFICATION CARD UPON REQUEST. THE SARC QUALIFICATION DOES NOT PERMIT ACCESS TO THE RAIL CORRIDOR WITHOUT THE PRIOR APPROVAL OF THE QUEENSLAND RAIL THIRD-PARTY ACCESS TEAM.
9. THE CONDITIONS OF A QUEENSLAND RAIL LICENSE AGREEMENT FOR WORK WITHIN AND ADJACENT A RAIL CORRIDOR SUPERSEDE THE NOTES & REQUIREMENTS SHOWN ON THIS DRAWING.
10. THE CONTACTOR SHALL ADHERE TO ALL CONDITIONS WITHIN THE APPROVED OPERATIONAL WORKS PERMIT.

LEGEND:

- 444.50 — EXISTING CONTOURS (0.5m INTERVAL)
- × LEVEL — EXISTING LEVEL
- DENOTES PROPOSED EXTENT OF VEGETATION TO BE CLEARED FOR CIVIL WORKS
- DENOTES EXISTING TREE TO BE REMOVED
- DENOTES EXISTING TREE TO BE REMAIN
- 444.50 — EXISTING CONTOURS (0.5m INTERVAL)
- EXISTING DRAINAGE
- EX.E O/H — EXISTING ELECTRICAL OVERHEAD
- EX.E U/G — EXISTING ELECTRICAL UNDERGROUND
- EX.COMM — EXISTING COMMUNICATIONS
- TITLE BOUNDARY
- DENOTES EXTENT OF EXISTING PAVEMENT/STRUCTURE TO BE REMOVED & DISPOSED OF AT AN APPROVED SITE
- DENOTES EXTENT OF EXISTING PAVEMENT TO BE MILL & FILLED MIN. 50mm



WARNING: THE LOCATION OF EXISTING TELECOMMUNICATIONS & ELECTRICAL SERVICES ARE SHOWN INDICATIVELY ONLY (FROM SURVEY & BEFORE YOU DIG AUSTRALIA). NO RESPONSIBILITY IS TAKEN FOR THE ACCURACY OF THE INTERPOLATED INFORMATION SUPPLIED. ENSURE ALL SERVICES ARE ACCURATELY LOCATED PRIOR TO COMMENCEMENT OF WORKS.

REINSTATE RURAL PROPERTY NUMBER SIGNAGE AS REQUIRED DURING PAVEMENT WIDENING WORKS OF CHEWKO ROAD

2 SP173566

12 SP158013

1 RP734352

2 RP734352

3 RP734352

Walkamin
CHEWKO ROAD

Mareeba
CHEWKO ROAD

EXISTING CONCRETE DRIVEWAY TO BE REMOVED BACK TO CONSTRUCTION JOINT PRIOR TO GARDENS & REINSTATED WITH NEW ACCESS DRIVEWAY CONTRACTOR TO LIAISE WITH PROPERTY OWNER PRIOR TO COMMENCEMENT

REMOVE EXISTING 450Ø CROSS DRAINAGE CULVERTS & ASSOCIATED HEADWALLS

CAUTION - EXISTING UNDERGROUND COMMS

EXISTING TABLE DRAIN TO BE REINSTATED TO SUIT ROAD WIDENING

CAUTION - EXISTING OVERHEAD POWER

REMOVE EXISTING 450Ø CROSS DRAINAGE CULVERTS & ASSOCIATED HEADWALLS

CAUTION - EXISTING OVERHEAD POWER

EXISTING CROSS DRAINAGE CULVERTS & ASSOCIATED HEADWALLS TO REMAIN

SAWCUT

EXISTING "BEARS" ADJACENT GUM TREE TO REMAIN CONTRACTOR TO PROTECT DURING CONSTRUCTION

EXISTING TABLE DRAIN TO BE REINSTATED TO SUIT ROAD WIDENING

CAUTION - EXISTING UNDERGROUND COMMS

TAKE-UP AND STORE EXISTING "TIRABOSCHI" LOG SIGNAGE AT AN APPROVED LOCATION FOR RE-INSTALLATION [NOT SHOWN ON SURVEY - APPROX LOCATION ONLY]

REMOVE EXISTING CULVERT & ASSOCIATED HEADWALLS

TAKE-UP AND STORE EXISTING RAIL SIGNAGE ASSEMBLY RX-2 & TC1574 AT AN APPROVED LOCATION FOR RE-INSTALLATION

NEW ROADSIDE TABLE DRAIN TIE- IN SMOOTHLY TO EXISTING

REMOVE EXISTING AND INSTALL NEW CROSS DRAINAGE CULVERTS & ASSOCIATED HEADWALLS AT RAILWAY LEVEL CROSSING

EXISTING RAILWAY LEVEL CROSSING TO BE UPGRADED AS PART OF WORKS (QUEENSLAND RAIL ID: LXR_02336)

MUNGANA BRANCH RAILWAY LINE

MUNGANA BRANCH RAILWAY LINE

REMOVE EXISTING CONCRETE RETAINING STRUCTURE AT SIDE OF THE RAIL (APPROX 3m L x 0.6m H) CONTRACTOR TO INFORM QR & ADHERE TO ALL RELEVANT APPROVALS PRIOR

EXISTING ROADSIDE TABLE DRAIN TO BE DIVERTED TO SUIT ROAD WIDENING

TAKE-UP AND STORE EXISTING RAIL SIGNAGE ASSEMBLY RX-2 & TC1574 AT AN APPROVED LOCATION FOR RE-INSTALLATION

CAUTION - EXISTING OVERHEAD POWER

REMOVE EXISTING FRANGIPANI SCHRUB APPROX. 10 TREES

EXISTING STAY WIRE TO BE REMOVE TO ALLOW CONSTRUCTION OF NEW INTERNAL ACCESS ROAD CONTRACTOR TO LIAISE WITH ERGON ENERGY FOR THE REMOVAL & REINSTATEMENT OF THE STAY

LIMIT OF WORKS (EXTERNAL)

LIMIT OF WORKS (EXTERNAL)

LIMIT OF WORKS (INTERNAL)

THIRD PARTY ACCESS FOR CONSTRUCTION WORKS ON OR NEAR THE RAIL CORRIDOR
IF PHYSICAL ACCESS TO LAND, CONTROLLED BY QUEENSLAND RAIL IS REQUIRED FOR ANY REASON, A LICENSE AGREEMENT WILL NEED TO BE EXECUTED BETWEEN THE THIRD PARTY AND QUEENSLAND RAIL.

SIMILARLY, IF WORKS ARE OCCURRING ADJACENT TO THE RAIL CORRIDOR AND HAVE THE POTENTIAL TO INTERFERE WITH THE RAILWAY OR ANY RAIL INFRASTRUCTURE, QUEENSLAND RAIL MUST BE CONTACTED TO DETERMINE IF A LICENSE IS REQUIRED.

REFER TO DRAWING SET LU23112-2-CD FOR INTERNAL WORKS

25 SP129910

21 SP181634

241 SP129909

1 RP708284

Revision	Amendments	Approved	Date
A	100% DESIGN ISSUE - FOR APPROVAL (OPW)	J.L.A	13/05/2025

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0 10 20 30 40 50 m

Designed: A.P.B
Checked: J.L.A
Authorised: J.L.A
Date: 13/05/2025

TWO RIVERS COMMUNITY SCHOOL STAGE 1 & 2 - EXTERNAL CIVIL WORKS
CLEARING & DEMOLITION PLAN

CHEWKO ROAD & 267 MCIVER ROAD, MAREEBA QLD
ON BEHALF OF TWO RIVERS COMMUNITY SCHOOL

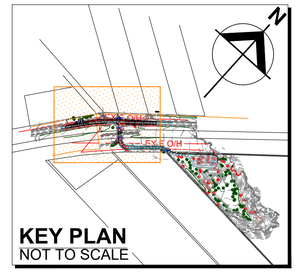
FOR APPROVAL

DRAWING NUMBER: LU23112-1-CD-201
REV: A

LEGEND:

- 444.00 — EXISTING CONTOURS (0.5m INTERVAL)
- 444.00 — DESIGN CONTOURS (0.2m INTERVAL)
- × LEVEL — EXISTING LEVEL
- 2.A — NEW DRAINAGE PIPE, PIT & STRUCTURE NO.
- EX.A — EXISTING DRAINAGE
- NEW SUBSOIL — NEW SUBSOIL DRAINAGE LINE
- EX.W — EXISTING WATER
- EX.E O/H — EXISTING ELECTRICAL OVERHEAD
- EX.E U/G — EXISTING ELECTRICAL UNDERGROUND
- EX.COMM — EXISTING COMMUNICATIONS
- EX.S — EXISTING SEWER
- PROPOSED STAGE BOUNDARY
- TITLE BOUNDARY
- BOLLARD — NEW BOLLARD REFER TO SHEET CD-700

- DENOTES PROPOSED NEW SEALED ROAD
- DENOTES PROPOSED RURAL PROPERTY ACCESS PER FNQROC STD DRG S1105G
- DENOTES PROPOSED RAIL LEVEL CROSSING UPGRADE / WIDENING



NOTE:

1. TOPOGRAPHIC SURVEY HAS BEEN UNDERTAKEN BY BRZ SURVEYING ON 20TH NOVEMBER 2024 AT THE SUBJECT SITE. REFER TO BRZ SURVEY DOCUMENTATION (24_055_01) FOR FURTHER INFORMATION.
2. LEKKER URBAN TAKE NO RESPONSIBILITY FOR THE ACCURACY OF EXISTING FEATURES WITHIN THE SURVEY INFORMATION PROVIDED.
3. EXISTING CONTOURS HAVE BEEN PROVIDED:
   - MAJOR CONTOURS: 1m INTERVAL
   - MINOR CONTOURS: 0.5m INTERVAL

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2 *SP173566*

12 *SP158013*

1 *RP734352*

CAUTION: OVERHEAD ELECTRICAL POWER LINES ARE LOCATED DIRECTLY OVER WORKS ON THE NORTHERN SIDE OF CHEWKO ROAD

REINSTATE RURAL PROPERTY NUMBER SIGNAGE AS REQUIRED DURING PAVEMENT WIDENING WORKS OF CHEWKO ROAD

2 *RP734352*

3 *RP734352*

Walkamin ← **CHEWKO ROAD** → Mareeba

REINSTATE EXISTING RURAL ALLOTMENT ACCESS IN ACCORDANCE WITH FNQROC STD DRG S1105G PROVIDE 12m LONG, 4.5m WIDE ASPHALT PAVEMENT

NEW RURAL CHANNELISED T-JUNCTION SHORT LANE TYPE CHR(S) REFER TO DRG LU23112-1-CD-204 FOR ADDITIONAL DETAILS & DIMENSIONS

REINSTATE EXISTING RURAL ALLOTMENT ACCESS IN ACCORDANCE WITH FNQROC STD DRG S1105G PROVIDE 15m LONG, 3.5m WIDE ASPHALT PAVEMENT

TIE-IN NEW TABLE DRAIN TO EXISTING NORTH BOUND TABLE DRAIN INTO LOT 12 ON SP158013

TIE-IN NEW TABLE DRAIN TO EXISTING EAST BOUND TABLE DRAIN FROM LOT 12 ON SP158013

REINSTATE EXISTING RURAL ALLOTMENT ACCESS IN ACCORDANCE WITH FNQROC STD DRG S1105G PROVIDE 15m LONG, 5.0m WIDE ASPHALT PAVEMENT

TIE-IN NEW TABLE DRAIN TO EXISTING NORTH BOUND TABLE DRAIN INTO LOT 2 ON RP734352

CAUTION: WORKS ADJOINING BASE OF EXISTING POWER POLE

NEW ROADSIDE TABLE DRAIN TIE- IN SMOOTHLY TO EXISTING DRAINAGE HEADWALL

BATTER TO BASE OF EXISTING POWER POLE

BATTER TO BASE OF EXISTING POWER POLE

LOT 2.A

LOT 2.B

LOT 1.A

LOT 1.A

REGRADE AND LOCALLY WIDEN EXISTING ROADSIDE TABLE DRAIN

CONTROL LINE *CHEWKO ROAD*

NEW RURAL AUXILIARY LEFT-TURN TREATMENT SHORT TURN LANE [AUL(S)] REFER TO DRG LU23112-1-CD-204 FOR ADDITIONAL DETAILS & DIMENSIONS

NEW ROADSIDE TABLE DRAIN TIE- IN SMOOTHLY TO EXISTING OVER 10m BEYOND PAVEMENT WORKS

LIMIT OF WORKS (EXTERNAL)

NEW ROADSIDE TABLE DRAIN TIE- IN SMOOTHLY TO EXISTING OVER 15m BEYOND EXTENT OF WORKS

25 *SP129910*

MUNGANA BRANCH RAILWAY LINE

241 *SP129909*

MUNGANA BRANCH RAILWAY LINE

UPGRADED RAILWAY LEVEL CROSSING (QUEENSLAND RAIL ID: LXR_02336)

EXISTING OPEN DRAINAGE

EXISTING OPEN DRAINAGE

EXISTING ROADSIDE TABLE DRAIN TO BE DIVERTED TO PROVIDE IMPROVED STORMWATER

LOCAL WIDENING FOR NEW ACCESS ROAD AT INTERNAL CURVE TO 12m WIDE FROM ROAD CROSSING TO CH.100m REFER TO CD-400 DRAWING SERIES

NEW ACCESS ROAD

NEW 7m WIDE ACCESS ROAD

REINSTATE EXISTING RURAL ALLOTMENT ACCESS IN ACCORDANCE WITH FNQROC STD DRG S1105G PROVIDE 15m LONG, 3.5m WIDE ASPHALT PAVEMENT

NEW STAY WIRE TO BE REINSTATE TO EXISTING POWER POLE

CONTROL LINE *ACCESS ROAD*

21 *SP181634*

1 *RP708284*

THIRD PARTY ACCESS FOR CONSTRUCTION WORKS ON OR NEAR THE RAIL CORRIDOR
IF PHYSICAL ACCESS TO LAND, CONTROLLED BY QUEENSLAND RAIL IS REQUIRED FOR ANY REASON, A LICENSE AGREEMENT WILL NEED TO BE EXECUTED BETWEEN THE THIRD PARTY AND QUEENSLAND RAIL.

SIMILARLY, IF WORKS ARE OCCURRING ADJACENT TO THE RAIL CORRIDOR AND HAVE THE POTENTIAL TO INTERFERE WITH THE RAILWAY OR ANY RAIL INFRASTRUCTURE, QUEENSLAND RAIL MUST BE CONTACTED TO DETERMINE IF A LICENSE IS REQUIRED.

IT IS ASSUMED THAT THE EXTERNAL WORKS ARE TO BE UNDERTAKEN PRIOR TO THE COMMENCEMENT OF THE INTERNAL WORKS. IF NOT, ENSURE NEW TABLE DRAIN FOR THE ACCESS ROAD BETWEEN THE RAIL CROSSING & CH. 232.44m (LIMIT OF WORKS) IS CONSTRUCTED CONCURRENTLY WITH THE INTERNAL WORKS TO ACHIEVE A SUITABLE POINT OF DISCHARGE

LIMIT OF WORKS (INTERNAL)

REFER TO DRAWING SET LU23112-2-CD FOR INTERNAL WORKS

Revision	Amendments	Approved	Date
A	100% DESIGN ISSUE - FOR APPROVAL (OPW)	J.L.A	13/05/2025

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0 10 20 30 40 50 m

Designed: A.P.B | Checked: J.L.A
Authorised: J.L.A | Date: 13/05/2025

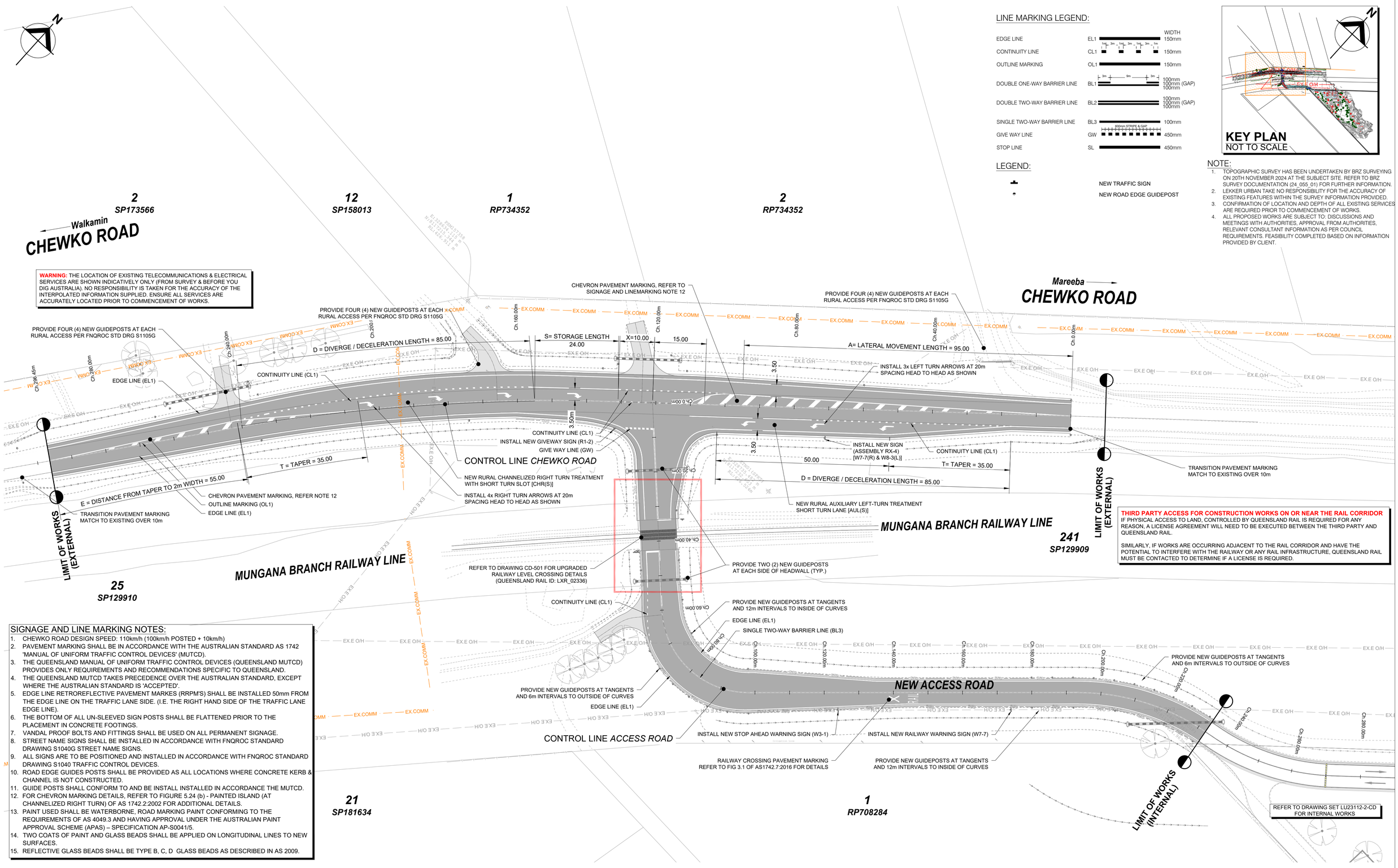
TWO RIVERS COMMUNITY SCHOOL STAGE 1 & 2 - EXTERNAL CIVIL WORKS

CIVIL SITE WORKS LAYOUT PLAN

CHEWKO ROAD & 267 MCIVER ROAD, MAREEBA QLD
ON BEHALF OF TWO RIVERS COMMUNITY SCHOOL

FOR APPROVAL

DRAWING NUMBER: **LU23112-1-CD-202** REV: **A**



Revision	Amendments	Approved	Date
A	100% DESIGN ISSUE - FOR APPROVAL (OPW)	J.L.A	13/05/2025

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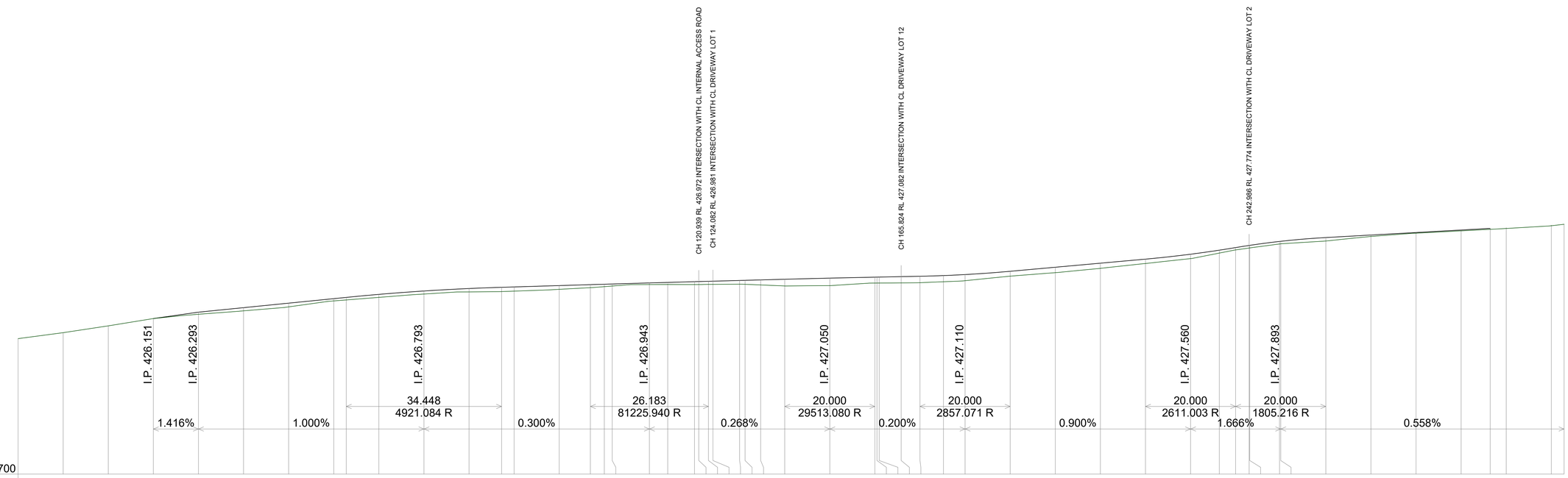
SCALE 1:500@A1
0 10 20 30 40 50 m

Designed: A.P.B
Checked: J.L.A
Authorised: J.L.A
Date: 13/05/2025

TWO RIVERS COMMUNITY SCHOOL STAGE 1 & 2 - EXTERNAL CIVIL WORKS
SIGNAGE & LINEMAKRING LAYOUT PLAN

CHEWKO ROAD & 267 MCIVER ROAD, MAREEBA QLD
ON BEHALF OF TWO RIVERS COMMUNITY SCHOOL

FOR APPROVAL
DRAWING NUMBER: LU23112-1-CD-203
REV: A


CH 120.939 RL 426.972 INTERSECTION WITH CL INTERNAL ACCESS ROAD
CH 124.082 RL 426.981 INTERSECTION WITH CL DRIVEWAY LOT 1
CH 165.824 RL 427.082 INTERSECTION WITH CL DRIVEWAY LOT 12
CH 242.986 RL 427.774 INTERSECTION WITH CL DRIVEWAY LOT 2
I.P. 426.151
I.P. 426.293
I.P. 426.793
I.P. 426.943
I.P. 427.050
I.P. 427.110
I.P. 427.560
I.P. 427.893
34.448
4921.084 R
26.183
81225.940 R
20.000
29513.080 R
20.000
2857.071 R
20.000
2611.003 R
20.000
1805.216 R
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1.000%
0.300%
0.268%
0.200%
0.900%
1.666%
0.558%
R.L. 419.700

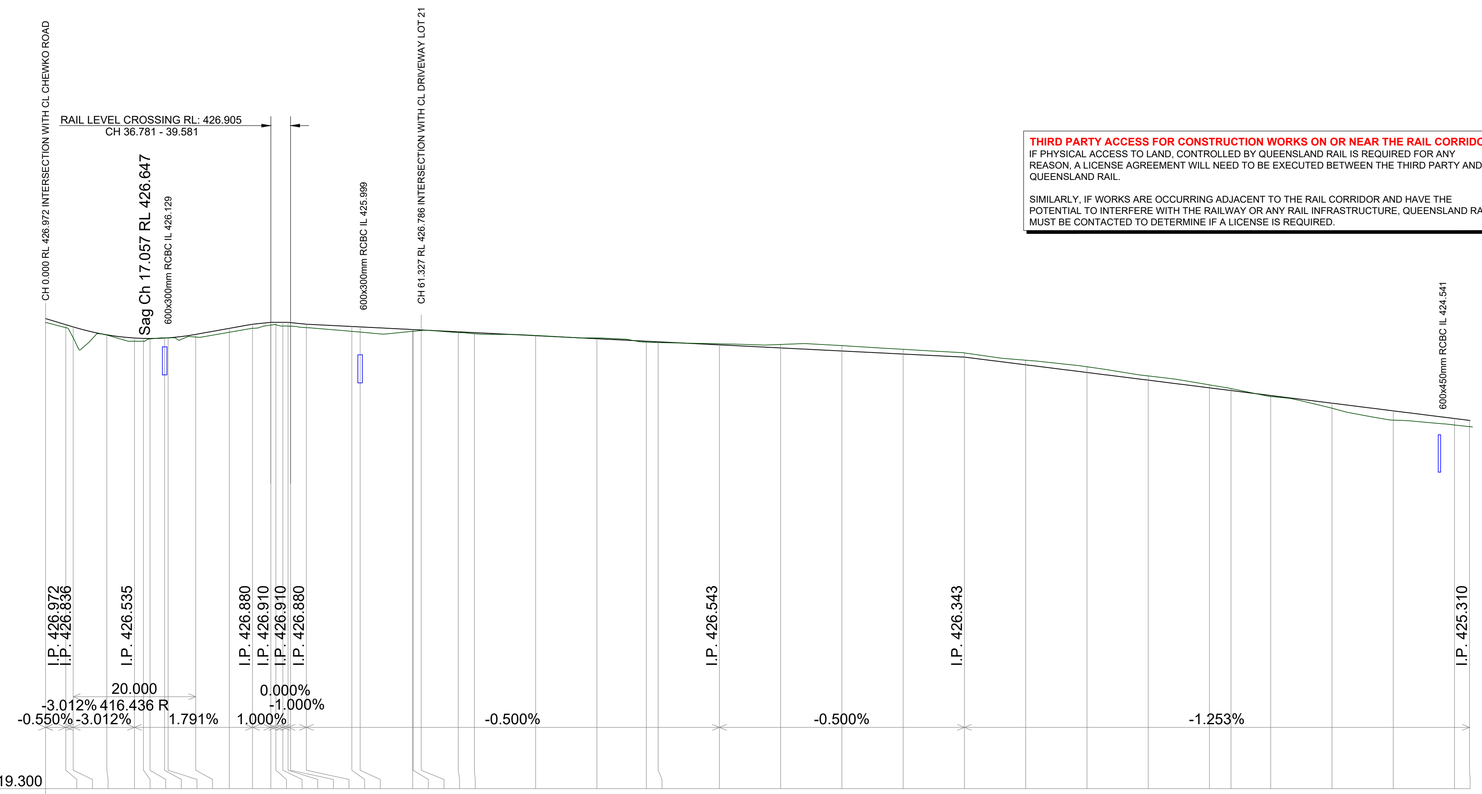
| | | |

NOTE:

1. TOPOGRAPHIC SURVEY HAS BEEN UNDERTAKEN BY BRZ SURVEYING ON 20TH NOVEMBER 2024 AT THE SUBJECT SITE. REFER TO BRZ SURVEY DOCUMENTATION (24_055_01) FOR FURTHER INFORMATION.LEKKER URBAN TAKE NO RESPONSIBILITY FOR THE ACCURACY OF EXISTING FEATURES WITHIN THE SURVEY INFORMATION PROVIDED.
2. LEKKER URBAN TAKE NO RESPONSIBILITY FOR THE ACCURACY OF EXISTING FEATURES WITHIN THE SURVEY INFORMATION PROVIDED.
3. CONFIRMATION OF LOCATION AND DEPTH OF ALL EXISTING SERVICES ARE REQUIRED PRIOR TO COMMENCEMENT OF WORKS.
4. ALL PROPOSED WORKS ARE SUBJECT TO: DISCUSSIONS AND MEETINGS WITH AUTHORITIES, APPROVAL FROM AUTHORITIES, RELEVANT CONSULTANT INFORMATION AS PER COUNCIL REQUIREMENTS. FEASIBILITY COMPLETED BASED ON INFORMATION PROVIDED BY CLIENT.
5. THE CONTRACTOR SHALL CONFIRM THE RAIL LEVEL CROSSING FINISHED SURFACE LEVEL PRIOR TO UNDERTAKING ANY WORKS.
6. THIRD PARTY ACCESS FOR CONSTRUCTION WORKS ON OR NEAR THE RAIL CORRIDOR IS REQUIRE PRIOR TO THE COMMENCEMENT OF WORKS.

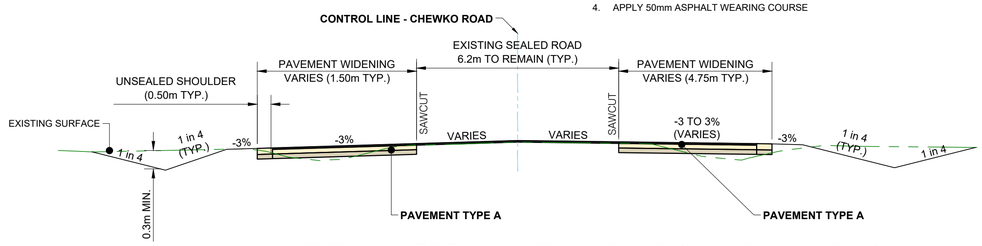
THIRD PARTY ACCESS FOR CONSTRUCTION WORKS ON OR NEAR THE RAIL CORRIDOR
IF PHYSICAL ACCESS TO LAND, CONTROLLED BY QUEENSLAND RAIL IS REQUIRED FOR ANY REASON, A LICENSE AGREEMENT WILL NEED TO BE EXECUTED BETWEEN THE THIRD PARTY AND QUEENSLAND RAIL.

SIMILARLY, IF WORKS ARE OCCURRING ADJACENT TO THE RAIL CORRIDOR AND HAVE THE POTENTIAL TO INTERFERE WITH THE RAILWAY OR ANY RAIL INFRASTRUCTURE, QUEENSLAND RAIL MUST BE CONTACTED TO DETERMINE IF A LICENSE IS REQUIRED.



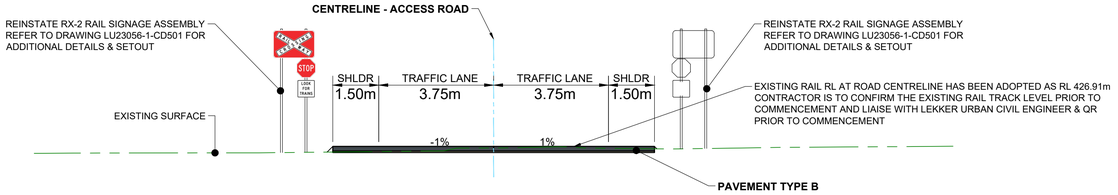
| | | |

1. PROFILE 50-100mm OF EXISTING SURFACE MATERIAL (MIXTURE OF SEAL & GRAVEL WEARING COURSE).
2. INSTALL LAYER OF BASE COURSE MATERIAL TO RAISE 50mm BELOW FINISHED SURFACE LEVEL.
3. APPLY PRIME SEAL.
4. APPLY 50mm ASPHALT WEARING COURSE



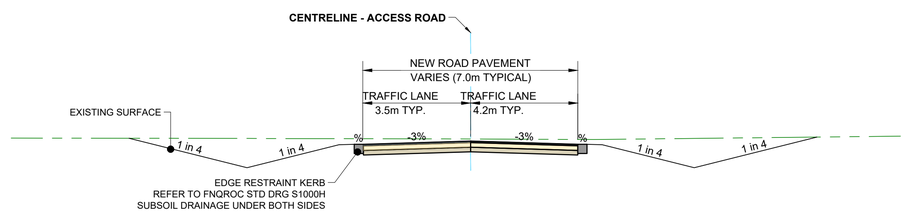
TYPICAL SECTION: CHEWKO ROAD (CH. 0 TO 296.451m)

SCALE 1:20



TYPICAL SECTION: RAIL CROSSING (CH. 36.78 TO 39.581m)

SCALE 1:10



TYPICAL SECTION: NEW ACCESS ROAD (RAIL CROSSING TO CH. 232.44m)

SCALE 1:100

THIRD PARTY ACCESS FOR CONSTRUCTION WORKS ON OR NEAR THE RAIL CORRIDOR

IF PHYSICAL ACCESS TO LAND, CONTROLLED BY QUEENSLAND RAIL IS REQUIRED FOR ANY REASON, A LICENSE AGREEMENT WILL NEED TO BE EXECUTED BETWEEN THE THIRD PARTY AND QUEENSLAND RAIL.

SIMILARLY, IF WORKS ARE OCCURRING ADJACENT TO THE RAIL CORRIDOR AND HAVE THE POTENTIAL TO INTERFERE WITH THE RAILWAY OR ANY RAIL INFRASTRUCTURE, QUEENSLAND RAIL MUST BE CONTACTED TO DETERMINE IF A LICENSE IS REQUIRED.

PAVEMENT WIDENING WHERE FULL DEPTH PROFILE IS REQUIRED

WHERE PAVEMENT WIDENING IS REQUIRED TO FULL DEPTH PAVEMENT, THE WIDENING MUST BE CONSTRUCTED TO THE FULL WIDTH USING THE SAME LAYERING AS THE EXISTING PAVEMENT AND NEW WORKS. IT SHOULD EITHER DAYLIGHT INTO THE TABLE DRAIN OR INCLUDE SUBSOIL DRAINS TO PREVENT IMPEDED DRAINAGE. ADDITIONALLY, THE SUBGRADE OF THE WIDENED PAVEMENT AREAS MUST BE VERIFIED TO MEET THE DESIGN REQUIREMENTS FOR THE RESPECTIVE SUBGRADE ZONES, AS THE INVESTIGATION WAS LIMITED TO THE EXISTING PAVEMENT SURFACE.

WE ANTICIPATE THAT THE WIDENED AREAS WILL BE EXCAVATED/BOXED OUT TO A SUFFICIENT DEPTH, WITH THE IMPORTED SUBBASE LAYER INSTALLED TO THE TOP LEVEL WITH THE EXISTING GRAVEL LAYER, BEFORE PLACING THE IMPORTED BASE COURSE AND ASPHALT LAYERS ACROSS THE ENTIRE AREA.

FURTHERMORE, THE WIDTH OF ANY PAVEMENT WIDENING SHOULD ALLOW SUFFICIENT ACCESS FOR MECHANICAL COMPACTION EQUIPMENT TO ENSURE PROPER COMPACTION OF MATERIALS, IN LINE WITH REQUIRED STANDARDS.

Revision	Amendments	Approved	Date
A	100% DESIGN ISSUE - FOR APPROVAL (OPW)	J.L.A	13/05/2025

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DRAWING NOT TO SCALE

Designed: A.P.B
Checked: J.L.A
Authorised: J.L.A
Date: 13/05/2025

TWO RIVERS COMMUNITY SCHOOL
STAGE 1 & 2 - EXTERNAL CIVIL WORKS
TYPICAL SECTIONS & DETAILS

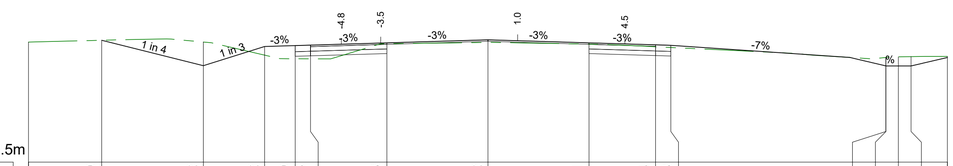
CHEWKO ROAD & 267 MCIVER ROAD, MAREEBA QLD
ON BEHALF OF TWO RIVERS COMMUNITY SCHOOL

FOR APPROVAL

DRAWING NUMBER: LU23112-1-CD-400
REV: A

NOTE:

1. TOPOGRAPHIC SURVEY HAS BEEN UNDERTAKEN BY RPS ON 17th SEPTEMBER 2024 AT THE SUBJECT SITE. REFER TO RPS SURVEY DOCUMENTATION (AU017896-1) FOR FURTHER INFORMATION. NOTE THAT THIS SURVEY IS GROUND DISTANCES & NOT TRUE MGA.
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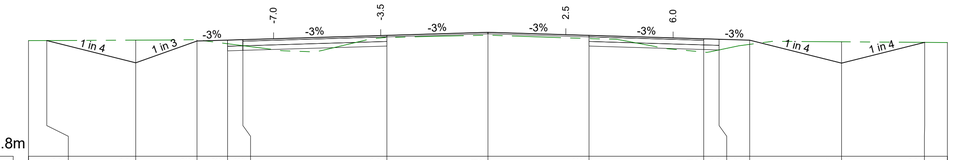


RL422.5m

| | | |

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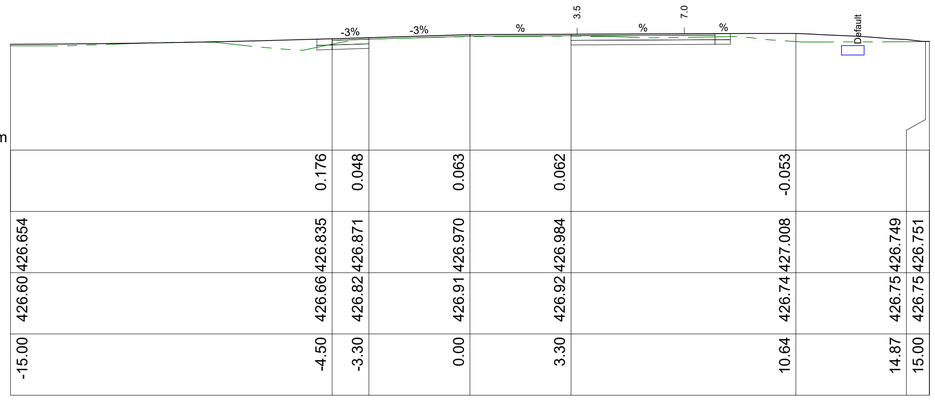


RL422.8m

| | | |

NOTE:

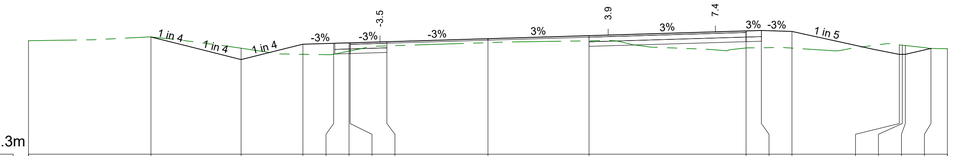
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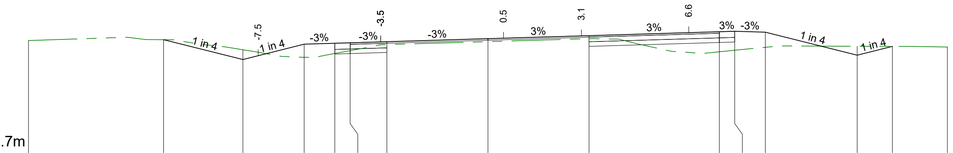


RL423.3m

| | | |

NOTE:

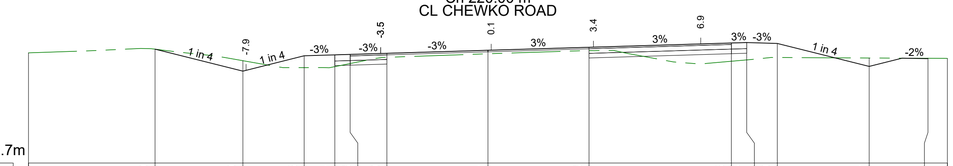
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RL423.7m

HEIGHT DIFFERENCE		0.000	-0.318	0.429	0.332	0.256	0.092	0.097	0.097	0.655	0.620	0.493	-0.291	0.000
DESIGN SURFACE		427.437	426.790	427.290	427.320	427.335	427.371	427.470	427.569	427.697	427.712	427.682	426.932	427.219
EXISTING SURFACE	427.41	427.44	427.11	426.86	426.99	427.08	427.28	427.37	427.47	427.04	427.09	427.19	427.22	427.22	427.20
OFFSET	-15.00	-10.59	-8.00	-6.00	-5.00	-4.50	-3.30	0.00	3.30	7.56	8.06	9.06	12.06	13.20	15.00

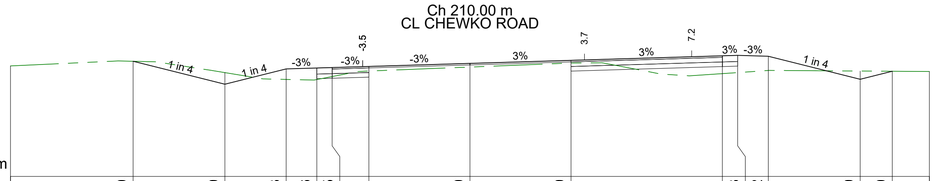
Ch 220.00 m
CL CHEWKO ROAD



RL423.7m

HEIGHT DIFFERENCE		0.000	-0.340	0.386	0.384	0.298	0.130	0.114	0.108	0.596	0.567	0.459	-0.274		
DESIGN SURFACE		427.417	426.700	427.200	427.230	427.245	427.281	427.380	427.479	427.618	427.633	427.603	426.853	427.117	
EXISTING SURFACE	427.30	427.42	427.04	426.81	426.85	426.95	427.15	427.27	427.37	427.02	427.07	427.14	427.13	427.12	427.12
OFFSET	-15.00	-10.87	-8.00	-6.00	-5.00	-4.50	-3.30	0.00	3.30	7.95	8.45	9.45	12.45	14.37	15.00

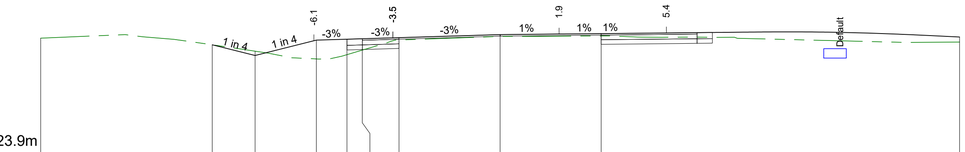
Ch 210.00 m
CL CHEWKO ROAD



RL423.6m

HEIGHT DIFFERENCE		0.000	-0.379	0.343	0.376	0.295	0.151	0.120	0.089	0.581	0.563	0.462	-0.269	0.000	
DESIGN SURFACE		427.359	426.610	427.110	427.140	427.155	427.191	427.290	427.389	427.537	427.552	427.522	426.772	427.034	
EXISTING SURFACE	427.21	427.36	426.99	426.77	426.76	426.86	427.04	427.17	427.30	426.96	426.99	427.06	427.04	427.03	427.03
OFFSET	-15.00	-11.00	-8.00	-6.00	-5.00	-4.50	-3.30	0.00	3.30	8.24	8.74	9.74	12.74	13.79	15.00

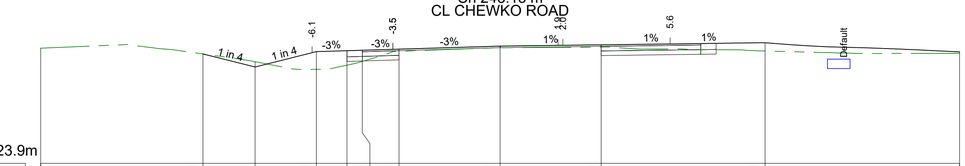
Ch 200.00 m
CL CHEWKO ROAD



RL423.9m

HEIGHT DIFFERENCE		0.000	-0.139	0.613	0.504	0.371	0.076	0.057	0.076	
DESIGN SURFACE		427.446	427.096	427.596	427.626	427.641	427.677	427.776	427.810	427.699
EXISTING SURFACE	427.66	427.45	427.24	426.98	427.12	427.27	427.60	427.72	427.73	427.53
OFFSET	-15.00	-9.40	-8.00	-6.00	-5.00	-4.50	-3.30	0.00	3.30	15.00

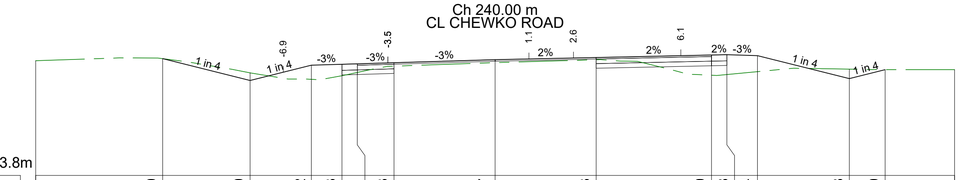
Ch 243.13 m
CL CHEWKO ROAD



RL423.9m

HEIGHT DIFFERENCE		0.000	-0.172	0.579	0.471	0.363	0.068	0.052	0.073	0.070	
DESIGN SURFACE		427.472	427.047	427.547	427.577	427.592	427.628	427.727	427.769	427.838	427.539
EXISTING SURFACE	427.66	427.47	427.22	426.97	427.11	427.23	427.56	427.67	427.70	427.57	427.49
OFFSET	-15.00	-9.70	-8.00	-6.00	-5.00	-4.50	-3.30	0.00	3.30	8.65	15.00

Ch 240.00 m
CL CHEWKO ROAD



RL423.8m

HEIGHT DIFFERENCE		0.000	-0.250	0.462	0.373	0.281	0.113	0.097	0.073	0.659	0.648	0.524	-0.308	0.000	
DESIGN SURFACE		427.612	426.899	427.399	427.429	427.444	427.480	427.579	427.650	427.731	427.741	427.711	427.253		
EXISTING SURFACE	427.55	427.61	427.15	426.94	427.06	427.16	427.37	427.48	427.58	427.07	427.09	427.19	427.27	426.961	427.25	427.25
OFFSET	-15.00	-10.85	-8.00	-6.00	-5.00	-4.50	-3.30	0.00	3.30	7.07	7.57	8.57	11.57	12.73	15.00

Ch 230.00 m
CL CHEWKO ROAD

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

Designed: A.P.B
Checked: J.L.A
Authorised: J.L.A
Date: 13/05/2025

TWO RIVERS COMMUNITY SCHOOL
STAGE 1 & 2 - EXTERNAL CIVIL WORKS
CROSS SECTIONS - CHEWKO ROAD - SHEET 5 OF 6

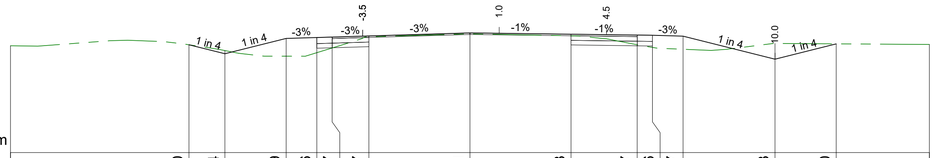
CHEWKO ROAD & 267 MCIVER ROAD, MAREEBA QLD
ON BEHALF OF TWO RIVERS COMMUNITY SCHOOL

FOR APPROVAL

DRAWING NUMBER: LU23112-1-CD-405
REV: A

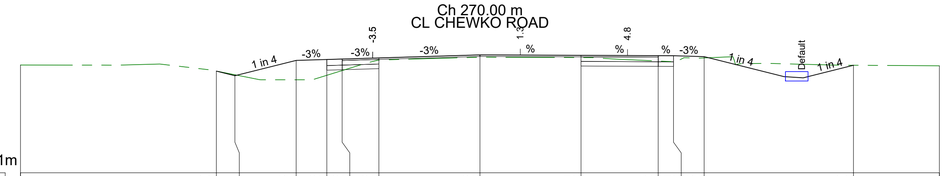
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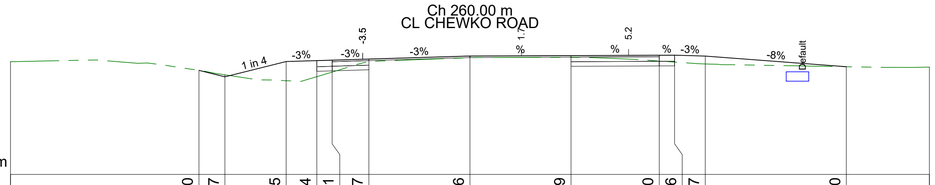
RL424.1m																								
HEIGHT DIFFERENCE		0.000	-0.104	0.579	0.496	0.357	0.027	0.031	0.053	0.317	0.396	0.427	-0.513	0.000										
DESIGN SURFACE		427.618	427.325	427.825	427.855	427.870	427.906	428.005	427.962	427.935	427.928	427.898	427.148	427.648										
EXISTING SURFACE	427.58	427.62	427.43	427.25	427.36	427.51	427.88	427.97	427.91	427.62	427.53	427.47	427.66	427.65	427.63									
OFFSET	-15.00	-9.17	-8.00	-6.00	-5.00	-4.50	-3.30	0.00	3.30	5.46	5.96	6.96	9.96	11.96	15.00									

Ch 270.00 m
CL CHEWKO ROAD



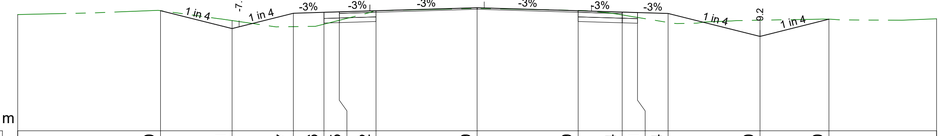
RL424.1m																								
HEIGHT DIFFERENCE		0.000	-0.031	0.632	0.516	0.376	0.068	0.076	0.074	0.175	0.194	0.042	0.000											
DESIGN SURFACE		427.421	427.269	427.769	427.799	427.814	427.850	427.949	427.935	427.924	427.922	427.892	427.611											
EXISTING SURFACE	427.62	427.42	427.30	427.14	427.28	427.44	427.78	427.87	427.86	427.75	427.73	427.85	427.61	427.59										
OFFSET	-15.00	-8.61	-8.00	-6.00	-5.00	-4.50	-3.30	0.00	3.30	5.82	6.32	7.32	12.19	15.00										

Ch 260.00 m
CL CHEWKO ROAD



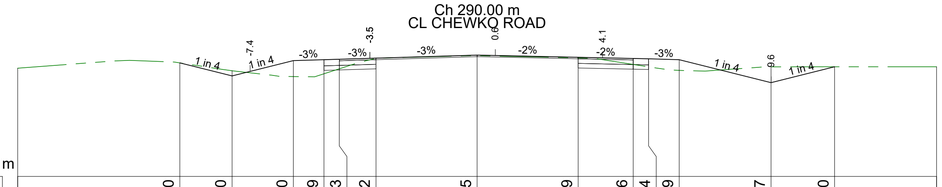
RL424m																								
HEIGHT DIFFERENCE		0.000	-0.067	0.625	0.524	0.391	0.077	0.056	0.059	0.190	0.226	0.257	0.000											
DESIGN SURFACE		427.398	427.185	427.685	427.715	427.730	427.766	427.865	427.880	427.892	427.894	427.864	427.516											
EXISTING SURFACE	427.68	427.40	427.25	427.06	427.19	427.34	427.69	427.81	427.82	427.70	427.67	427.61	427.52	427.50										
OFFSET	-15.00	-8.85	-8.00	-6.00	-5.00	-4.50	-3.30	0.00	3.30	6.18	6.68	7.68	12.29	15.00										

Ch 250.00 m
CL CHEWKO ROAD



RL424.1m																								
HEIGHT DIFFERENCE		0.000	-0.261	0.437	0.386	0.275	-0.002	0.019	-0.009	0.094	0.161	0.294	-0.530	0.000										
DESIGN SURFACE		428.021	427.436	427.936	427.966	427.981	428.017	428.116	428.017	427.974	427.959	427.929	427.179	427.742										
EXISTING SURFACE	427.89	428.02	427.70	427.50	427.58	427.71	428.02	428.10	428.03	427.88	427.80	427.64	427.71	427.74	427.76									
OFFSET	-15.00	-10.34	-8.00	-6.00	-5.00	-4.50	-3.30	0.00	3.30	4.74	5.24	6.24	9.24	11.49	15.00									

Ch 290.00 m
CL CHEWKO ROAD



RL424.1m																								
HEIGHT DIFFERENCE		0.000	-0.170	0.520	0.459	0.313	0.002	0.015	0.019	0.196	0.264	0.349	-0.517	0.000										
DESIGN SURFACE		427.807	427.381	427.881	427.911	427.926	427.962	428.061	427.990	427.951	427.941	427.911	427.161	427.679										
EXISTING SURFACE	427.63	427.81	427.55	427.36	427.45	427.61	427.96	428.05	427.97	427.76	427.68	427.56	427.68	427.68	427.68									
OFFSET	-15.00	-9.71	-8.00	-6.00	-5.00	-4.50	-3.30	0.00	3.30	5.10	5.60	6.60	9.60	11.67	15.00									

Ch 280.00 m
CL CHEWKO ROAD

Revision	Amendments	Approved	Date
A	100% DESIGN ISSUE - FOR APPROVAL (OPW)	J.L.A	13/05/2025

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Lekker Urban.
CAIRNS: 60-70 MAGAZINE STREET STRATFORD, QLD
CONTACT@LEKKERURBAN.COM
WWW.LEKKERURBAN.COM.AU ABN 32 669 311 479

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

Designed: A.P.B
Checked: J.L.A
Authorised: J.L.A
Date: 13/05/2025

TWO RIVERS COMMUNITY SCHOOL
STAGE 1 & 2 - EXTERNAL CIVIL WORKS
CROSS SECTIONS - CHEWKO ROAD - SHEET 6 OF 6

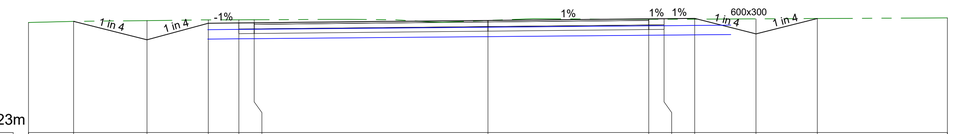
CHEWKO ROAD & 267 MCIVER ROAD, MAREEBA QLD
ON BEHALF OF TWO RIVERS COMMUNITY SCHOOL

FOR APPROVAL

DRAWING NUMBER: LU23112-1-CD-406
REV: A

NOTE:

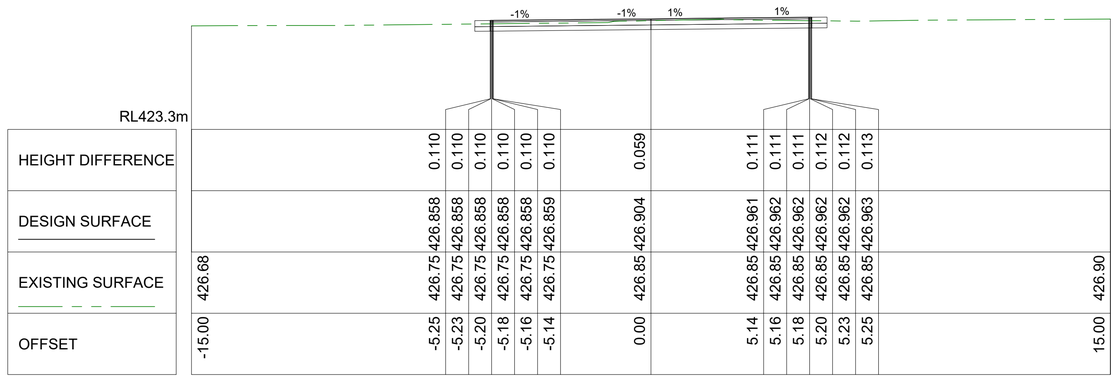
1. TOPOGRAPHIC SURVEY HAS BEEN UNDERTAKEN BY RPS ON 17th SEPTEMBER 2024 AT THE SUBJECT SITE. REFER TO RPS SURVEY DOCUMENTATION (AU017896-1) FOR FURTHER INFORMATION. NOTE THAT THIS SURVEY IS GROUND DISTANCES & NOT TRUE MGA.
2. LEKKER URBAN TAKE NO RESPONSIBILITY FOR THE ACCURACY OF EXISTING FEATURES WITHIN THE SURVEY INFORMATION PROVIDED.
3. CONFIRMATION OF LOCATION AND DEPTH OF ALL EXISTING SERVICES ARE REQUIRED PRIOR TO COMMENCEMENT OF WORKS.
4. ALL PROPOSED WORKS ARE SUBJECT TO: DISCUSSIONS AND MEETINGS WITH AUTHORITIES, APPROVAL FROM AUTHORITIES, RELEVANT CONSULTANT INFORMATION AS PER COUNCIL REQUIREMENTS. FEASIBILITY COMPLETED BASED ON INFORMATION PROVIDED BY CLIENT.



| | | |

NOTE:

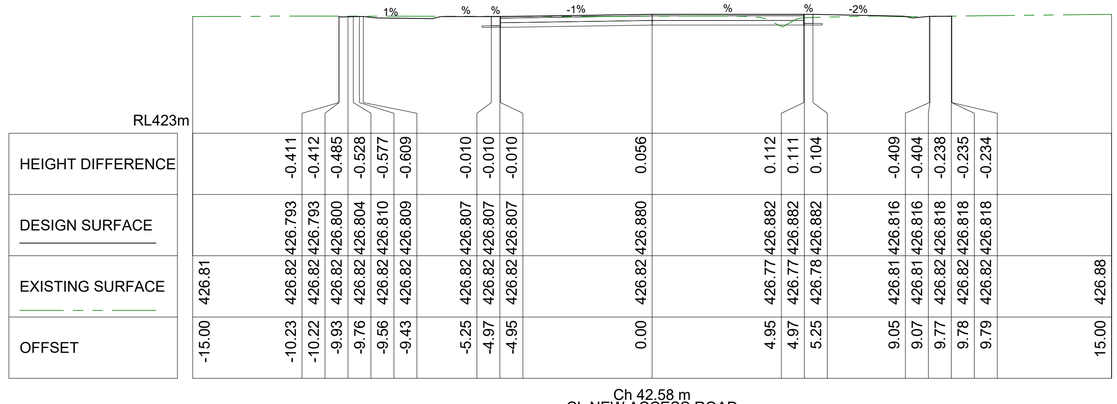
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RL423.3m

HEIGHT DIFFERENCE				0.110	0.110	0.110	0.110	0.110	0.110		0.059			0.111	0.111	0.111	0.112	0.112	0.113					
DESIGN SURFACE				426.858	426.858	426.858	426.858	426.858	426.859		426.904			426.961	426.962	426.962	426.962	426.962	426.963					
EXISTING SURFACE	426.68			426.75	426.75	426.75	426.75	426.75	426.75		426.85			426.85	426.85	426.85	426.85	426.85	426.85		426.90			
OFFSET	-15.00			-5.25	-5.23	-5.20	-5.18	-5.16	-5.14		0.00			5.14	5.16	5.18	5.20	5.23	5.25		15.00			

Ch 38.74 m
CL NEW ACCESS ROAD



RL423m

HEIGHT DIFFERENCE			-0.411	-0.412	-0.485	-0.528	-0.577	-0.609		-0.010	-0.010	-0.010		0.056			0.112	0.111	0.104		-0.409	-0.404	-0.238	-0.235	-0.234	
DESIGN SURFACE			426.793	426.793	426.800	426.804	426.810	426.809		426.807	426.807	426.807		426.880			426.882	426.882	426.882		426.816	426.816	426.818	426.818	426.818	
EXISTING SURFACE	426.81		426.82	426.82	426.82	426.82	426.82	426.82		426.82	426.82	426.82		426.82			426.77	426.77	426.78		426.81	426.81	426.82	426.82	426.82	426.88
OFFSET	-15.00		-10.23	-10.22	-9.93	-9.76	-9.56	-9.43		-5.25	-4.97	-4.95		0.00			4.95	4.97	5.25		9.05	9.07	9.77	9.78	9.79	15.00

Ch 42.58 m
CL NEW ACCESS ROAD

RL423.3m

HEIGHT DIFFERENCE		0.161	0.040	0.151	
DESIGN SURFACE		426.858	426.895	426.963	
EXISTING SURFACE	426.68	426.70	426.87	426.81	426.92
OFFSET	-15.00	-5.25	0.00	5.25	15.00

Ch 37.60 m
CL NEW ACCESS ROAD

RL423m

HEIGHT DIFFERENCE			0.383	0.382	0.382		0.058			0.215	0.215	0.218												
DESIGN SURFACE			426.853	426.853	426.853		426.906			426.949	426.949	426.949												
EXISTING SURFACE	426.47		426.47	426.47	426.47		426.85			426.73	426.73	426.73		426.76										
OFFSET	-15.00		-5.25	-4.97	-4.95		0.00			4.95	4.97	5.25		15.00										

Ch 40.00 m
CL NEW ACCESS ROAD

RL423.3m

HEIGHT DIFFERENCE		0.256	0.044	0.302	
DESIGN SURFACE		426.858	426.889	426.963	
EXISTING SURFACE	426.59	426.60	426.87	426.66	426.85
OFFSET	-15.00	-5.25	0.00	5.25	15.00

Ch 36.78 m
CL NEW ACCESS ROAD

RL423.3m

HEIGHT DIFFERENCE		0.201	0.206	0.061	0.144	0.148	
DESIGN SURFACE		426.857	426.860	426.910	426.959	426.960	
EXISTING SURFACE	426.60	426.66	426.65	426.85	426.82	426.81	426.85
OFFSET	-15.00	-5.25	-4.95	0.00	4.95	5.25	15.00

Ch 39.58 m
CL NEW ACCESS ROAD

Revision	Amendments	Approved	Date
A	100% DESIGN ISSUE - FOR APPROVAL (OPW)	J.L.A	13/05/2025

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CONTACT@LEKKERURBAN.COM
WWW.LEKKERURBAN.COM.AU ABN 32 669 311 479

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

Designed: A.P.B
Checked: J.L.A
Authorised: J.L.A
Date: 13/05/2025

TWO RIVERS COMMUNITY SCHOOL
STAGE 1 & 2 - EXTERNAL CIVIL WORKS
CROSS SECTIONS - NEW ACCESS ROAD - SHEET 2 OF 6

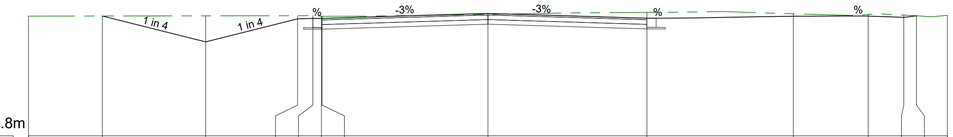
CHEWKO ROAD & 267 MCIVER ROAD, MAREEBA QLD
ON BEHALF OF TWO RIVERS COMMUNITY SCHOOL

FOR APPROVAL

DRAWING NUMBER: LU23112-1-CD-408 REV: A

NOTE:

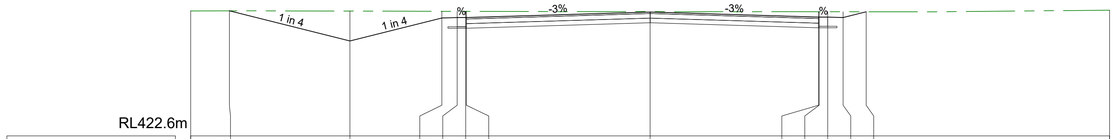
1. TOPOGRAPHIC SURVEY HAS BEEN UNDERTAKEN BY RPS ON 17th SEPTEMBER 2024 AT THE SUBJECT SITE. REFER TO RPS SURVEY DOCUMENTATION (AU017896-1) FOR FURTHER INFORMATION. NOTE THAT THIS SURVEY IS GROUND DISTANCES & NOT TRUE MGA.
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RL422.8m

HEIGHT DIFFERENCE		0.000	-0.849	-0.104	-0.090	-0.072	-0.070	0.028	-0.191	-0.664	-0.033			
DESIGN SURFACE		426.709	425.865	426.615	426.630	426.630	426.630	426.793	426.637	426.702	426.707	426.665	426.716	
EXISTING SURFACE	426.70	426.71	426.71	426.72	426.72	426.70	426.70	426.76	426.83	426.78	426.76	426.74	426.72	426.73
OFFSET	-15.00	-12.59	-9.22	-6.22	-5.72	-5.44	-5.42	0.00	5.19	9.97	12.42	13.58	13.99	15.00

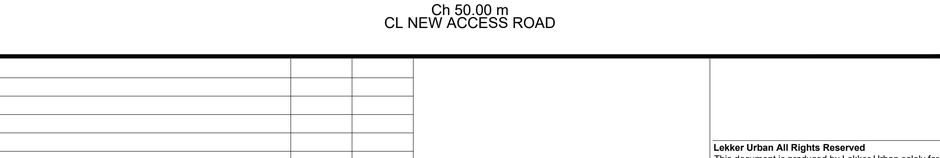
Ch 60.00 m
CL NEW ACCESS ROAD



RL422.6m

HEIGHT DIFFERENCE	0.000	-0.976	-0.219	-0.203	-0.202	-0.202	-0.013	-0.175	-0.175	-0.175	-0.189	0.000
DESIGN SURFACE	426.682	425.698	426.448	426.463	426.463	426.463	426.643	426.478	426.478	426.478	426.463	426.652
EXISTING SURFACE	426.68	426.67	426.67	426.67	426.67	426.67	426.66	426.65	426.65	426.65	426.65	426.65	426.70
OFFSET	-15.00	-9.80	-6.80	-6.30	-6.02	-6.00	0.00	5.50	5.52	5.80	6.30	7.05	15.00

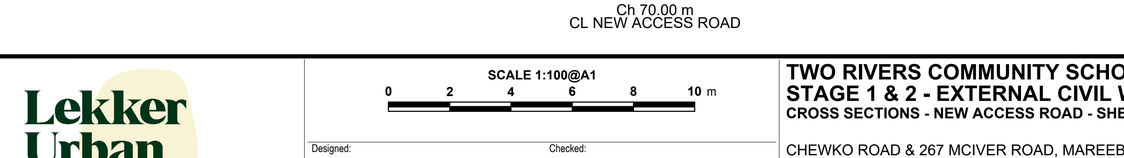
Ch 90.00 m
CL NEW ACCESS ROAD



RL422.8m

HEIGHT DIFFERENCE		0.000	-0.849	-0.104	-0.089	-0.073	-0.072	0.029	-0.191	-0.703	-0.079			
DESIGN SURFACE		426.709	425.866	426.616	426.631	426.631	426.631	426.793	426.638	426.699	426.705	426.663	426.719	
EXISTING SURFACE	426.70	426.71	426.71	426.72	426.72	426.70	426.70	426.76	426.83	426.78	426.75	426.74	426.72	426.74
OFFSET	-15.00	-12.58	-9.21	-6.21	-5.71	-5.43	-5.41	0.00	5.19	9.82	12.18	13.39	13.85	15.00

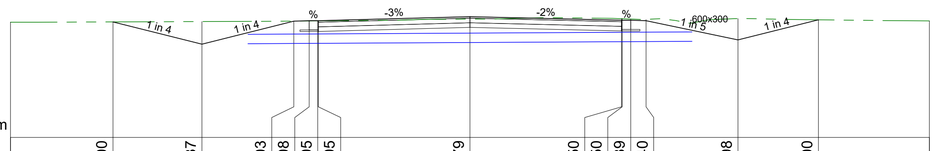
Ch 59.94 m
CL NEW ACCESS ROAD



RL422.7m

HEIGHT DIFFERENCE	0.000	-0.950	-0.195	-0.179	-0.179	-0.178	-0.004	-0.136	-0.136	-0.134	-0.145	0.000
DESIGN SURFACE	426.698	425.748	426.498	426.513	426.513	426.513	426.693	426.528	426.528	426.528	426.513	426.654
EXISTING SURFACE	426.69	426.70	426.70	426.69	426.69	426.69	426.69	426.70	426.66	426.66	426.66	426.513	426.65	426.67
OFFSET	-15.00	-13.60	-9.80	-6.80	-6.30	-6.02	-6.00	0.00	5.50	5.52	5.80	6.30	6.87	15.00

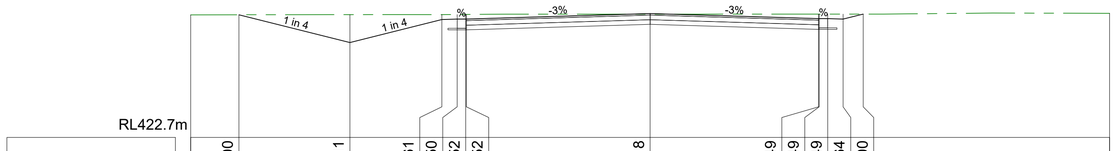
Ch 80.00 m
CL NEW ACCESS ROAD



RL422.9m

HEIGHT DIFFERENCE		0.000	-0.737	-0.003	0.008	0.005	0.005	0.079	-0.050	-0.050	-0.039	-0.040	-0.698	0.000	
DESIGN SURFACE		426.671	425.945	426.695	426.710	426.710	426.710	426.843	426.726	426.726	426.726	426.711	426.083	426.740	
EXISTING SURFACE	426.66	426.67	426.68	426.70	426.70	426.71	426.71	426.76	426.78	426.78	426.77	426.75	426.78	426.74	426.71
OFFSET	-15.00	-11.65	-8.75	-5.75	-5.25	-4.97	-4.95	0.00	4.95	4.97	5.25	5.75	8.75	11.38	15.00

Ch 50.00 m
CL NEW ACCESS ROAD



RL422.7m

HEIGHT DIFFERENCE		0.000	-0.911	-0.161	-0.150	-0.152	-0.152	0.018	-0.149	-0.149	-0.149	-0.164	0.000	
DESIGN SURFACE		426.704	425.798	426.548	426.563	426.563	426.563	426.743	426.578	426.578	426.578	426.563	426.727	
EXISTING SURFACE	426.70	426.70	426.71	426.71	426.71	426.71	426.72	426.73	426.73	426.73	426.73	426.73	426.73	426.75
OFFSET	-15.00	-13.43	-9.80	-6.80	-6.30	-6.02	-6.00	0.00	5.50	5.52	5.80	6.30	6.96	15.00

Ch 70.00 m
CL NEW ACCESS ROAD

Revision	Amendments	Approved	Date
A	100% DESIGN ISSUE - FOR APPROVAL (OPW)	J.L.A	13/05/2025

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CAIRNS: 60-70 MAGAZINE STREET STRATFORD, QLD
CONTACT@LEKKERURBAN.COM
WWW.LEKKERURBAN.COM.AU ABN 32 669 311 479

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

Designed: A.P.B
Checked: J.L.A
Authorised: J.L.A
Date: 13/05/2025

TWO RIVERS COMMUNITY SCHOOL
STAGE 1 & 2 - EXTERNAL CIVIL WORKS
CROSS SECTIONS - NEW ACCESS ROAD - SHEET 3 OF 6

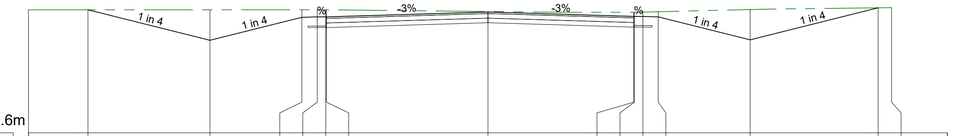
CHEWKO ROAD & 267 MCIVER ROAD, MAREEBA QLD
ON BEHALF OF TWO RIVERS COMMUNITY SCHOOL

FOR APPROVAL

DRAWING NUMBER: LU23112-1-CD-409 REV: A

NOTE:

1. TOPOGRAPHIC SURVEY HAS BEEN UNDERTAKEN BY RPS ON 17th SEPTEMBER 2024 AT THE SUBJECT SITE. REFER TO RPS SURVEY DOCUMENTATION (AU017896-1) FOR FURTHER INFORMATION. NOTE THAT THIS SURVEY IS GROUND DISTANCES & NOT TRUE MGA.
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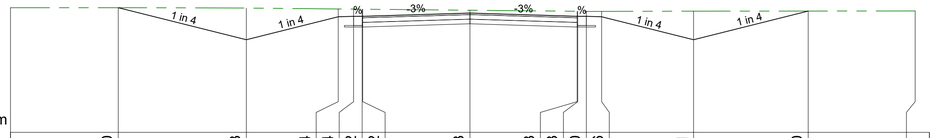


RL422.6m

| | | |

NOTE:

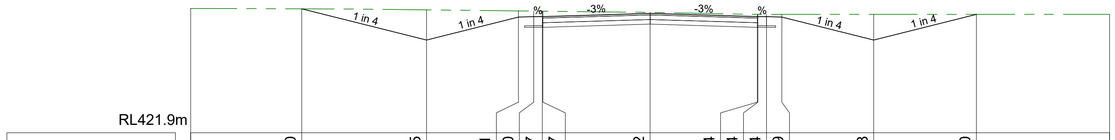
1. TOPOGRAPHIC SURVEY HAS BEEN UNDERTAKEN BY RPS ON 17th SEPTEMBER 2024 AT THE SUBJECT SITE. REFER TO RPS SURVEY DOCUMENTATION (AU017896-1) FOR FURTHER INFORMATION. NOTE THAT THIS SURVEY IS GROUND DISTANCES & NOT TRUE MGA.
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RL422.2m

HEIGHT DIFFERENCE		0.000		-1.033	-0.254	-0.234	-0.232	-0.232	-0.093	-0.163	-0.163	-0.160	-0.176	-0.931	0.000	
DESIGN SURFACE		426.268		426.222	425.972	425.987	425.987	425.987	426.092	425.987	425.987	425.987	425.972	426.222	426.158	
EXISTING SURFACE	426.27	426.27		426.26	426.23	426.22	426.22	426.22	426.18	426.15	426.15	426.15	426.15	426.15	426.16	426.16
OFFSET	-15.00	-11.48		-7.30	-4.30	-3.80	-3.52	-3.50	0.00	3.50	3.52	3.80	4.30	7.30	11.04	14.54	15.00

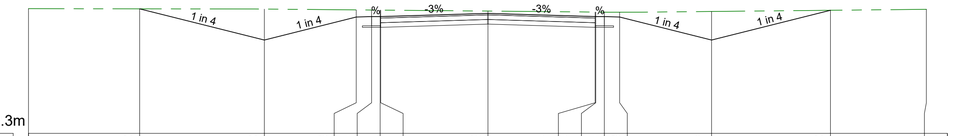
Ch 170.00 m
CL NEW ACCESS ROAD



RL421.9m

HEIGHT DIFFERENCE		0.000		-0.985	-0.201	-0.180	-0.177	-0.177	-0.032	-0.074	-0.074	-0.074	-0.089	-0.838	0.000	
DESIGN SURFACE		425.946		424.928	425.678	425.693	425.693	425.693	425.798	425.693	425.693	425.693	425.678	424.928	425.766	
EXISTING SURFACE	425.96	425.95		425.91	425.88	425.87	425.87	425.87	425.83	425.77	425.77	425.77	425.77	425.77	425.77	425.77
OFFSET	-15.00	-11.37		-7.30	-4.30	-3.80	-3.52	-3.50	0.00	3.50	3.52	3.80	4.30	7.30	10.65	15.00

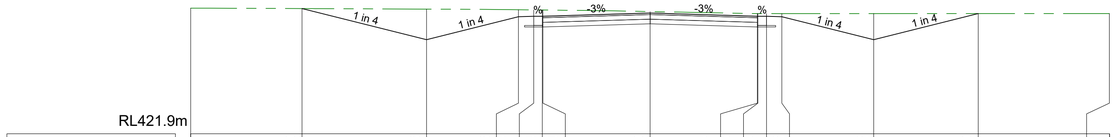
Ch 193.52 m
CL NEW ACCESS ROAD



RL422.3m

HEIGHT DIFFERENCE		0.000		-1.010	-0.233	-0.214	-0.211	-0.211	-0.075	-0.147	-0.147	-0.144	-0.158	-0.932	0.000	
DESIGN SURFACE		426.365		425.348	426.098	426.113	426.113	426.113	426.218	426.113	426.113	426.113	426.098	425.348	426.318	
EXISTING SURFACE	426.37	426.37		426.36	426.33	426.33	426.32	426.32	426.29	426.26	426.26	426.26	426.26	426.28	426.32	426.35
OFFSET	-15.00	-11.37		-7.30	-4.30	-3.80	-3.52	-3.50	0.00	3.50	3.52	3.80	4.30	7.30	11.18	14.31	15.00

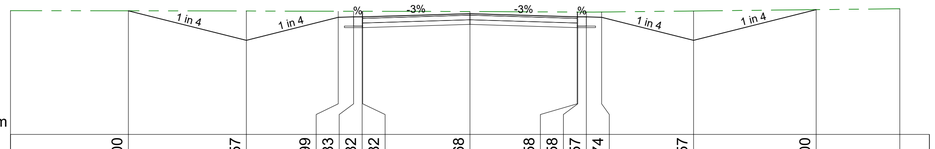
Ch 160.00 m
CL NEW ACCESS ROAD



RL421.9m

HEIGHT DIFFERENCE		0.000		-0.998	-0.228	-0.207	-0.204	-0.204	-0.049	-0.087	-0.087	-0.087	-0.102	-0.852	0.000	
DESIGN SURFACE		425.988		424.972	425.722	425.737	425.737	425.737	425.842	425.737	425.737	425.737	425.722	424.972	425.825	
EXISTING SURFACE	426.00	425.99		425.97	425.95	425.94	425.94	425.94	425.89	425.82	425.82	425.82	425.82	425.82	425.83	
OFFSET	-15.00	-11.36		-7.30	-4.30	-3.80	-3.52	-3.50	0.00	3.50	3.52	3.80	4.30	7.30	10.71	14.99	15.00

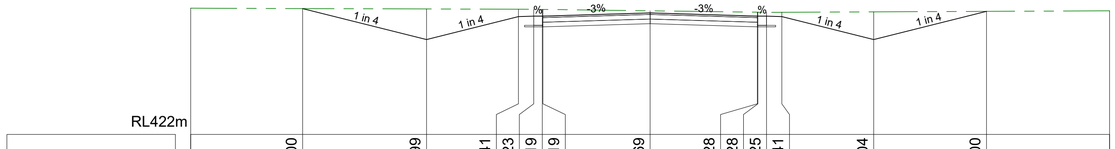
Ch 190.00 m
CL NEW ACCESS ROAD



RL422.4m

HEIGHT DIFFERENCE		0.000		-0.957	-0.199	-0.183	-0.182	-0.182	-0.068	-0.158	-0.158	-0.157	-0.174	-0.957	0.000	
DESIGN SURFACE		426.436		425.473	426.223	426.238	426.238	426.238	426.343	426.238	426.238	426.238	426.223	425.473	426.474	
EXISTING SURFACE	426.44	426.44		426.43	426.42	426.42	426.42	426.42	426.41	426.40	426.40	426.39	426.40	426.43	426.47	426.50
OFFSET	-15.00	-11.15		-7.30	-4.30	-3.80	-3.52	-3.50	0.00	3.50	3.52	3.80	4.30	7.30	11.30	14.03	15.00

Ch 150.00 m
CL NEW ACCESS ROAD



RL422m

HEIGHT DIFFERENCE		0.000		-0.999	-0.241	-0.223	-0.219	-0.219	-0.069	-0.128	-0.128	-0.125	-0.141	-0.904	0.000	
DESIGN SURFACE		426.108		425.097	425.847	425.862	425.862	425.862	425.967	425.862	425.862	425.862	425.847	425.097	426.018	
EXISTING SURFACE	426.12	426.11		426.10	426.09	426.08	426.08	426.08	426.04	425.99	425.99	425.99	425.99	426.00	426.02	426.04
OFFSET	-15.00	-11.34		-7.30	-4.30	-3.80	-3.52	-3.50	0.00	3.50	3.52	3.80	4.30	7.30	10.98	15.00

Ch 180.00 m
CL NEW ACCESS ROAD

Revision	Amendments	Approved	Date
A	100% DESIGN ISSUE - FOR APPROVAL (OPW)	J.L.A	13/05/2025

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Lekker Urban.
CAIRNS: 60-70 MAGAZINE STREET STRATFORD, QLD
CONTACT@LEKKERURBAN.COM
WWW.LEKKERURBAN.COM.AU ABN 32 669 311 479

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

Designed: A.P.B
Checked: J.L.A
Authorised: J.L.A
Date: 13/05/2025

TWO RIVERS COMMUNITY SCHOOL
STAGE 1 & 2 - EXTERNAL CIVIL WORKS
CROSS SECTIONS - NEW ACCESS ROAD - SHEET 5 OF 6

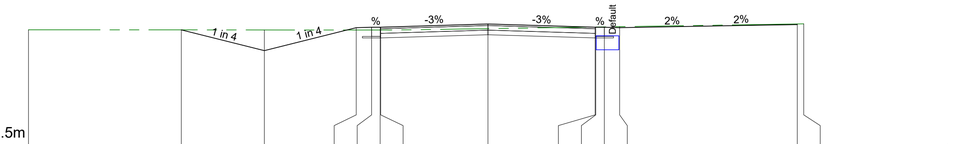
CHEWKO ROAD & 267 MCIVER ROAD, MAREEBA QLD
ON BEHALF OF TWO RIVERS COMMUNITY SCHOOL

FOR APPROVAL

DRAWING NUMBER: LU23112-1-CD-411
REV: A

NOTE:

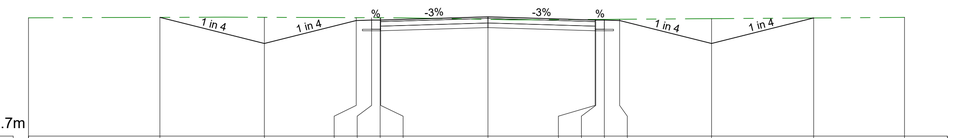
1. TOPOGRAPHIC SURVEY HAS BEEN UNDERTAKEN BY RPS ON 17th SEPTEMBER 2024 AT THE SUBJECT SITE. REFER TO RPS SURVEY DOCUMENTATION (AU017896-1) FOR FURTHER INFORMATION. NOTE THAT THIS SURVEY IS GROUND DISTANCES & NOT TRUE MGA.
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RL421.5m

HEIGHT DIFFERENCE		0.000	-0.676	0.076	0.092	0.091	0.091	0.151	-0.006	-0.007	-0.011	-0.034		
DESIGN SURFACE		425.274	424.596	425.346	425.361	425.361	425.361	425.466	425.361	425.361	425.361	425.346	425.447	
EXISTING SURFACE	425.28	425.27	425.27	425.27	425.27	425.27	425.27	425.31	425.37	425.37	425.37	425.38	425.47	425.47
OFFSET	-15.00	-10.01	-7.30	-4.30	-3.80	-3.52	-3.50	0.00	3.50	3.52	3.80	4.30	10.10	10.31	15.00

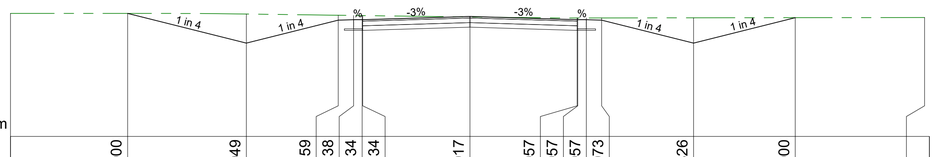
Ch 220.00 m
CL NEW ACCESS ROAD



RL421.7m

HEIGHT DIFFERENCE		0.000	-0.855	-0.094	-0.077	-0.076	-0.076	0.082	-0.021	-0.022	-0.023	-0.042	-0.812	0.000		
DESIGN SURFACE		425.574	424.721	425.471	425.486	425.486	425.486	425.591	425.486	425.486	425.486	425.471	424.721	425.555		
EXISTING SURFACE	425.56	425.57	425.58	425.56	425.56	425.56	425.56	425.51	425.51	425.51	425.51	425.51	425.53	425.56	425.57	
OFFSET	-15.00	-10.71	-7.30	-4.30	-3.80	-3.52	-3.50	0.00	3.50	3.52	3.80	4.30	7.30	10.64	13.60	15.00

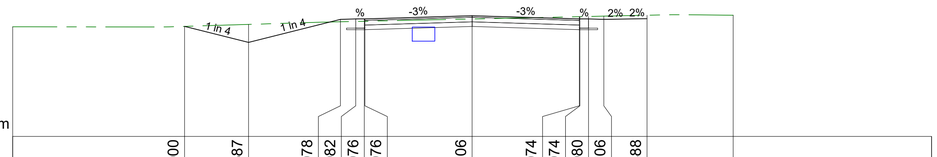
Ch 210.00 m
CL NEW ACCESS ROAD



RL421.8m

HEIGHT DIFFERENCE		0.000	-0.949	-0.159	-0.138	-0.134	-0.134	0.017	-0.057	-0.057	-0.057	-0.073	-0.826	0.000		
DESIGN SURFACE		425.816	424.846	425.596	425.611	425.611	425.611	425.716	425.611	425.611	425.611	425.596	424.846	425.677		
EXISTING SURFACE	425.82	425.82	425.80	425.76	425.75	425.75	425.75	425.70	425.67	425.67	425.67	425.67	425.67	425.68	425.68	
OFFSET	-15.00	-11.18	-7.30	-4.30	-3.80	-3.52	-3.50	0.00	3.50	3.52	3.80	4.30	7.30	10.62	14.84	15.00

Ch 200.00 m
CL NEW ACCESS ROAD



RL421.4m

HEIGHT DIFFERENCE		0.000	-0.587	0.078	0.082	0.076	0.076	0.106	-0.074	-0.074	-0.080	-0.106	-0.488		
DESIGN SURFACE		424.993	424.471	425.221	425.236	425.236	425.236	425.341	425.236	425.236	425.236	425.221	425.245		
EXISTING SURFACE	424.98	424.99	425.06	425.14	425.15	425.16	425.16	425.23	425.31	425.31	425.32	425.33	425.36	425.36	
OFFSET	-15.00	-9.39	-7.30	-4.30	-3.80	-3.52	-3.50	0.00	3.50	3.52	3.80	4.30	5.71	8.52	15.00

Ch 230.00 m
CL NEW ACCESS ROAD

Revision	Amendments	Approved	Date
A	100% DESIGN ISSUE - FOR APPROVAL (OPW)	J.L.A	13/05/2025

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CONTACT@LEKKERURBAN.COM
WWW.LEKKERURBAN.COM.AU ABN 32 669 311 479

SCALE 1:100@A1
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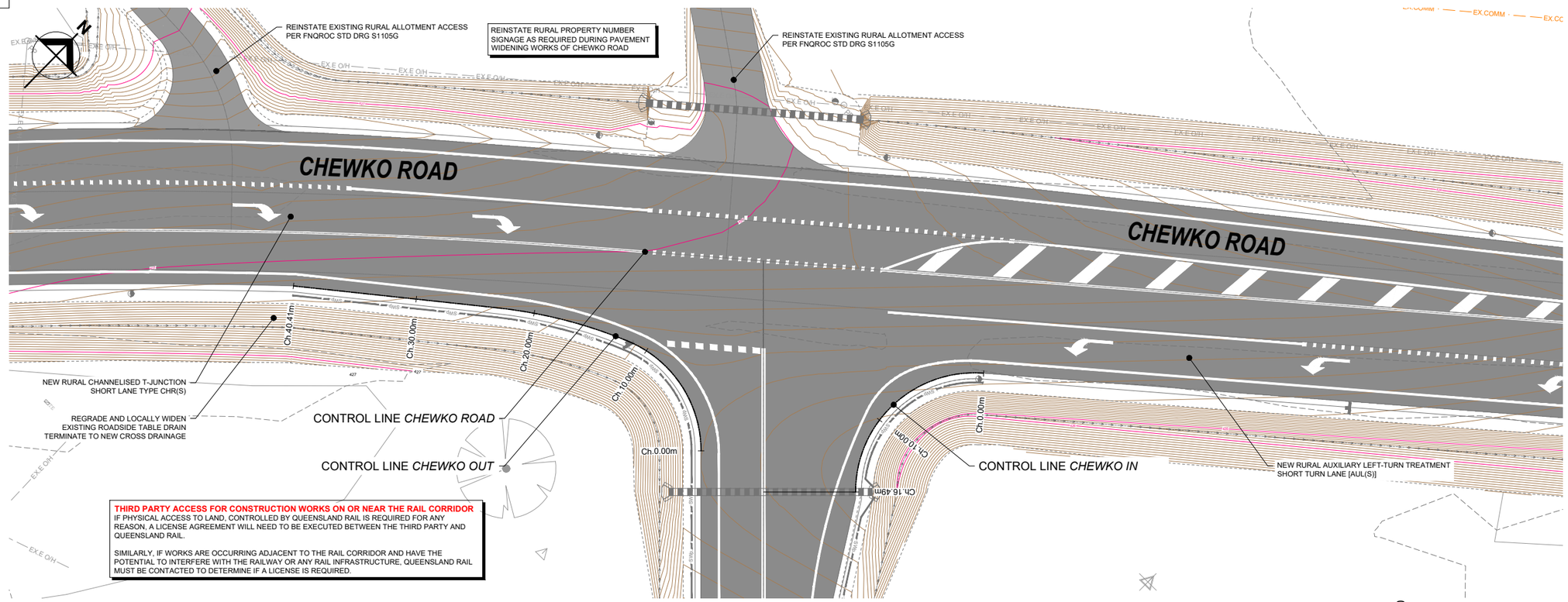
Designed: A.P.B
Checked: J.L.A
Authorised: J.L.A
Date: 13/05/2025

TWO RIVERS COMMUNITY SCHOOL
STAGE 1 & 2 - EXTERNAL CIVIL WORKS
CROSS SECTIONS - NEW ACCESS ROAD - SHEET 6 OF 6

CHEWKO ROAD & 267 MCIVER ROAD, MAREEBA QLD
ON BEHALF OF TWO RIVERS COMMUNITY SCHOOL

FOR APPROVAL

DRAWING NUMBER: LU23112-1-CD-412
REV: A



THIRD PARTY ACCESS FOR CONSTRUCTION WORKS ON OR NEAR THE RAIL CORRIDOR
IF PHYSICAL ACCESS TO LAND, CONTROLLED BY QUEENSLAND RAIL IS REQUIRED FOR ANY REASON, A LICENSE AGREEMENT WILL NEED TO BE EXECUTED BETWEEN THE THIRD PARTY AND QUEENSLAND RAIL.

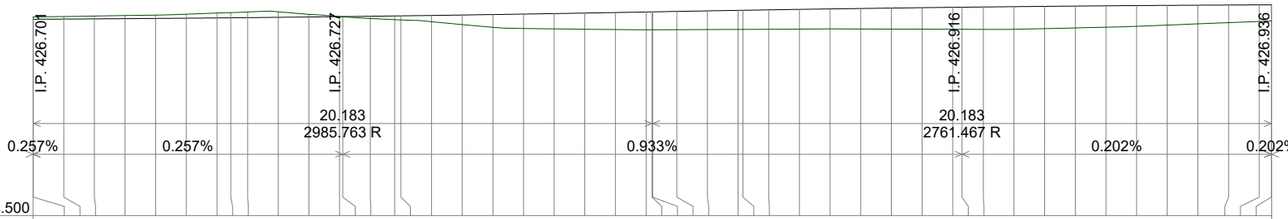
SIMILARLY, IF WORKS ARE OCCURRING ADJACENT TO THE RAIL CORRIDOR AND HAVE THE POTENTIAL TO INTERFERE WITH THE RAILWAY OR ANY RAIL INFRASTRUCTURE, QUEENSLAND RAIL MUST BE CONTACTED TO DETERMINE IF A LICENSE IS REQUIRED.

NOTE:

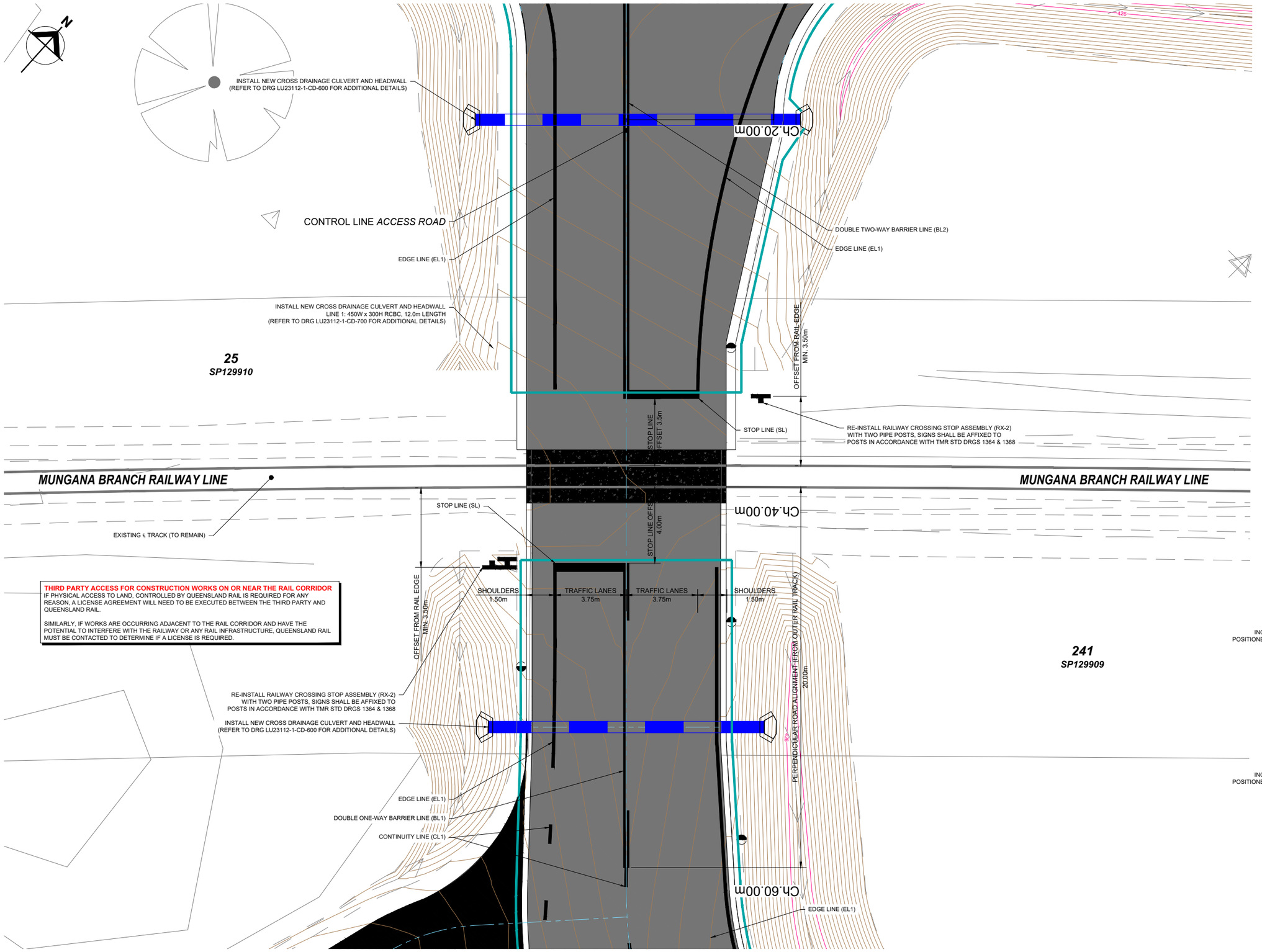
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3. EXISTING CONTOURS HAVE BEEN PROVIDED:
   - MAJOR CONTOURS: 1M INTERVAL
   - MINOR CONTOURS: 0.5M INTERVAL
4. THIS PLAN IS TO BE UTILISED AS A GUIDE ONLY AND DOES NOT REPRESENT THE FINAL MASTERPLANNED LAYOUT.
5. CONFIRMATION OF LOCATION AND DEPTH OF ALL EXISTING SERVICES ARE REQUIRED PRIOR TO COMMENCEMENT OF WORKS.
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LEGEND:

- 444.50 — EXISTING CONTOURS (0.5m INTERVAL)
- 444.00 — DESIGN CONTOURS (0.05m INTERVAL)
- × LEVEL — EXISTING LEVEL
- 2.A — NEW DRAINAGE PIPE, PIT & STRUCTURE NO.
- EX.A — EXISTING DRAINAGE
- NEW SUBSOIL — NEW SUBSOIL DRAINAGE LINE
- EX.W — EXISTING WATER
- EX.E O/H — EXISTING ELECTRICAL OVERHEAD
- EX.E U/G — EXISTING ELECTRICAL UNDERGROUND
- EX.COMM — EXISTING COMMUNICATIONS
- EX.S — EXISTING SEWER
- PROPOSED STAGE BOUNDARY
- TITLE BOUNDARY
- DENOTES PROPOSED NEW SEALED ROAD
- DENOTES PROPOSED RURAL PROPERTY ACCESS PER FNQROC STD DRG S1105G
- DENOTES PROPOSED RAIL LEVEL CROSSING UPGRADE / WIDENING



| HORIZONTAL GEOMETRY AT ROAD CENTRELINE | L=12 R=10 | | |



NOTE:

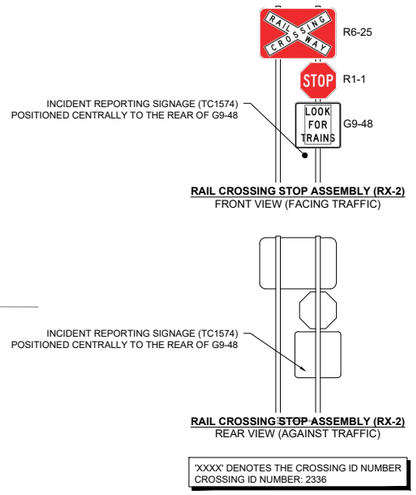
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- 444.00 — DESIGN CONTOURS (0.05m INTERVAL)
- × LEVEL — EXISTING LEVEL
- 2.A — NEW DRAINAGE PIPE, PIT & STRUCTURE NO.
- EX.A — EXISTING DRAINAGE
- NEW SUBSOIL — NEW SUBSOIL DRAINAGE LINE
- EX.W — EXISTING WATER
- EX.E O/H — EXISTING ELECTRICAL OVERHEAD
- EX.E U/G — EXISTING ELECTRICAL UNDERGROUND
- EX.COMM — EXISTING COMMUNICATIONS
- EX.S — EXISTING SEWER
- PROPOSED STAGE BOUNDARY
- TITLE BOUNDARY
- DENOTES PROPOSED NEW SEALED ROAD
- DENOTES PROPOSED RURAL PROPERTY ACCESS PER FNQROC STD DRG S1105G
- DENOTES PROPOSED RAIL LEVEL CROSSING UPGRADE / WIDENING
- NEW TRAFFIC SIGN
- NEW ROAD EDGE GUIDEPOST

LINE MARKING LEGEND:

		WIDTH
EDGE LINE	EL1	150mm
CONTINUITY LINE	CL1	150mm
DOUBLE ONE-WAY BARRIER LINE	BL1	100mm, 100mm (GAP), 100mm
DOUBLE TWO-WAY BARRIER LINE	BL2	100mm, 100mm (GAP), 100mm
STOP LINE	SL	450mm



'XXXX' DENOTES THE CROSSING ID NUMBER
CROSSING ID NUMBER: 2336

Revision	Amendments	Approved	Date
A	100% DESIGN ISSUE - FOR APPROVAL (OPW)	J.L.A	13/05/2025

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CAIRNS: 60-70 MAGAZINE STREET STRATFORD, QLD
CONTACT@LEKKERURBAN.COM
WWW.LEKKERURBAN.COM.AU ABN 32 669 311 479

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

Designed: A.P.B
Checked: J.L.A
Authorised: J.L.A
Date: 13/05/2025

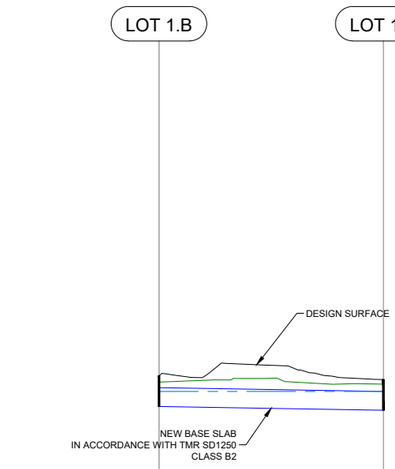
TWO RIVERS COMMUNITY SCHOOL STAGE 1 & 2 - EXTERNAL CIVIL WORKS

RAIL CROSSING DETAIIL PLAN

CHEWKO ROAD & 267 MCIVER ROAD, MAREEBA QLD
ON BEHALF OF TWO RIVERS COMMUNITY SCHOOL

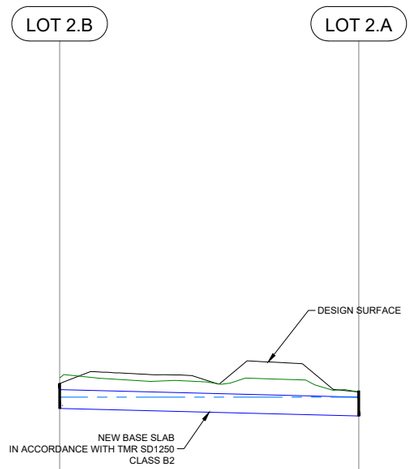
FOR APPROVAL

DRAWING NUMBER: LU23112-1-CD-501
REV: A



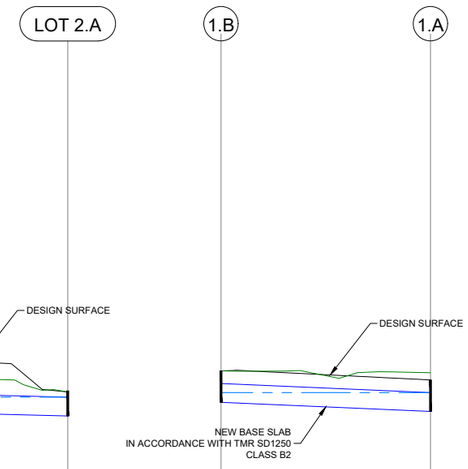
PIPE DETAILS			
SLOPE/GRADE		600x300mm RCBC 1:300.0 0.3%	
DATUM RL 423.1			
HGL (10% AEP)	426.590		426.590
DEPTH TO INVERT	0.500		0.500
INVERT LEVEL	426.344		426.283
DESIGN SURFACE	426.844		426.783
EXISTING SURFACE	426.742		426.707
CHAINAGE	0.000	18.300	18.300

LINE LOT 1
SCALES: H 1:250 V 1:50



		600x300mm RCBC 1:200.0 0.5%	
DATUM RL 424			
	427.283		427.283
	0.500		0.500
	427.098		426.976
	427.598		427.476
	427.602		427.367
	0.000	24.397	24.397

LINE LOT 2
SCALES: H 1:250 V 1:50



		600x300mm RCBC 1:114.6 0.9%	
DATUM RL 423			
	426.356		426.356
	0.500		0.500
	426.198		426.049
	426.698		426.549
	426.711		426.679
	0.000	17.080	17.080

LINE 1
SCALES: H 1:250 V 1:50

		600x300mm RCBC 1:183.5 0.5%	
DATUM RL 422.9			
	426.266		426.266
	0.500		0.500
	426.038		425.959
	426.538		426.459
	426.737		426.699
	0.000	14.500	14.500

LINE 2
SCALES: H 1:250 V 1:50

		600x300mm RCBC 1:114.6 0.9%	
DATUM RL 423			
	426.356		426.356
	0.500		0.500
	426.198		426.049
	426.698		426.549
	426.711		426.679
	0.000	17.080	17.080

LINE 1
SCALES: H 1:250 V 1:50

		600x300mm RCBC 1:183.5 0.5%	
DATUM RL 422.9			
	426.266		426.266
	0.500		0.500
	426.038		425.959
	426.538		426.459
	426.737		426.699
	0.000	14.500	14.500

LINE 2
SCALES: H 1:250 V 1:50

		600x300mm RCBC 1:183.5 0.5%	
DATUM RL 422.9			
	426.266		426.266
	0.500		0.500
	426.038		425.959
	426.538		426.459
	426.737		426.699
	0.000	14.500	14.500

LINE 2
SCALES: H 1:250 V 1:50

		600x450mm RCBC 1:100.0 1.0%	
DATUM RL 421.4			
	424.897		424.897
	0.600		0.600
	424.721		424.438
	425.221		424.938
	425.533		424.984
	0.000	28.280	28.280

LINE 3
SCALES: H 1:250 V 1:50

		600x450mm RCBC 1:100.0 1.0%	
DATUM RL 421.4			
	424.897		424.897
	0.600		0.600
	424.721		424.438
	425.221		424.938
	425.533		424.984
	0.000	28.280	28.280

LINE 3
SCALES: H 1:250 V 1:50

Revision	Amendments	Approved	Date
A	100% DESIGN ISSUE - FOR APPROVAL (OPW)	J.L.A	13/05/2025

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Lekker Urban.
CAIRNS: 60-70 MAGAZINE STREET STRATFORD, QLD
CONTACT@LEKKERURBAN.COM
WWW.LEKKERURBAN.COM.AU ABN 32 669 311 479

SCALE 1:250@A1
H: 0 5 10 15 20 25 m
V: 0 1 2 3 4 5 m

Designed: A.P.B
Checked: J.L.A
Authorised: J.L.A
Date: 13/05/2025

TWO RIVERS COMMUNITY SCHOOL
STAGE 1 & 2 - EXTERNAL CIVIL WORKS
DRAINAGE LONGITUDINAL SECTIONS

CHEWKO ROAD & 267 MCIVER ROAD, MAREEBA QLD
ON BEHALF OF TWO RIVERS COMMUNITY SCHOOL

FOR APPROVAL
DRAWING NUMBER: LU23112-1-CD-600
REV: A

DRAINAGE PIT SCHEDULE

Pit No.	Pit Type	Pit Width	Pit Length	Outlet Diameter	Outlet Invert RL	Inlet Diameter	Inlet Invert RL	Pit Depth	Pit Lid Level	Easting	Northing	Comment
		(mm)	(mm)	(mm)	(m)	(mm)	(m)	(m)	(m)	(m)	(m)	
LOT 1.A	HEADWALL (OUTLET)	600	-			600x300	426.283	0.500	426.783	328691.09	8117243.471	REFER TO FNQROC STANDARD DRAWING "BOX CULVERT HEADWALL, WINGWALLS AND APRON" S1090 FOR FURTHER DETAILS - APRON LENGTH TO BE MIN. 1m FROM INVERT (END OF CULVERT) .PROVIDE 300mm (MIN.) LAYER OF ANGULAR D50 (100-150mm Ø SPALL) ROCK RIP RAP OVER A LAYER OF NON-WOVEN GEOTEXTILE (BIDIM A64) TO BASE OF EXCAVATED AREA LAP UNDER HEADWALL TO PREVENT SCOUR. (4m2 TOTAL AT 2m LENGTH)
LOT 1.B	HEADWALL (INLET)	600	-	600x300	426.344			0.500	426.844	328677.11	8117231.656	REFER TO FNQROC STANDARD DRAWING "BOX CULVERT HEADWALL, WINGWALLS AND APRON" S1090 FOR FURTHER DETAILS - APRON LENGTH TO BE MIN. 1m FROM INVERT (END OF CULVERT) .PROVIDE 300mm (MIN.) LAYER OF ANGULAR D50 (100-150mm Ø SPALL) ROCK RIP RAP OVER A LAYER OF NON-WOVEN GEOTEXTILE (BIDIM A64) TO BASE OF EXCAVATED AREA LAP UNDER HEADWALL TO PREVENT SCOUR. (4m2 TOTAL AT 2m LENGTH)
LOT 2.A	HEADWALL (OUTLET)	600	-			600x300	426.976	0.500	427.503	328603.49	8117154.506	REFER TO FNQROC STANDARD DRAWING "BOX CULVERT HEADWALL, WINGWALLS AND APRON" S1090 FOR FURTHER DETAILS - APRON LENGTH TO BE MIN. 1m FROM INVERT (END OF CULVERT) .PROVIDE 300mm (MIN.) LAYER OF ANGULAR D50 (100-150mm Ø SPALL) ROCK RIP RAP OVER A LAYER OF NON-WOVEN GEOTEXTILE (BIDIM A64) TO BASE OF EXCAVATED AREA LAP UNDER HEADWALL TO PREVENT SCOUR. (4m2 TOTAL AT 2m LENGTH)
LOT 2.B	HEADWALL (INLET)	600	-	600x300	427.098			0.500	427.598	328589.21	8117134.725	REFER TO FNQROC STANDARD DRAWING "BOX CULVERT HEADWALL, WINGWALLS AND APRON" S1090 FOR FURTHER DETAILS - APRON LENGTH TO BE MIN. 1m FROM INVERT (END OF CULVERT) .PROVIDE 300mm (MIN.) LAYER OF ANGULAR D50 (100-150mm Ø SPALL) ROCK RIP RAP OVER A LAYER OF NON-WOVEN GEOTEXTILE (BIDIM A64) TO BASE OF EXCAVATED AREA LAP UNDER HEADWALL TO PREVENT SCOUR. (4m2 TOTAL AT 2m LENGTH)
1.A	HEADWALL (OUTLET)	600	-			600x300	426.049	0.500	426.563	328713.64	8117221.697	REFER TO FNQROC STANDARD DRAWING "BOX CULVERT HEADWALL, WINGWALLS AND APRON" S1090 FOR FURTHER DETAILS - APRON LENGTH TO BE MIN. 1m FROM INVERT (END OF CULVERT) .PROVIDE 300mm (MIN.) LAYER OF ANGULAR D50 (100-150mm Ø SPALL) ROCK RIP RAP OVER A LAYER OF NON-WOVEN GEOTEXTILE (BIDIM A64) TO BASE OF EXCAVATED AREA LAP UNDER HEADWALL TO PREVENT SCOUR. (4m2 TOTAL AT 2m LENGTH)
1.B	HEADWALL (INLET)	600	-	600x300	426.198			0.500	426.698	328701.48	8117209.702	REFER TO FNQROC STANDARD DRAWING "BOX CULVERT HEADWALL, WINGWALLS AND APRON" S1090 FOR FURTHER DETAILS - APRON LENGTH TO BE MIN. 1m FROM INVERT (END OF CULVERT) .PROVIDE 300mm (MIN.) LAYER OF ANGULAR D50 (100-150mm Ø SPALL) ROCK RIP RAP OVER A LAYER OF NON-WOVEN GEOTEXTILE (BIDIM A64) TO BASE OF EXCAVATED AREA LAP UNDER HEADWALL TO PREVENT SCOUR. (4m2 TOTAL AT 2m LENGTH)
2.A	HEADWALL (OUTLET)	600	-			600x300	425.959	0.500	426.459	328734.70	8117197.649	REFER TO FNQROC STANDARD DRAWING "BOX CULVERT HEADWALL, WINGWALLS AND APRON" S1090 FOR FURTHER DETAILS - APRON LENGTH TO BE MIN. 1m FROM INVERT (END OF CULVERT) .PROVIDE 300mm (MIN.) LAYER OF ANGULAR D50 (100-150mm Ø SPALL) ROCK RIP RAP OVER A LAYER OF NON-WOVEN GEOTEXTILE (BIDIM A64) TO BASE OF EXCAVATED AREA LAP UNDER HEADWALL TO PREVENT SCOUR. (4m2 TOTAL AT 2m LENGTH)
2.B	HEADWALL (INLET)	600	-	600x300	426.038			0.500	426.538	328724.37	8117187.466	REFER TO FNQROC STANDARD DRAWING "BOX CULVERT HEADWALL, WINGWALLS AND APRON" S1090 FOR FURTHER DETAILS - APRON LENGTH TO BE MIN. 1m FROM INVERT (END OF CULVERT) .PROVIDE 300mm (MIN.) LAYER OF ANGULAR D50 (100-150mm Ø SPALL) ROCK RIP RAP OVER A LAYER OF NON-WOVEN GEOTEXTILE (BIDIM A64) TO BASE OF EXCAVATED AREA LAP UNDER HEADWALL TO PREVENT SCOUR. (4m2 TOTAL AT 2m LENGTH)
3.A	HEADWALL (OUTLET)	600	-			600x450	424.438	0.600	424.938	328878.40	8117271.674	REFER TO FNQROC STANDARD DRAWING "BOX CULVERT HEADWALL, WINGWALLS AND APRON" S1090 FOR FURTHER DETAILS - APRON LENGTH TO BE MIN. 1m FROM INVERT (END OF CULVERT) .PROVIDE 300mm (MIN.) LAYER OF ANGULAR D50 (100-150mm Ø SPALL) ROCK RIP RAP OVER A LAYER OF NON-WOVEN GEOTEXTILE (BIDIM A64) TO BASE OF EXCAVATED AREA LAP UNDER HEADWALL TO PREVENT SCOUR. (4m2 TOTAL AT 2m LENGTH)
3.B	HEADWALL (INLET)	600	-	600x450	424.721			0.600	425.321	328857.86	8117252.229	REFER TO FNQROC STANDARD DRAWING "BOX CULVERT HEADWALL, WINGWALLS AND APRON" S1090 FOR FURTHER DETAILS - APRON LENGTH TO BE MIN. 1m FROM INVERT (END OF CULVERT) .PROVIDE 300mm (MIN.) LAYER OF ANGULAR D50 (100-150mm Ø SPALL) ROCK RIP RAP OVER A LAYER OF NON-WOVEN GEOTEXTILE (BIDIM A64) TO BASE OF EXCAVATED AREA LAP UNDER HEADWALL TO PREVENT SCOUR. (4m2 TOTAL AT 2m LENGTH)

Revision	Amendments	Approved	Date
A	100% DESIGN ISSUE - FOR APPROVAL (OPW)	J.L.A	13/05/2025

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Lekker Urban.
CAIRNS: 60-70 MAGAZINE STREET STRATFORD, QLD
CONTACT@LEKKERURBAN.COM
WWW.LEKKERURBAN.COM.AU ABN 32 669 311 479

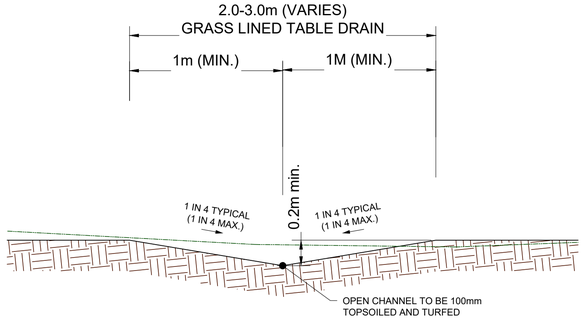
DRAWING NOT TO SCALE

Designed: A.P.B | Checked: J.L.A
Authorised: J.L.A | Date: 13/05/2025

TWO RIVERS COMMUNITY SCHOOL
STAGE 1 & 2 - EXTERNAL CIVIL WORKS
DRAINAGE PIT SCHEDULES

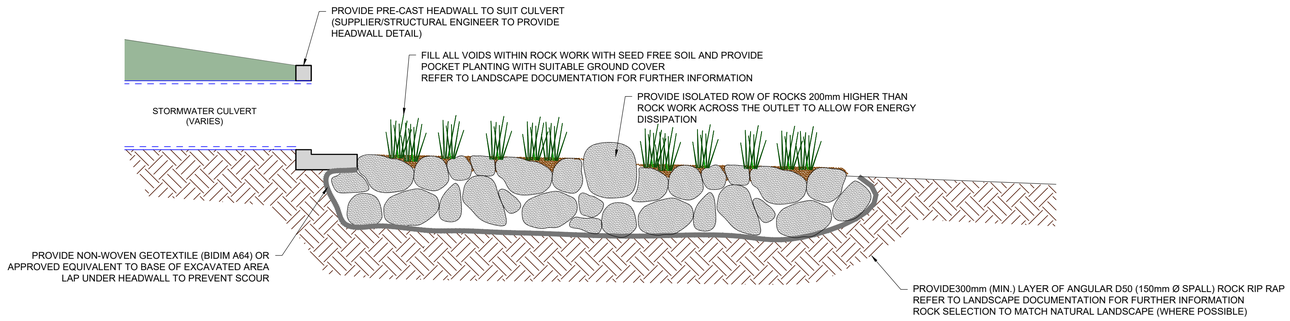
CHEWKO ROAD & 267 MCIVER ROAD, MAREEBA QLD
ON BEHALF OF TWO RIVERS COMMUNITY SCHOOL

FOR APPROVAL
DRAWING NUMBER: LU23112-1-CD-601 REV: A



TYPICAL SECTION - NEW TABLE DRAIN

NOT TO SCALE



TYPICAL CULVERT HEADWALL - INLET/OUTLET DETAIL

NOT TO SCALE

NOTES

1. REFER TO DRAWINGS LU23112-1-CD-101 FOR CONSTRUCTION NOTES.
2. REFER TO PAVEMENT INVESTIGATION & DESIGN, GT25-011-001R , DATED 15 APRIL 2025, PROVIDED BY ETS GEOTECHNICAL FOR ALL LABORATORY TEST RESULTS AND FURTHER INFORMATION.
3. SAMPLING AND TESTING OF EXISTING SUBGRADE AS REQUIRED BY APPENDIX B OF TECHNICAL SPECIFICATION MRTS04 GENERAL EARTHWORKS.
4. REFER TO FNQROC - STANDARD DRAWING - S1000 - CONCRETE KERB & CHANNEL PROFILES, FOR KERB DIMENSIONS, ADDITIONAL NOTES & DETAILS.
5. REFER TO FNQROC - STANDARD DRAWING - S1095 - SUBSURFACE DRAINAGE FLUSHING POINT OUTLET, FOR SUB SOIL DIMENSIONS, ADDITIONAL NOTES & DETAIL

SUBGRADE PREPARATION

DUE TO POTENTIAL GROUNDWATER ISSUES, WHERE THE SUBGRADE IS EXPECTED TO ACHIEVE A CBR OF LESS THAN 5% (BH2, BH5 & BH6), THE FOLLOWING TWO (2) OPTIONS ARE RECOMMENDED:

1. GROUND IMPROVEMENT WORKS, CONSISTING OF CEMENT TREATING THE PAVEMENT BASE LAYER (1% CEMENT CONTENT) AND INCLUSION OF SUBSOIL DRAINAGE ; OR
2. A 0.4m LAYER OF SHOT ROCK WRAPPED IN A SUITABLE GEOTEXTILE MEMBRANE.

GENERAL EARTHWORKS RECOMMENDATION

WHERE REQUIRED, SITE PREPARATION AND EARTHWORKS PROCEDURES SHOULD INVOLVE THE FOLLOWING:

- STRIP & REMOVE TOPSOIL, SOIL CONTAINING SIGNIFICANT AMOUNTS OF ORGANIC MATERIALS, 'UNCONTROLLED' FILLING AND ALSO ANY DELETERIOUS SOFT, WET OF HIGHLY COMPRESSIBLE MATERIALS IF ENCOUNTERED AT FOOTING OR PAVEMENT FORMATION LEVELS;
- UNDERTAKE 'PROOF' ROLLING OF THE EXPOSED SURFACE LEVELS ACROSS THE SITE WITH A MINIMUM 12 TONNE STATIC WEIGHT SMOOTH DRUM OR SIMILAR. ANY SOFT OR LOOSE MATERIAL THAT CANNOT BE IMPROVED BY COMPACTION SHOULD BE REMOVED AND REPLACED WITH APPROVED SELECT FILL (LOADING AROUND THE CREST SHOULD BE NOT TAKE PLACE);
- ANY EXPOSED NATURAL FOUNDATION SOILS SHOULD BE COMPACTED TO A MINIMUM DRY DENSITY RATIO OF 98% USING STANDARD COMPACTION AND MOISTURE TREATED TO A MOISTURE RANGE OF -2% (DRY) TO +2% (WET) OF OPTIMUM MOISTURE CONTENT (OMC);
- WHERE THE FOUNDATION LEVELS ARE TO BE RAISED OR SUBGRADE MATERIALS ARE TO BE EXCAVATED (I.E. REMOVE & REPLACE), THE FOUNDATION SOILS SHOULD BE PREPARED AS DETAILED BELOW:
  - APPROVED FILLING SHOULD BE UNDERTAKEN BY PLACING FILL IN UNIFORM HORIZONTAL LAYERS NOT EXCEEDING 200mm LOOSE THICKNESS AND COMPACTED TO ACHIEVE A DRY DENSITY RATIO OF AT LEAST 98% USING STANDARD COMPACTION FOR COHESIVE SOIL OR TO AT LEAST 75% DENSITY INDEX FOR SAND. THE MOISTURE CONTENT OF ANY COHESIVE SOIL FILL MATERIALS SHOULD BE MAINTAINED AT -2% AND +2% OF OMC, DURING & AFTER COMPACTION;
  - FILLING SHOULD BE PLACED AT LEAST TWO (2) METRES BEYOND THE DESIGN PROFILE AND THEN TRIMMED TO THE DESIGN PROFILE;
  - WHERE UNSUITABLE MATERIALS ARE TO BE EXCAVATED IT IS RECOMMENDED THAT ALL EXCAVATED IN-SITU SOILS ARE REMOVED FROM THE SITE AND APPROVED SELECT FILL IS PLACED AND COMPACTED IN THE EXCAVATION. THE EXCAVATION SHOULD BE BENCH TO 'KEY IN' THE SELECT FILL MATERIAL AND OPTIMISE COMPACTION. THE BENCHES SHOULD SLOPE BACK AT 1V:5H AND BE AT LEAST 0.5m WIDE (REFER TO FIGURE 1 FROM ETS GEOTECHNICAL REPORT FOR DETAIL);
  - APPROVED FILLING (GENERAL FILL) SHOULD BE A WELL GRADED MATERIAL FREE FROM ORGANIC MATERIAL, HAVE A PLASTICITY INDEX OF LESS THAN OR EQUAL TO 15%, SHOULD NOT CONTAIN ANY INDIVIDUAL PARTICLES GREATER THAN 75mm IN SIZE;
  - IN ORDER FOR FILLING TO BE CONSIDERED 'CONTROLLED' ANY EARTHWORKS THAT ARE UNDERTAKEN BENEATH ANY OF THE PROPOSED STRUCTURES OR PAVEMENTS ARE TO BE PERFORMED UNDER FULLTIME 'LEVEL 1' INSPECTION AND TESTING AS DESCRIBED AND IN ACCORDANCE WITH AS3798.

IT SHOULD BE NOTED THAT THERE MAY BE TRAFFICABILITY ISSUES FOR RUBBER WHEELED EARTHMOVING EQUIPMENT IF CONSTRUCTION ACTIVITES ARE UNDERTAKEN DURING, OR SOON AFTER WET WEATHER, DUE TO THE MOISTENING AND SOFTENING OF THE CLAY SOILS. IN ORDER TO MINIMISE THESE ISSUES, THE USE OF TRACKED EQUIPMENT IS SUGGESTED. IN ADDITION TO THIS, ACHIEVING A SATISFACTORY 'PROOF' ROLL UNDER WET WEATHER CONDITIONS MAY ALSO BE DIFFICULT. SHOULD THIS SITUATION ARISE, ADDITIONAL GEOTECHNICAL ADVICE SHOULD BE SOUGHT.

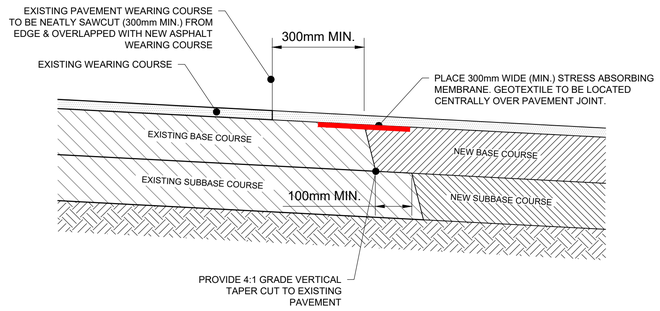
PARAMETER	DESIGN VALUES
	ACCESS ROAD
AADT	< 250
STREET TYPE (FNQROC)	ACCESS
% CV	5%
% ESA/CV	1.0
MINIMUM ESA's	1.0×10^5
DESIGN SUBGRADE CBR	5%

PAVEMENT WIDENING WHERE FULL DEPTH PROFILE IS REQUIRED

WHERE PAVEMENT WIDENING IS REQUIRED TO FULL DEPTH PAVEMENT, THE WIDENING MUST BE CONSTRUCTED TO THE FULL WIDTH USING THE SAME LAYERING AS THE EXISTING PAVEMENT AND NEW WORKS. IT SHOULD EITHER DAYLIGHT INTO THE TABLE DRAIN OR INCLUDE SUBSOIL DRAINS TO PREVENT IMPEDED DRAINAGE. ADDITIONALLY, THE SUBGRADE OF THE WIDENED PAVEMENT AREAS MUST BE VERIFIED TO MEET THE DESIGN REQUIREMENTS FOR THE RESPECTIVE SUBGRADE ZONES, AS THE INVESTIGATION WAS LIMITED TO THE EXISTING PAVEMENT SURFACE.

WE ANTICIPATE THAT THE WIDENED AREAS WILL BE EXCAVATED/BOXED OUT TO A SUFFICIENT DEPTH, WITH THE IMPORTED SUBBASE LAYER INSTALLED TO THE TOP LEVEL WITH THE EXISTING GRAVEL LAYER, BEFORE PLACING THE IMPORTED BASE COURSE AND ASPHALT LAYERS ACROSS THE ENTIRE AREA.

FURTHERMORE, THE WIDTH OF ANY PAVEMENT WIDENING SHOULD ALLOW SUFFICIENT ACCESS FOR MECHANICAL COMPACTION EQUIPMENT TO ENSURE PROPER COMPACTION OF MATERIALS, IN LINE WITH REQUIRED STANDARDS.

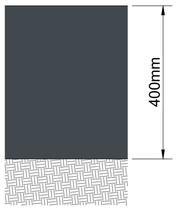


TYPICAL PAVEMENT JOINT DETAIL

NOT TO SCALE

PAVEMENT PROFILE - CONCRETE RAIL CROSSING

QLD RAIL REQUIREMENT:
RIGID PAVEMENT - 400mm
(REFER TO QLD DTMR STANDARD DRAWING 881 & ETS
GEOTECHNICAL REPORT FOR FORMAL PAVEMENT DESIGN)



RIGID PAVEMENT:
400mm N40/20 CONCRETE
F82 TOP & BTM

PAVEMENT PROFILE - CHEWKO ROAD EXISTING PAVEMENT (MILL & FILL)



WEARING COURSE:
50mm ASPHALT (DG10)
BITUMEN EMULSION PRIME

BASE COURSE:
TYPE 2.2 PER MRTS05
120mm THICK THROUGHOUT
(MIN. CBR 60%)

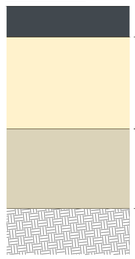
NOTE: PROFILE 50-100mm OF EXISTING SURFACE MATERIAL (MIXTURE OF SEAL & GRAVEL WEARING COURSE).

SUB-BASE COURSE:
EXISTING GRAVEL MATERIAL (150 MPA MODULUS)
300mm THICK MIN. THROUGHOUT
(TO BE CONFIRMED WITH GEOTECHNICAL ENGINEER)

DESIGN SUBGRADE:
CBR 5%

SUBGRADE TREATMENT WHERE CBR < 5%
(PROVISIONAL) FOR THE FOLLOWING OPTIONS:
1. GROUND IMPROVEMENT WORKS, CONSISTING OF THE EXCAVATION OF THE EXISTING INSITU SUBGRADE MATERIAL, TO BE PLACED & RECOMPACTED - FOR RE-USE.
2. EXISTING A 0.4m LAYER OF SHOT ROCK WRAPPED IN A SUITABLE GEOTEXTILE MEMBRANE.

PAVEMENT PROFILE - CHEWKO ROAD FULL DEPTH PAVEMENT (WIDENING)



WEARING COURSE:
50mm ASPHALT (DG10)
BITUMEN EMULSION PRIME

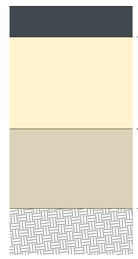
BASE COURSE:
TYPE 2.2 PER MRTS05
150mm THICK THROUGHOUT
(MIN. CBR 60%)

SUB-BASE COURSE:
CEMENT TREAT THE PAVEMENT BASE
LAYER (1% CEMENT CONTENT)
TYPE 2.3 PER MRTS05
150mm THICK THROUGHOUT
(MIN. CBR 45%)

DESIGN SUBGRADE:
CBR 5%

SUBGRADE TREATMENT WHERE CBR < 5%
(PROVISIONAL) FOR THE FOLLOWING OPTIONS:
1. GROUND IMPROVEMENT WORKS, CONSISTING OF THE EXCAVATION OF THE EXISTING INSITU SUBGRADE MATERIAL, TO BE PLACED & RECOMPACTED - FOR RE-USE.
2. EXISTING A 0.4m LAYER OF SHOT ROCK WRAPPED IN A SUITABLE GEOTEXTILE MEMBRANE.

PAVEMENT PROFILE - RURAL ACCESS DRIVEWAYS



WEARING COURSE:
30mm ASPHALT (DG10)
BITUMEN EMULSION PRIME

BASE COURSE:
TYPE 2.2 PER MRTS05
150mm THICK THROUGHOUT
(MIN. CBR 60%)

SUB-BASE COURSE:
CEMENT TREAT THE PAVEMENT BASE
LAYER (1% CEMENT CONTENT)
TYPE 2.3 PER MRTS05
150mm THICK THROUGHOUT
(MIN. CBR 45%)

DESIGN SUBGRADE:
CBR 5%

SUBGRADE TREATMENT WHERE CBR < 5%
(PROVISIONAL) FOR THE FOLLOWING OPTIONS:
1. GROUND IMPROVEMENT WORKS, CONSISTING OF THE EXCAVATION OF THE EXISTING INSITU SUBGRADE MATERIAL, TO BE PLACED & RECOMPACTED - FOR RE-USE.
2. EXISTING A 0.4m LAYER OF SHOT ROCK WRAPPED IN A SUITABLE GEOTEXTILE MEMBRANE.

PAVEMENT PROFILE - NEW ACCESS ROAD



WEARING COURSE:
50mm ASPHALT (DG10)
BITUMEN EMULSION PRIME

BASE COURSE:
TYPE 2.2 PER MRTS05
150mm THICK THROUGHOUT
(MIN. CBR 60%)

SUB-BASE COURSE:
CEMENT TREAT THE PAVEMENT BASE
LAYER (1% CEMENT CONTENT)
TYPE 2.3 PER MRTS05
150mm THICK THROUGHOUT
(MIN. CBR 45%)

DESIGN SUBGRADE:
CBR 5%

SUBGRADE TREATMENT WHERE CBR < 5%
(PROVISIONAL) FOR THE FOLLOWING OPTIONS:
1. GROUND IMPROVEMENT WORKS, CONSISTING OF THE EXCAVATION OF THE EXISTING INSITU SUBGRADE MATERIAL, TO BE PLACED & RECOMPACTED - FOR RE-USE.
2. EXISTING A 0.4m LAYER OF SHOT ROCK WRAPPED IN A SUITABLE GEOTEXTILE MEMBRANE.

Revision	Amendments	Approved	Date
A	100% DESIGN ISSUE - FOR APPROVAL (OPW)	J.L.A	13/05/2025

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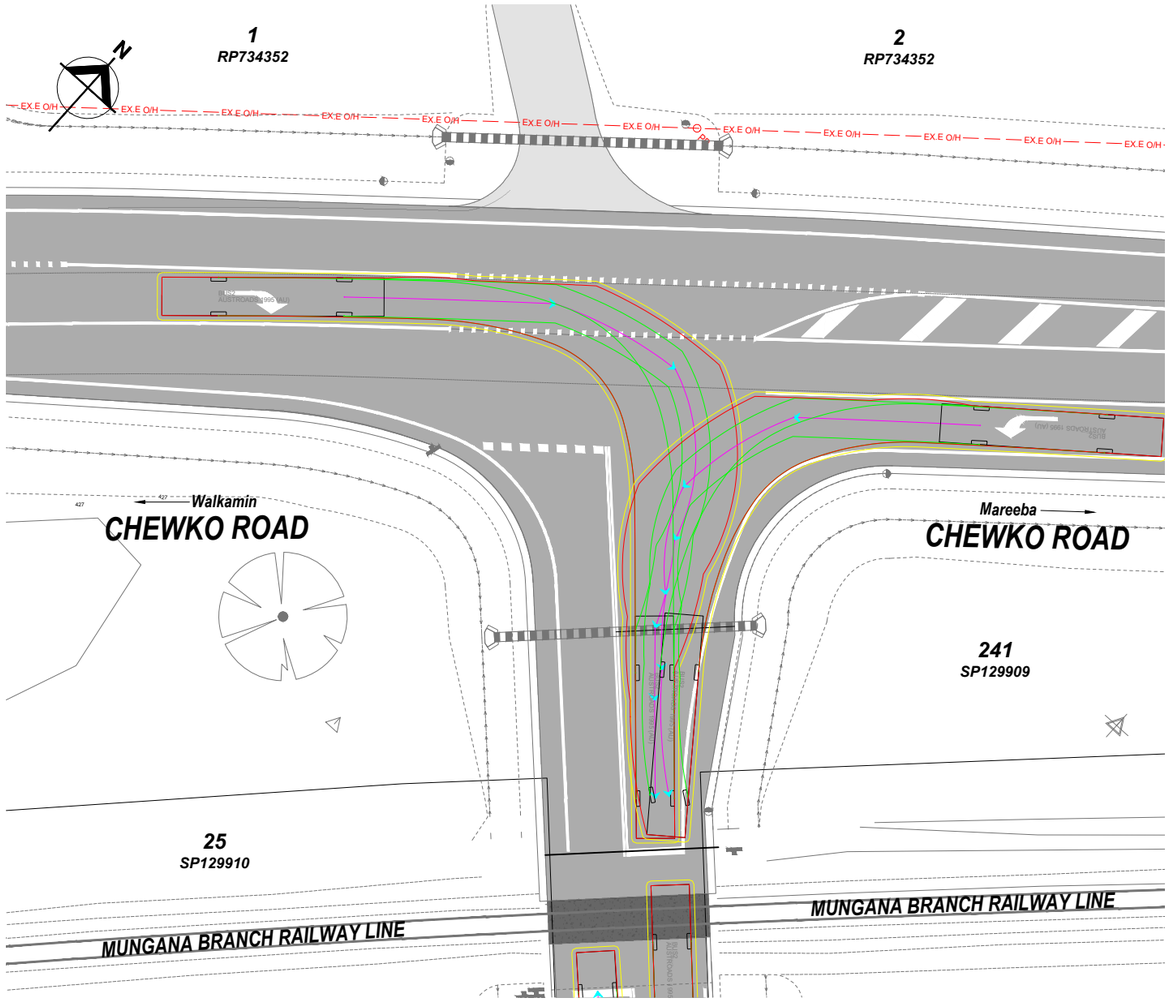
Designed: A.P.B | Checked: J.L.A
Authorised: J.L.A | Date: 13/05/2025

TWO RIVERS COMMUNITY SCHOOL
STAGE 1 & 2 - EXTERNAL CIVIL WORKS
TYPICAL CONSTRUCTION DETAILS

CHEWKO ROAD & 267 MCIVER ROAD, MAREEBA QLD
ON BEHALF OF TWO RIVERS COMMUNITY SCHOOL

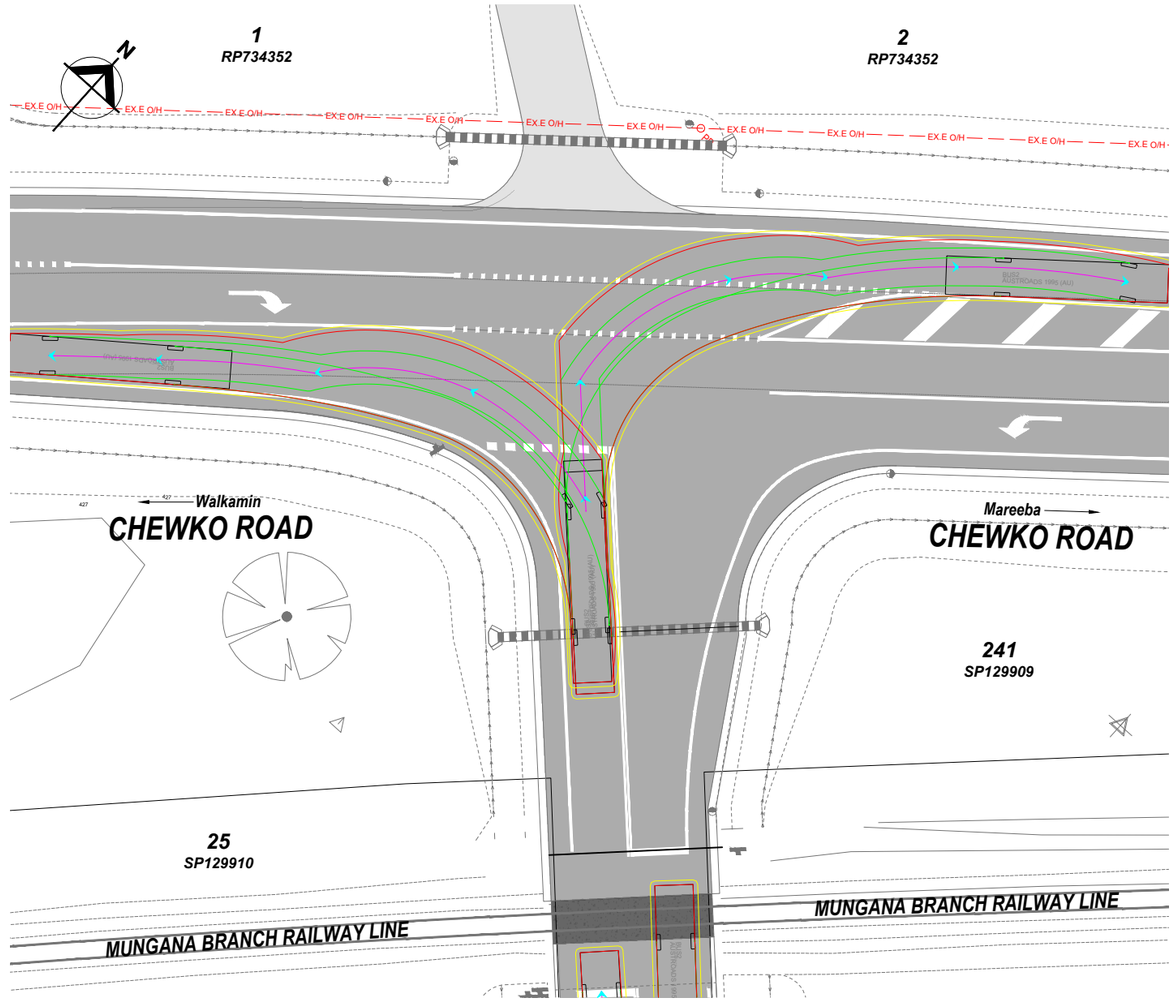
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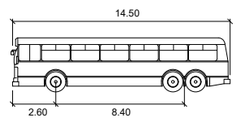
INTERSECTION TURNPATHS - CHEWKO & NEW ACCESS ROAD: DESIGN VEHICLE (INBOUND)

SCALE 1:200



INTERSECTION TURNPATHS - CHEWKO & NEW ACCESS ROAD: DESIGN VEHICLE (OUTBOUND)

SCALE 1:200



LONG RIGID BUS

	Meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0 s
Steering Angle	: 46.4 deg

300mm VEHICLE CLEARANCE

VEHICLE OVERHANG

VEHICLE WHEEL PATH

DESIGN VEHICLE - 14.5m LONG RIGID BUS

N.T.S.

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SCALE 1:200@A1

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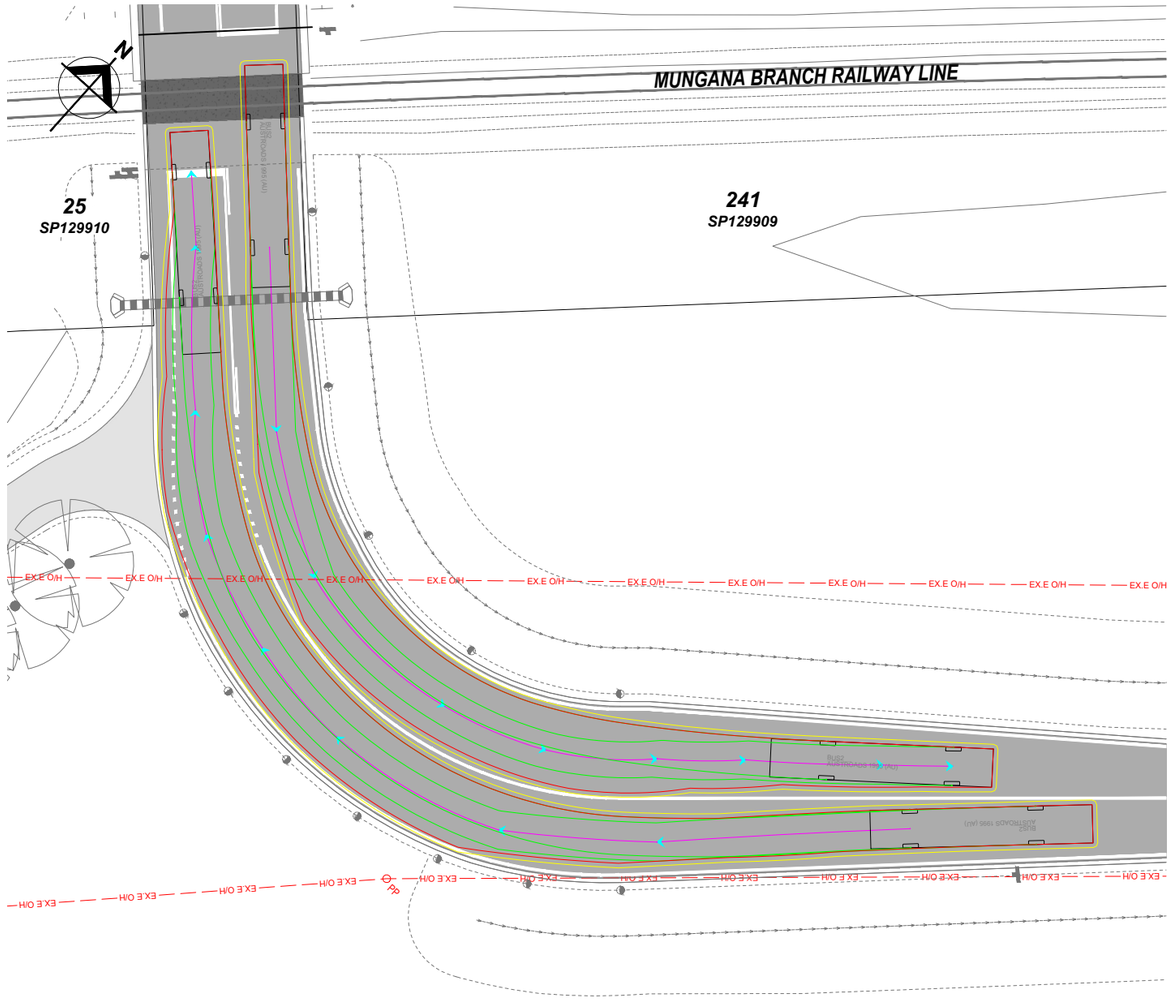
Designed: A.P.B
Checked: J.L.A
Authorised: J.L.A
Date: 13/05/2025

TWO RIVERS COMMUNITY SCHOOL
STAGE 1 & 2 - EXTERNAL CIVIL WORKS
VEHICLE TURN MOVEMENT LAYOUT PLAN - SHEET 1 OF 2

CHEWKO ROAD & 267 MCIVER ROAD, MAREEBA QLD
ON BEHALF OF TWO RIVERS COMMUNITY SCHOOL

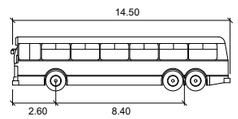
FOR APPROVAL

DRAWING NUMBER: LU23112-1-CD-800 REV: A



INTERSECTION TURNPATHS - NEW ACCESS ROAD: DESIGN VEHICLE (INBOUND)

SCALE 1:200



LONG RIGID BUS

	Meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0 s
Steering Angle	: 46.4 deg

300mm VEHICLE CLEARANCE

VEHICLE OVERHANG

VEHICLE WHEEL PATH

DESIGN VEHICLE - 14.5m LONG RIGID BUS

N.T.S.

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SCALE 1:200@A1

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Authorised: J.L.A
Date: 13/05/2025

TWO RIVERS COMMUNITY SCHOOL
STAGE 1 & 2 - EXTERNAL CIVIL WORKS
VEHICLE TURN MOVEMENT LAYOUT PLAN - SHEET 2 OF 2

CHEWKO ROAD & 267 MCIVER ROAD, MAREEBA QLD
ON BEHALF OF TWO RIVERS COMMUNITY SCHOOL

FOR APPROVAL

DRAWING NUMBER: LU23112-1-CD-801
REV: A

Appendix A2 – Operational Works Drawings: Internal Works Package

ON BEHALF OF TWO RIVERS COMMUNITY SCHOOL

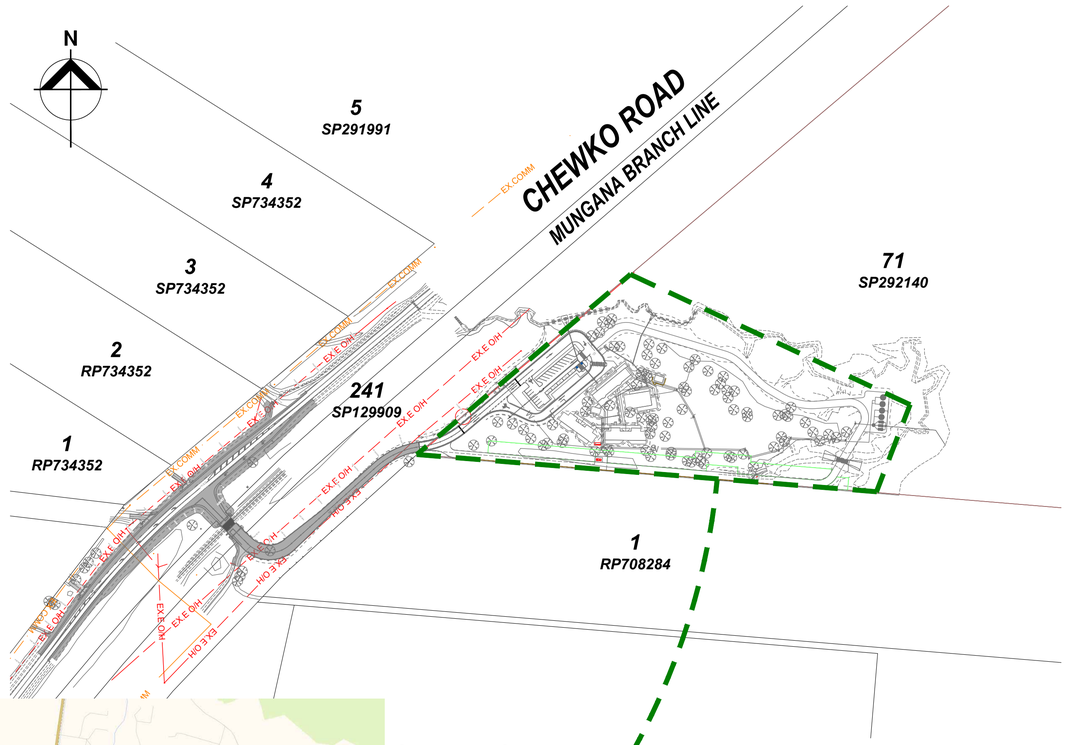
STAGE 1 & 2 - INTERNAL CIVIL WORKS (INTERNAL SITE WORKS)

CHEWKO ROAD & 267 MCIVER ROAD, MAREEBA QLD

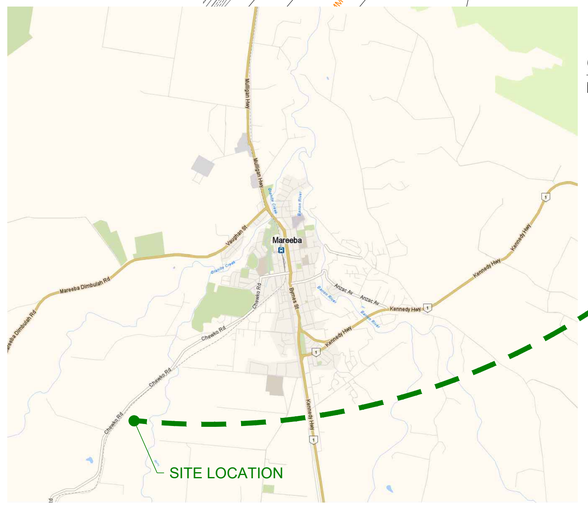
TWO RIVERS COMMUNITY SCHOOL

CIVIL ENGINEERING DRAWING LIST

DRAWING NUMBER	SHEET TITLE	REVISION
CD-100	COVER SHEET, LOCALITY & DRAWING SCHEDULES	A
CD-101	CONSTRUCTION NOTES	A
CD-102	CONCEPT EROSION & SEDIMENT CONTROL NOTES	A
CD-200	OVERALL GENERAL ARRANGEMENT LAYOUT PLAN	A
CD-201	CONCEPT EROSION & SEDIMENT CONTROL LAYOUT PLAN	A
CD-202	CLEARING & DEMOLITION LAYOUT PLAN	A
CD-203	BULK EARTHWORKS LAYOUT PLAN	A
CD-204	CIVIL SITE WORKS LAYOUT PLAN	A
CD-300	ROAD LONGITUDINAL SECTIONS	A
CD-301	ROAD LONGITUDINAL SECTIONS	A
CD-302	ROAD LONGITUDINAL SECTIONS	A
CD-400	TYPICAL ROAD SECTIONS	A
CD-401	ROAD CROSS SECTIONS	A
CD-402	ROAD CROSS SECTIONS	A
CD-403	ROAD CROSS SECTIONS	A
CD-404	ROAD CROSS SECTIONS	A
CD-405	ROAD CROSS SECTIONS	A
CD-406	ROAD CROSS SECTIONS	A
CD-407	ROAD CROSS SECTIONS	A
CD-408	ROAD CROSS SECTIONS	A
CD-409	ROAD CROSS SECTIONS	A
CD-410	ROAD CROSS SECTIONS	A
CD-500	DETAIL LAYOUT PLAN	A
CD-501	DETAIL LAYOUT PLAN	A
CD-502	DETAIL LAYOUT PLAN	A
CD-503	DETAIL LAYOUT PLAN	A
CD-600	STORMWATER CATCHMENT LAYOUT PLAN	A
CD-601	DRAINAGE LONGITUDINAL SECTIONS	A
CD-602	DRAINAGE LONGITUDINAL SECTIONS	A
CD-603	DRAINAGE PIT SCHEDULES & SETOUT	A
CD-604	DETAIL LAYOUT PLAN & SECTIONS	A
CD-605	DETAIL LAYOUT PLAN & SECTIONS	A
CD-700	TYPICAL CONSTRUCTION DETAILS	A
CD-701	TYPICAL CONSTRUCTION DETAILS	A



OVERALL SITE PLAN
NOT TO SCALE



LOCALITY PLAN

RISK / ISSUES MANAGEMENT

PROJECT DETAILS:

Risk C, H, M, L	RISKS / DESIGN ISSUES / DISCUSSIONS	RECOMMENDATION
H	EXISTING DAM IS PRESENT ON ADJOINING PROPERTY (LOT 1 ON RP708284) TO THE SOUTH OF THE SUBJECT SITE. INVESTIGATIONS INTO THE INTEGRITY OF THE DAM HAVE NOT BEEN UNDERTAKEN AND DAM FAILURE COULD POSE AN ISSUE TO THE FIRE ACCESS TRAIL PAVEMENT AND PROPOSED CULVERT CROSSING, ALONG WITH POTENTIAL FUTURE ROAD USERS (INCLUDING PEDESTRIANS) AS PART OF FUTURE SITE EXPANSION.	FURTHER INVESTIGATIONS ARE REQUIRED FOR THE FUTURE STAGES (STAGES 3 TO 6) TO ENSURE THE FIRE ACCESS TRAIL CULVERT CROSSING IS SUITABLE IN CONJUNCTION WITH INCREASE PEDESTRIAN USE WITH THE FUTURE EXPANSION OF THE SPORTING FIELDS AND AS A FUTURE POINT OF CONNECTIVITY.

Risk Rating - C = Critical, H = High, M = Medium, L = Low

Revision	Amendments	Approved	Date
A	100% DESIGN ISSUE - FOR APPROVAL	J.L.A	29/04/2025

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Designed: A.P.B
Checked: J.L.A
Authorised: J.L.A
Date: 29/04/2025

TWO RIVERS COMMUNITY SCHOOL
STAGE 1 & 2 - INTERNAL CIVIL WORKS
COVER SHEET, LOCALITY & DRAWING SCHEDULES

CHEWKO ROAD & 267 MCIVER ROAD, MAREEBA QLD
ON BEHALF OF TWO RIVERS COMMUNITY SCHOOL

FOR APPROVAL

DRAWING NUMBER: LU23112-2-CD-100 REV: A

1. GENERAL NOTES:

1.1. ALL WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE APPROVED CONDITIONS OF CONSENT (MAREEBA SHIRE COUNCIL NEGOTIATED DECISION NOTICE - APPLICATION NO. MCU/23/0012).

1.2. ALL DRAWINGS LISTED IN THE DRAWING SCHEDULE ARE TO BE READ AS A WHOLE AND NOT IN ISOLATION.

1.3. ALL DRAWINGS TO BE READ IN CONJUNCTION WITH PROJECT SPECIFICATION AND ALL RELEVANT STANDARD DRAWINGS.

1.4. PRIOR TO COMMENCEMENT OF WORK, FENCE OFF AND CLEARLY DELINEATE ALL AREAS WHERE WORK CANNOT BE CARRIED OUT.

1.5. SHOULD SITE WORKS EXPOSE ANY ARCHAEOLOGICAL OR CULTURAL MATERIAL, ALL WORKS SHALL CEASE AND OFFICIALS OF THE NATIONAL PARKS AND WILDLIFE, ABORIGINAL LAND COUNCIL AND LOCAL AUTHORITY TO BE NOTIFIED.

1.6. PRIOR TO ANY VEGETATION CLEARING, AN INSPECTION TO DETERMINE THE POSSIBLE PRESENCE OF NATIVE WILDLIFE AND PARTICULAR ANIMAL BREEDING PLACES MUST BE UNDERTAKEN BY A SUITABLY QUALIFIED AND EXPERIENCED SPOTTER/CATCHER. THE ASSESSMENT MUST INCLUDE THE IDENTIFICATION OF ANY BREEDING PLACES FOR ANY ENDANGERED/VULNERABLE OR NEAR THREATENED ANIMAL SPECIES, SPECIAL LEAST CONCERN OR COLONIAL BREEDING SPECIES PRIOR TO REMOVAL OF ANY TREE AND/OR VEGETATION AS PER THE REQUIREMENT OF SECT. 332 OF THE NATURE CONSERVATION (WILDLIFE MANAGEMENT) REGULATION 2006. THE DEPARTMENT OF ENVIRONMENT & SERVICE MUST BE CONTACTED WHERE ANY ENDANGERED, VULNERABLE OR NEAR VULNERABLE THREATENED NATIVE WILDLIFE IS FOUND TO BE PRESENT IN ANY AREA SUBJECT TO WORK.

1.7. ALL WORKS ARE TO COMPLY WITH THE REQUIREMENTS OF THE ENVIRONMENTAL PROTECTION ACT, 1994.

1.8. DISPOSAL/MOVEMENT OF MATERIALS IN AREAS OF YELLOW CRAZY ANTS ARE TO COMPLY WITH THE WET TROPICS MANAGEMENT AUTHORITIES (WTMA) D.A.F.F REGULATIONS. REFER TO THE DEPARTMENTS WEBSITE: www.wettropics.gov.au FOR THE CURRENT INFORMATION.

1.9. THE CONTRACTOR SHALL ADHERE TO ALL REQUIREMENTS OF THE DEPARTMENT OF ENVIRONMENT AND SCIENCE.

1.10. WHERE THIS SET OF DRAWINGS REFERENCE IS MADE TO THE ENGINEER, CONSULTING ENGINEER AND OR COUNCIL ENGINEER IT SHALL MEAN THE SUPERINTENDENT UNDER THE CONTRACT FOR THE WORKS.

1.11. WHERE IN THIS SET OF DRAWINGS REFERENCE IS MADE TO THE LOCAL AUTHORITY IT SHALL MEAN MAREEBA SHIRE COUNCIL.

1.12. THE CONTRACTOR IS TO VERIFY LOCATION AND LEVELS OF ALL SERVICES AND TO LIAISE WITH THE LOCAL AND SERVICE AUTHORITIES PRIOR TO COMMENCING CONSTRUCTION.

1.13. THE CONTRACTOR IS TO INFORM THE LOCAL AUTHORITY (INCLUDING QUEENSLAND RAIL) AND THE ENGINEER PRIOR TO COMMENCEMENT OF WORK.

1.14. PRIOR TO COMMENCEMENT OF WORK, A SIGN DETAILING THE PROJECT AND CONTAINING THE NAMES AND CONTACT NAMES OF THE DEVELOPER, CONTRACTOR AND PRINCIPAL CONSULTANT SHALL BE ERECTED AND MAINTAINED IN A PROMINENT POSITION AT THE SITE TO THE SATISFACTION OF THE LOCAL AUTHORITY. THE SIGN SHALL REMAIN IN PLACE UNTIL COMPLETION OF THE CONTRACT.

1.15. INFORMATION ON THESE DRAWINGS SHALL TAKE PRECEDENCE IF THERE IS ANY DISCREPANCY AND OR CONFLICT BETWEEN THESE DRAWINGS AND STANDARD DRAWINGS. ADVISE THE SUPERINTENDENT IMMEDIATELY OF ANY AND ALL DISCREPANCIES.

1.16. LEVELS SHOWN AT ALL INTERFACES ARE TO BE CONFIRMED PRIOR TO COMMENCEMENT OF CONSTRUCTION.

1.17. ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE RELEVANT AND CURRENT FNQROC, IPWEAQ, WSAA, NATSPEC/AUS-SPEC, THE BUILDING CODE OF AUSTRALIA AND WITH THE POLICIES, BY-LAWS, CODES AND SPECIFICATIONS OF THE RELEVANT LOCAL AUTHORITIES.

1.18. WHERE PROVIDED, THE ACCOMPANYING BILLS OF QUANTITIES SHALL ONLY SERVE AS A SUPPLEMENT FOR PRICING PURPOSES. THE CONTRACTOR SHALL ALLOW FOR ALL WORKS REQUIRED TO COMPLY WITH THE DRAWINGS. THIS INCLUDES ANY TEMPORARY, INTERMEDIATE OR PROTECTIVE WORKS REQUIRED TO FACILITATE FINAL CONSTRUCTION.

1.19. ELECTRONIC SETOUT DATA SUPPLIED TO ASSIST WITH CONSTRUCTION SHALL BE UTILISED IN CONJUNCTION WITH THE ENGINEERING DRAWINGS. ANY INCONSISTENCIES BETWEEN THE ELECTRONIC DATA AND ENGINEERING DRAWINGS SHALL BE REFERRED TO THE SUPERINTENDENT IMMEDIATELY FOR RESOLUTION.

2. EXISTING FEATURES

2.1. UNLESS OTHERWISE SPECIFIED ALL EXISTING SERVICES AND STRUCTURES ARE TO BE MAINTAINED IN GOOD ORDER FOR THE DURATION OF THE CONTRACT AND WHERE RELOCATION IS REQUIRED REFER TO SPECIFICATION.

2.2. ALL WORK JOINING TO EXISTING CONSTRUCTION TO BE DONE NEATLY & TO THE SATISFACTION OF THE SUPERINTENDENT.

2.3. ALL BENCHMARKS TO BE LEVEL CHECKED BY CONTRACTOR PRIOR TO COMMENCEMENT OF CONSTRUCTION.

2.4. THE LOCATION OF EXISTING SERVICES AS SHOWN ON THE PLAN IS INDICATIVE ONLY AND THE CONTRACTOR MUST ASCERTAIN THE POSITION OF ALL SERVICES (I.E. WATER, ELECTRICITY, TELECOM, GAS ETC.), BEFORE COMMENCING CONSTRUCTION.

2.5. LEVELS AND GRADIENTS AT JUNCTIONS WITH EXISTING WORKS MAY BE VARIED AS REQUIRED TO ACHIEVE SATISFACTORY CONNECTIONS AND THE COSTS DEEMED INCLUDED IN THE RELEVANT SCHEDULE ITEMS;

2.6. IF THE LOCATION, LINE AND / OR LEVEL OF ANY EXISTING SERVICE IS NOT AS DESCRIBED ON THE DRAWINGS THE SUPERINTENDENT IS TO BE NOTIFIED IMMEDIATELY AND PRIOR TO PROCEEDING WITH FURTHER WORK;

2.7. IT IS THE CONTRACTORS RESPONSIBILITY TO ENSURE REPAIR OR REPLACE EXISTING SERVICES DAMAGED DURING THE WORKS TO THE SATISFACTION OF THE SUPERINTENDENT.

2.8. EXISTING DRIVEWAYS AFFECTED BY WORKS SHALL BE RECONSTRUCTED IN THE SAME MATERIAL AS EXISTING OR AS DIRECTED BY THE LOCAL AUTHORITY.

2.9. CLEARING AND GRUBBING AS DIRECTED, INCLUDING REMOVAL AND DISPOSAL OF CLEARED VEGETATION SHALL BE CARRIED OUT USING METHODS APPROVED.

2.10. SERVICES SHOWN ON THESE PLANS ARE ONLY THOSE EVIDENT AT THE TIME OF SURVEY, FROM AS CONSTRUCTED SURVEY AND FROM 'DIAL BEFORE YOU DIG' SEARCHES. THERE MAY BE ADDITIONAL SERVICES WHICH ARE NOT SHOWN ON THESE DRAWINGS.

2.11. 80mm CONDUITS ARE TO BE SUPPLIED AND INSTALLED UNDER CONCRETE FOOTPATHS FOR THE PURPOSE OF FUTURE WATER SERVICE. CONFIRM WITH THE HYDRAULIC CONSULTANT OF THE FINAL LOCATIONS OF THE CONDUITS PRIOR TO CONSTRUCTION OF ALL PATHS/SLABS.

3. SAFETY IN DESIGN NOTES:

3.1. POTENTIAL SAFETY HAZARDS CONSIDERED BY THE DESIGNERS TO HAVE A HIGHER RISK THAN NORMAL CONSTRUCTION ACTIVITY ARE THAT IDENTIFIED WITH APPROPRIATE NOTES ON THESE DRAWINGS. IT SHOULD BE NOTED THAT DESIGNERS HAVE A LOWER LEVEL OF UNDERSTANDING OF THE RISKS INVOLVED IN CONSTRUCTION COMPARED TO THAT OF A COMPETENT CONTRACTOR. IT IS THEREFORE ESSENTIAL THAT AN ADEQUATE SAFETY PLAN IS PREPARED BY THE CONTRACTOR FOR THE WORKS. THE DESIGNERS MAY NOT BE AWARE OF ALL SAFETY RISKS AND HAZARDS INVOLVED IN THIS PROJECT AND THE ABSENCE OF COMMENT DOES NOT IMPLY THAT THERE ARE NO RISKS OR HAZARDS INVOLVED IN THIS PROJECT.

3.2. THE CONTRACTOR SHALL COMPLETE AND WILL SOLELY BE RESPONSIBLE FOR THE IMPLEMENTATION OF ANY NECESSARY SAFETY PLANS TO COMPLETE THE WORKS.

3.3. THE CONTRACTOR MUST COMPLY WITH ANY GUIDELINE ACTS OR CODE OF PRACTICE AND OTHER RELEVANT DOCUMENTS REGARDING SAFE WORK PRACTICES.

3.4. THE CONTRACTOR WILL HAVE A NOMINATED WH&S OFFICER FOR THE DURATION OF THE CONTRACT. THE WH&S OFFICER WILL BE RESPONSIBLE FOR ALL THE WH&S ISSUES ON THE SITE.

3.5. ALL PERSONS ENTERING THE SITE SHALL COMPLETE A SAFETY INDUCTION WITH THE NOMINATED WH&S OFFICER. THIS IS TO INCLUDE REFERENCE TO SAFETY IN DESIGN ISSUES RELEVANT TO THE PROJECT.

3.6. ALL CONSTRUCTION UNDERTAKEN BY THE CONTRACTOR IS TO COMPLY WITH THE REQUIREMENTS OF THE CURRENT EDITION OF THE WORKPLACE HEALTH AND SAFETY ACT.

3.7. ALL BUILDING SITE MANAGERS MUST TAKE ALL ACTION NECESSARY TO ENSURE BUILDING MATERIAL AND/OR MACHINERY ON CONSTRUCTION SITES ARE SECURED IMMEDIATELY FOLLOWING THE FIRST CYCLONE WATCH AND THAT RELEVANT EMERGENCY TELEPHONE CONTACTS ARE PROVIDED TO COUNCIL OFFICERS, PRIOR TO COMMENCEMENT OF WORKS.

3.8. EXCAVATIONS WORKS CARRIED OUT BY CONTRACTORS AT DEPTH OF 1.5m OR GREATER MUST PROVIDE A "SAFE WORK PLAN" AS PER WORKPLACE HEALTH AND SAFETY LEGISLATION PRIOR TO COMMENCING ANY WORK.

4. GENERAL SERVICES:

4.1. ELECTRICAL AND COMMUNICATIONS CONDUIT LOCATIONS ARE SHOWN FOR INFORMATION ONLY. FOR EXACT LOCATIONS REFER TO ELECTRICAL CONSULTANTS LAYOUT PLANS. FOR WATER CONDUIT LOCATIONS REFER HYDRAULIC CONSULTANT DRAWINGS.

4.2. ALL CONDUITS ARE TO HAVE BRASS CONDUIT MARKERS INSTALLED IN THE KERB AND CHANNEL FOR THE APPROPRIATE SERVICE.

4.3. SERVICE AUTHORITY INFRASTRUCTURE ADJUSTMENTS ARE TO BE PERFORMED BY AUTHORIZED CONTRACTORS APPROVED BY THE RELEVANT SERVICE AUTHORITY.

5. EARTHWORKS NOTES

5.1. GENERAL

5.1.1. BULK EARTHWORKS IS TO BE CARRIED OUT IN ACCORDANCE WITH THE FNQROC SPECIFICATION 'S1 EARTHWORKS' AND THE REQUIREMENTS OF AS3798-2007.

5.1.2. GEOTECHNICAL INVESTIGATIONS HAVE BEEN UNDERTAKEN BY ETS GEOTECHNICAL. REFER TO PAVEMENT INVESTIGATION & DESIGN REPORT (REPORT NO. GT25-011-001R) ISSUED IN APRIL 2025 FOR ALL EARTHWORKS RECOMMENDATIONS PRIOR TO COMMENCEMENT OF WORKS ONSITE.

5.1.3. NOT WITHSTANDING THE LIMITS OF EARTHWORKS SHOWN ON THE DRAWINGS, THE ACTUAL LIMIT SHALL BE DETERMINED ON SITE BY THE SUPERINTENDENT, THE ACTUAL LIMITS SHALL BE DETERMINED ON SITE BY THE SUPERINTENDENT DURING CONSTRUCTION.

5.1.4. FINISHED SURFACE LEVELS MAY BE ADJUSTED BY A WRITTEN DIRECTION OF THE SUPERINTENDENT DURING CONSTRUCTION WITH PRIOR APPROVAL FROM THE LOCAL AUTHORITY;

5.1.5. ALL EARTHWORKS QUANTITIES ARE NET VOLUMES. CONTRACTOR TO MAKE ALLOWANCE FOR BULKING AND COMPACTION'

5.1.6. ADDITIONAL DETAILED TRIMMING WILL BE REQUIRED TO ACHIEVE FINISHED SURFACE LEVELS AND TO ACCOMMODATE LANDSCAPING WORKS.

5.1.7. GEOTECHNICAL SUPERVISION OF EARTHWORKS IS TO BE CARRIED OUT IN ACCORDANCE WITH THE EARTHWORKS SPECIFICATION BY A N.A.T.A. REGISTERED GEOTECHNICAL TESTING AUTHORITY AT THE CONTRACTORS COST.

5.1.8. THE CONTRACTOR SHALL PROVIDE DETAILS OF ALL TESTING TO THE ENGINEER PROGRESSIVELY THROUGH THE WORKS AND NOTIFY THE ENGINEER OF ANY NON-CONFORMANCES.

5.1.9. ALL NON CONFORMING WORK IS TO BE RECTIFIED AS DIRECTED BY THE ENGINEER.

5.1.10. CONTRACTOR SHALL (IF IN DOUBT) DURING EARTHWORK OPERATION DIRECT CONCERN TO THE SUPERINTENDENT WHO SHALL SEEK ADVICE FROM THE GEOTECHNICAL CONSULTANT.

5.1.11. EARTHWORKS SHALL BE CARRIED OUT TO THE FINISHED SURFACE LEVELS SHOWN. CUT AND FILL BATTERS ARE NOT TO EXCEED 1 IN 4 SLOPE UNLESS INDICATED OTHERWISE. TRANSFORMER SITE CROSSFALL MAXIMUM OF 300mm. WHERE REQUIRED, BATTERS OF 1 IN 4 TO BE USED TO TIE BACK TO FSL.

5.1.12. THE CONTRACTOR SHALL INFORM THE LOCAL AUTHORITY, AND ALL RELEVANT SERVICE PROVIDERS AND THE SUPERINTENDENT OF THE START DATE PRIOR TO COMMENCEMENT OF WORKS;

5.1.13. ALL EARTHWORKS TESTING TO BE SUPERVISED TO LEVEL 1. FREQUENCY OF FIELD DENSITY TESTING TO BE TYPE 1 IN ACCORDANCE WITH TABLE 8.1 OF AS 3798-2017;

5.2. FILLING AND COMPACTION

5.2.1. FILLING IS TO BE CARRIED OUT IN STRICT ACCORDANCE WITH THE SPECIFICATIONS AND AS3798-2017, APPENDIX B, LEVEL 1 & AS DIRECTED BY ETS GEOTECHNICAL INVESTIGATION REPORT.

5.2.2. ALL FILL UNDER ROADS SHALL BE COMPACTED TO 100% STANDARD COMPACTION;

5.2.3. FILLING ON ROAD EMBANKMENT TO BE COMPACTED TO 95% STANDARD DRY DENSITY AS1289 5.1.1 - 2017 AND TRIMMED TO BE FREE DRAINING. ALL ROAD EMBANKMENT FILL SHALL BE SUPERVISED BY A QUALIFIED GEOTECHNICAL ENGINEER TO LEVEL 1 REQUIREMENTS IN ACCORDANCE WITH THE AS.3798-2007.

5.2.4. PLACE FILL IN LAYERS OF LOOSE AGGREGATES OR GRANULAR MATERIAL THICKNESS APPROPRIATE TO THE TYPE OF COMPACTION EQUIPMENT BEING USED AND NOT GREATER THAN 200mm. COMPACT EACH FILLING LAYER TO THE MINIMUM DRY DENSITY SPECIFIED. THE MOISTURE CONTENT OF FILL MATERIAL SHOULD BE MAINTAINED WITHIN THE RANGE OF -1% TO +2% OF THE OPTIMUM MOISTURE CONTENT.

5.2.5. FILLING MATERIAL AS REQUIRED TO COMPLETE THE WORKS SHALL BE SOURCED FROM MATERIAL EXCAVATED FROM SITE OR IMPORTED FROM A SUITABLY APPROVED SUPPLIER. ALL FILLING MATERIAL MUST BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO ITS INCORPORATION INTO THE WORKS.

5.2.6. FILL SHALL BE PLACED AND COMPACTED TO THE FOLLOWING STANDARDS:

a. COHESIVE MATERIALS: ALLOTMENT FILL SHALL ACHIEVE A MINIMUM DRY DENSITY RATIO (M.D.D.R.) OF 98% STANDARD. COMMERCIAL ALLOTMENT FILL SHALL ACHIEVE A 98% STANDARD.ROAD EMBANKMENTS SHALL ACHIEVE THE FOLLOWING MINIMUM STANDARDS.

-- GREATER THAN OR EQUAL TO 0.3m BELOW PAVEMENT SUBGRADE: 95% STD. M.D.D.R.

-- LESS THAN 0.3m BELOW PAVEMENT SUBGRADE: 100% STD. M.D.D.R.

-- NON COHESIVE MATERIALS:- FILL SHALL ACHIEVE A MINIMUM DENSITY INDEX RATIO OF 75%.

5.1. STRIPPING, STOCKPILE AND TOPSOIL

5.1.1. PRIOR TO THE COMMENCEMENT OF FILLING THE SITE IS TO BE STRIPPED - DEPTH TO BE NOTED & CONFIRMED BY CONTRACTOR. PLACEMENT OF FILL ON PREPARED AREAS SHALL NOT COMMENCE UNTIL AUTHORISED BY A LEVEL 1 GEOTECHNICAL ENGINEER. EARTHWORKS SPOIL IS TO BE STOCKPILED AS DIRECTED BY THE SUPERINTENDENT;

5.1.2. ALL VERGES AND PUBLIC OPEN SPACES AREAS CLEARED OF VEGETATION MUST BE COVERED FOR THE FULL WIDTH WITH TOPSOIL IN ACCORDANCE WITH AS 4419:2018 SOIL FOR LANDSCAPING AND GARDEN USE, TO A DEPTH OF NOT LESS THAN 40mm, LIGHTLY COMPACTED AND GRASSED IN ACCORDANCE WITH THE FNQROC DEVELOPMENT MANUAL AT THE WORK ACCEPTANCE AND MAINTAINED BY THE CONTRACTOR UNTIL FINAL WORK ACCEPTANCE.

5.1.3. SILT FENCING IS TO BE PLACED ON THE DOWNSTREAM SIDE OF ALL STOCKPILE SITES AND AN ADEQUATE CUTOFF DRAINS ARE TO BE PLACED ON THE UPSTREAM SIDE OF ALL STOCKPILE SITES;

5.2. PROTECTION DURING WORKS

5.2.1. ALL EXPOSED SURFACES APART FROM SWALE DRAINS ARE TO BE GRASS SEEDED AS A SEDIMENT AND EROSION CONTROL MEASURE.

5.2.2. ALL OPEN DRAINS ARE TO BE TURFED AS SOON AS PRACTICAL, AFTER THE OPEN DRAIN IS COMPLETED.

5.2.3. IT IS THE CONTRACTORS RESPONSIBILITY TO PROTECT THE SITE AND SURROUNDING AREAS FROM DAMAGE RESULTING FROM STORMWATER RUNOFF. TEMPORARY DIVERSION DRAINS AND OR OTHER DRAINAGE CONTROL DEVICES ARE TO BE IMPLEMENTED BY THE CONTRACTOR DURING CONSTRUCTION TO MINIMISE THE EFFECTS OF WEATHER. NO EXTENSIONS OF TIME WILL BE GRANTED SHOULD DAMAGE TO THE WORKS AND SURROUNDING AREAS RESULT FROM THE CONTRACTOR'S NEGLIGENCE IN NOT PROVIDING ADEQUATE PROTECTION.

5.2.4. ALL AREAS ARE TO BE FREE DRAINING.

5.2.5. BATTER SLOPES TO BE 1 IN 4 MAX UNLESS SPECIFIED OTHERWISE;

5.2.6. SETOUT OF EARTHWORKS IS TO THE CORNER OF BUILDING PADS, DRIVEWAY AND BATTERS AS SHOWN;

5.2.7. ALL ALLOTMENTS DISTURBED DURING EARTHWORKS ARE TO BE HYDROMULCHED

5.3. GRASSING

5.3.1. TURF STRIPS TO BE PROVIDED TO BACK OF KERB ON EACH SIDE OF FOOTPATHS & KERB/CHANNEL.

6. ROADWORKS

6.1. GENERAL:

6.1.1. WARNING AND DIRECTIONAL TACTILE GROUND SURFACE INDICATORS (TGSIS) SHALL CONFORM WITH AS/NZS 1428.4

6.2. KERB \ KERB AND CHANNEL NOTES AND SET-OUT

6.2.1. ALL KERB RADII SHOWN ARE TO LIP LINE.

6.2.2. ALL LEVELS SHOWN REFER TO: LIP OF KERB AND CHANNEL - EDGE OF BITUMEN

6.2.3. SUBSOIL DRAINS TO BE PROVIDED UNDER ALL KERB AND CHANNEL AND KERB ONLY.

6.2.4. WHERE DIFFERENT KERB TYPES MEET, TRANSITION TO BE TAKEN OUT OVER 1.0m (MIN).

6.2.5. FOR RESIDENTIAL AND COMMERCIAL DRIVEWAY CROSSOVERS, REFER TO FNQROC STANDARD DRAWINGS S1015.

6.2.6. FOR DETAILS OF KERBS AND CHANNELS REFER TO FNQROC STANDARD DRAWING S1000.

6.2.7. ALL KERBS TO BE CONSTRUCTED IN ACCORDANCE WITH FNQROC STANDARD DRAWINGS.

6.2.8. THE CONTRACTOR SHALL ENSURE THAT ALL KERB AND CHANNEL GRADES SHALL NOT FALL BELOW 0.5% AT ANY POINT IRRESPECTIVE OF ROAD CENTRE LINE GRADING SHOWN ON LONGITUDINAL SECTIONS.

6.2.9. WHERE NEW KERB AND CHANNEL AND/OR AC MEET EXISTING SURFACES THE CONTRACTOR SHALL VERIFY THE LEVELS WITH THE SUPERINTENDENT.

6.2.10. SUBSOIL DRAINAGE SHALL BE CONTINUOUS WITH ADJOINING KERB AND CHANNEL WHERE CONCRETE INVERT IS CONSTRUCTED. REFER FNQROC STANDARD DRAWING S1095. FOR KERB / KERB AND CHANNEL SETOUT REFER BELOW.

7. PAVEMENT

7.1. THE CONTRACTOR SHALL INITIALLY EXCAVATE THE PAVEMENT BOX TO THE FOLLOWING DEPTHS:

- IN CUT AREAS - FNQROC MINIMUM BOX PAVEMENT BOX DEPTH
- IN FILL AREAS - PROPOSED PAVEMENT DESIGN BOX DEPTH

7.1. FOLLOWING THE COMPLETION OF EXCAVATION THE CONTRACTOR SHALL NOTIFY THE SUPERINTENDENT WHO SHALL CONFIRM THE PAVEMENT THICKNESS TO BE CONSTRUCTED FOLLOWING JOINT INSPECTION AND APPROVAL FROM LOCAL AUTHORITY INSPECTOR.

7.2. REFER PAVEMENT DRAWING FOR TYPES. FINAL MAKE UP TO BE DETERMINED BY THE SUPERINTENDENT

7.3. FINAL PAVEMENT DEPTHS AND MATERIAL TYPES SHALL BE DETERMINED BY THE SUPERINTENDENT AFTER EXISTING SUB-GRADE TESTING IS COMPLETED BY THE CONTRACTOR.

7.4. PAVEMENT MATERIALS SHALL BE PER FNQROC SPECIFICATION 'S2 ROAD PAVEMENTS'.

8. STORMWATER NOTES

8.1. GENERAL

8.1.1. STORMWATER STRUCTURES AND CONNECTIONS ARE TO BE LOCATED AS INDICATED ON THE PLAN. ADJUSTMENTS TO THE DESIGN LAYOUT WHERE REQUIRED TO SUIT ACTUAL AS-CONSTRUCTED GEOMETRY SHALL REQUIRE THE ENGINEERS APPROVAL.

8.2. STRUCTURES

8.2.1. ALL DRAINAGE STRUCTURES SHALL BE IN ACCORDANCE WITH FNQROC DEVELOPMENT MANUAL STANDARDS.

8.2.2. ALL GULLIES ARE TO BE LIP IN LINE GRATED GULLY UNLESS SHOWN OTHERWISE. REFER FNQROC STANDARD DRAWINGS FOR DETAILS.

8.2.3. ALL DRAINAGE STRUCTURES WITHIN TRAFFICABLE AREAS (WITHIN PAVEMENT, VERGE AND OPEN SPACE WITH VEHICULAR ACCESS) TO HAVE AS3996-2019, CLASS D (TRAFFICABLE) COVERS / GRATES & FRAMES UNLESS NOTED OTHERWISE.

8.2.4. FOR STORMWATER PIT SETOUT LOCATIONS REFER BELOW.

8.2.5. FINAL PIT LOCATION AND ORIENTATION TO BE CONFIRMED ON SITE BY THE SUPERINTENDENT.

8.3. PIPES

8.3.1. ALL REINFORCED CONCRETE PIPES TO COMPLY WITH AS 4058-2007 AND AS 4139-2003.

8.3.2. ALL REINFORCED CONCRETE BOX CULVERTS AND LINK SLABS TO COMPLY WITH AS 1597.1-2010 AND AS 1597.2.2-2013.

8.3.3. ALL REINFORCED CONCRETE PIPES UP TO 600mm NOMINAL DIAMETER ARE TO BE RCP CLASS 3 - OVER 600mm NOMINAL DIAMETER ARE TO BE RCP CLASS 2 UNLESS NOTED OTHERWISE.

8.3.4. PIPES SHALL BE BEDDED IN ACCORDANCE WITH AS3725 - 2007, THE MINIMUM PIPE SUPPORT TYPE SHALL BE HS2 WITHIN ROAD RESERVES AND H1 ELSEWHERE.

8.3.5. uPVC PIPES SHALL BE CLASS SN8 UNLESS NOTED OTHERWISE.

8.3.6. WHERE ROOFWATER DRAINS AND SEWER MAINS ARE TO BE CONSTRUCTED PARALLEL TO EACH OTHER, THE ROOFWATER DRAINAGE CONNECTION SHALL EXTEND 1.00 BEYOND THE SEWER MAIN.

8.3.7. MINIMUM COVER TO ROOFWATER PIPES TO BE 450mm EXCEPT WHERE LESS COVER IS NECESSARY TO DISCHARGE TO STREET KERB AND CHANNEL.

8.4. TRENCHES

8.4.1. THE WIDTH OF TRENCHING EXCAVATION SHALL BE IN ACCORDANCE WITH FNQROC STANDARD DRAWINGS S1045 AND S1046 AT THE TRENCH BASE AND COMPLY WITH ALL REGULATIONS OF WORKPLACE HEALTH AND SAFETY ACT.

8.4.2. ALL TRENCHES SHALL BE BACKFILLED IN LAYERS OF LOOSE THICKNESS APPROPRIATE TO THE TYPE OF COMPACTION EQUIPMENT BEING USED AND NOT GREATER THAN 150mm.

8.5. SCOUR PROTECTION

8.5.1. ROCK PROTECTION TO BE PROVIDED AROUND THE HEADWALL, WINGWALLS AND APRON AND WHERE APPLICABLE ABOVE THE HEADWALL WHERE THE HEADWALL IS LOCATED WITHIN AN OVERLAND FLOW PATH.

8.5.2. GEOTEXTILE TO BE CONSTRUCTED OUT OF WATER PERMEABLE MATERIAL USUALLY SYNTHETIC MATERIAL SUCH AS POLYPROPYLENE. TO BE USED AS PART OF EROSION AND SEDIMENT CONTROL METHOD IN CONSTRUCTION AND STORMWATER MANAGEMENT SITUATIONS TO TRAP OR PREVENT CLOGGING OF AGGREGATES BY SOIL/CLAY/SILT PARTICLES.

8.5.3. GEOTEXTILE MUST BE OF SUFFICIENT STRENGTH/DURABILITY TO WITHSTAND BREAKAGE FROM WATER FLOW, SEDIMENT BUILDUP, AND EXPOSURE TO SUNLIGHT.

8.5.4. CONSULT WITH MANUFACTURER OF GEOTEXTILE TO VERIFY THAT IT CAN PERFORM THE FUNCTION THAT IS REQUIRED OF IT.

8.5.5. IF SLOPE OF CHANNEL / TABLE DRAIN IS BETWEEN 1:1 AND 1:10 , EXCAVATE OUT TO A DEPTH OF 300mm WHERE THE ROCK CHECK DAMS ARE GOING TO BE EMBEDDED.

8.5.6. LAY DOWN GEOTEXTILE OVER THE WHOLE AREA THE ROCK CHECK DAMS IS TO BE CONSTRUCTED UPON.

9. OPEN DRAINS

9.1. SWALE DRAINS ARE TO BE GRADED EVENLY BETWEEN INVERT LEVELS PROVIDED

9.2. UNLESS NOTED OTHERWISE, DRAINS SHALL BE TURFED.

10. COMPACTION

10.1. THE CONTRACTOR IS RESPONSIBLE FOR COMPACTION TECHNIQUES OVER ALL STORMWATER PIPES TO BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS;

10.2. FOR COMPACTION FILL DEPTHS OVER PIPES REFER TO TABLE B1 AS/NZS 3275:2007

10.3. BACKFILL MATERIAL TYPE AND COMPACTION SHALL BE IN ACCORDANCE WITH FNQROC STD DRAWINGS S1045B AND S1046B.

10.4. MINIMUM FILL OVER PIPE INCLUDES MATERIAL BEING COMPACTED, AS MEASURED AFTER COMPACTION.

10.5. THE BEDDING SUPPORT TYPE CHOSEN HAS LITTLE OR NO EFFECT ON THE CLASS OF THE PIPE FOR LOW FILLS AND HIGH TRAFFIC LOADS.

10.6. ANY AREAS WHERE WATER MAINS OR SEWER MAINS ARE CONSTRUCTED IN FILL MATERIAL THE COMPACTION OF THE FILLED AREA IS TO HAVE MINIMUM LEVEL 2 SUPERVISION IN ACCORDANCE WITH AUSTRALIAN STANDARDS AND VERIFICATION OF THE COMPACTION INCLUDED IN THE ITP.

11. CONCRETE NOTES:

11.1. NON-VEHICULAR PATHS ONLY, MAY USE DANLEY 'EXPANDA' JOINT SYSTEMS.

11.2. GRANULAR SUB-BASE UNDER CONCRETE TO BE CRUSHED ROCK, ROADBASE OR APPROVED ALTERNATIVE (CBR15 MIN.) FOR VEHICLE PAVEMENTS. 'CRUSHER DUST' TO BE USED UNDER PATHS AND NON TRAFFICABLE CONCRETE.

11.3. GRANULAR SUB-BASE SHALL BE COMPACTED AS SPECIFIED, TO A UNIFORMLY SMOOTH, FLAT SURFACE TO THE SATISFACTION OF THE SUPERINTENDENT PRIOR TO CONCRETE PLACEMENT.

11.4. ALL SERVICE COVERS WITHIN SHARED / BICYCLE PAVEMENTS TO BE INFILL TYPE, WHERE POSSIBLE, TO MINIMISE SLIP HAZARD

11.5. FIXED INTERNAL PENETRATIONS AND EDGES ABUTTING STRUCTURES TO BE ISOLATED WITH A 10mm FLEXIBLE (ABLEFLEX) JOINT. VALVE COVERS AND OTHER 'FLOATING' SERVICES MAY BE CAST DIRECTLY INTO THE SLAB.

11.6. ALL INTERNAL CORNERS AND PENETRATIONS REQUIRE 2X PARALLEL N12 TRIMMERS (900mm LONG) ACROSS EACH CORNER TO CONTROL CRACKING, UNLESS ALIGNED WITH AN APPROPRIATE FORMED OR INDUCED JOINT.

11.7. FOR SLABS ≤100mm THICK, SUFFICIENT COMPACTION IS ACHIEVED THOUGH SCREENING PROCESS. FOR >100mm THICK AN IMMERSION VIBRATOR MUST BE USED TO ADEQUATELY DISPEL ENTRAINED AIR

11.8. SURFACE SHALL BE TREATED WITH A MOISTURE EVAPORATION RETARDANT (ALIPHATIC ALCOHOL) AFTER SCREEDING AND PRIOR TO FLOATING.

11.9. AN ADDITIONAL CURING COMPOUND MUST BE APPLIED OVER FINISHED WORKS. THE PRODUCT MUST BE APPROPRIATE FOR THE NOMINATED ARCHITECTURAL FINISH AND APPLIED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS

11.10. LMC SUB-BASE TO BE CURED BY THE APPLICATION OF A WAX EMULSION HYDROCARBON RESIN.

11.11. CONCRETE CUTTING SHALL BE UNDERTAKEN WITHIN 8 HOURS OF PLACEMENT. A SOFF-CUT SAW IS RECOMMENDED TO ENSURE CORRECT DEPTH OF CUTS, MINIMISE SPALLING THAT ARISES AND PERMIT CUTTING WITHIN THE APPROPRIATE TIME.

11.12. FINISHED SURFACE SHALL NOT BE TRAFFICKED EARLIER THAN 10 DAYS AFTER PLACEMENT.

11.13. BEFORE STARTING THE CONSTRUCTION OF THE CONCRETE PATHWAYS, ENSURE THE BEDDING COMPLIES WITH A MINIMUM STANDARD OF DENSITY, AND THE COMPACTED MATERIALS MEET THE SPECIFIED REQUIREMENTS IN TERMS OF SHEAR STRENGTH, STIFFNESS, PERMEABILITY, AND DEFORMATION RESISTANCE, REFER TO TECHNICAL SPECIFICATION.

11.14. CURING OF ALL CONCRETE IS TO BE ACHIEVED BY KEEPING SURFACES CONTINUOUSLY WET FOR A PERIOD OF 3 DAYS OR BY PREVENTION OF LOSS OF MOISTURE FOR A TOTAL OF SEVEN DAYS FOLLOWED BY A GRADUAL DRYING OUT.

12. SITE ACCESS

12.1. CONSTRUCTION VEHICLES SHALL ACCESS THE SITE FROM CHEWKO ROAD. THE CONTRACTOR IS TO CONSTRUCT AND MAINTAIN ACCESS AS REQUIRED DURING CONSTRUCTION AND REINSTATE THE VERGE FOLLOWING COMPLETION OF WORKS.

13. SEWER DETAIL

13.1. REFER TO HYDRAULIC DOCUMENTATION FOR THE SEWER DESIGN FOR THE ENTIRE PROJECT. LONGITUDINAL SECTIONS PROVIDED ON LEKKER URBAN DRAWINGS ARE IN CO-ORDINATION WITH THOSE FROM GILBOY HYDRAULIC CONSULTANTS. LEKKER URBAN TAKE NO RESPONSIBILITY FOR THE DESIGN OF THE SEWER AND WATER INFRASTRUCTURE FOR THIS PROJECT.

13.2. THE FOLLOWING NOTES ARE TO BE READ IN CONJUNCTION WITH THE HYDRAULIC DOCUMENTATION, WHICH SHALL TAKE PRECEDENCE OVER THE FOLLOWING.

13.3. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH CURRENT FNQROC S06 SEWERAGE RETICULATION SPECIFICATION, AND UNLESS SPECIFIED OTHERWISE ALL MATERIALS AND WORK SHALL CO

EROSION AND SEDIMENT CONTROL PLANS

PROGRESSIVE EROSION AND SEDIMENT CONTROL PLANS (ERSED) PLANS SHALL BE DEVELOPED AND IMPLEMENTED AS REQUIRED BY THE SITE SUPERVISOR BASED ON THIS PLAN AND FOLLOWING PRINCIPLES AND STANDARD SITE CONTROL MEASURES.

1. MINIMISE EXTENT AND DURATION OF DISTURBANCE

1.1. CONSTRUCTION WORKS TO BE MANAGED SUCH THAT AREAS OUTSIDE SCOPE OF WORKS REMAIN UNDISTURBED WHERE POSSIBLE.
1.2. MINIMISE EXTENT OF DISTURBANCE WITHIN CONSTRUCTION SITE AT ANY ONE TIME BY STAGING THE WORKS (EG. RIP EXISTING BITUMEN IN SECTIONS, MOVING ON TO NEW SECTIONS FOLLOWING COMPLETION OF PREVIOUS STAGE).
1.3. MINIMISE DISTURBANCE OF VEGETATION ALONG THE ROAD VERGE WITH SPECIAL EMPHASIS ON MANAGEMENT OF CONSTRUCTION ACTIVITIES ADJACENT TO TO WATERCOURSES (E.G. MAINTAIN GRASSY BUFFER WHERE POSSIBLE).

2. CONTROL STORMWATER FLOWS ONTO, THROUGH AND FROM THE SITE

2.1. SEPARATE 'CLEAN' RUN-ON WATER FROM 'DIRTY' (E.G. TURBID) CONSTRUCTION AREA RUNOFF (MAINTAIN CLEAN WATER PASSAGE THROUGH CULVERT CROSSING THROUGHOUT CONSTRUCTION WORKS).
2.2. CONSTRUCT PERMANENT DRAINAGE STRUCTURES EARLY IN THE PROJECT INCLUDING:
2.2.1. KERB ON DOWN SLOPE SIDE OF ROAD
2.2.2. CULVERTS, HEADWALLS AND ASSOCIATED INLET AND OUTLET PROTECTION (E.G. DISSIPATERS)
2.3. MAXIMISE THE SHEET FLOW OF TURBID CONSTRUCTION RUNOFF INTO EXISTING SPOON DRAIN (ON UP SLOPE SIDE OF ROAD) BY MAINTAINING IN-FALL DRAINAGE WHERE POSSIBLE AND INTO NEW GUTTERS AS CONSTRUCTED.

3. USE EROSION CONTROL MEASURES TO PREVENT ON-SITE DAMAGE

3.1. THE INSTALLATION OF ALL EROSION AND SEDIMENT CONTROLS TO OCCUR IMMEDIATELY POST CLEARING AND STRIPPING.
3.2. SITE STOCKPILES OF SOIL MATERIAL IN LOW-HAZARD AREAS CLEAR OF WATERCOURSES. ADDITIONAL PROTECTION TO BE AFFORDED WITH TEMPORARY VEGETATION, DIVERSION BANKS AND SEDIMENT CONTROL MEASURES, IF REQUIRED. SEED STOCKPILES WITH ANNUAL GRASS IF THEY ARE TO BE STORED LONGER THAN 10 DAYS.
3.3. CONSTRUCT A RANGE OF EROSION CONTROLS WITHIN THE VARIOUS ROAD SUB-CATCHMENTS TO COMPLEMENT AND INCREASE THE EFFECTIVENESS AND EFFICIENCY OF SEDIMENT CONTROLS IN THE LOWER AREAS.

4. USE SEDIMENT CONTROL MEASURES TO PREVENT OFF-SITE DAMAGE

4.1. THE INSTALLATION OF ALL EROSION AND SEDIMENT CONTROLS TO OCCUR IMMEDIATELY POST CLEARING AND STRIPPING.
4.2. CONSTRUCT CONTROL MEASURES AS CLOSE TO THE POTENTIAL SOURCE OF SEDIMENT AS POSSIBLE.
4.3. CONTROL THE DEPOSITION OF MUD AND SOIL MATERIAL ONTO LOCAL ROADS.

5. STABILISE DISTURBED AREAS QUICKLY

5.1. ALL BATTER STABILISATION AND REINSTATEMENT WORKS ADJACENT TO NEW CONSTRUCTION SHALL BE CARRIED OUT AS SOON AS POSSIBLE AFTER COMPLETION OF CONSTRUCTION WORKS.
5.2. ALL DISTURBED VERGES AND FILL BATTERS TO BE STABILISED BY REVEGETATING WITH APPROPRIATE SPECIES (E.G. ANNUAL GRASS SEED SUCH AS ANNUAL RYEGRASSS OR JAPANESE MILLET, OR TURF) AS SOON AS PRACTICAL AFTER REINSTATEMENT.
5.3. THE USE OF IMPORTED QUALITY TOPSOIL TO A.S.4419 TO BE OF A SANDY LOAM, FREE FROM NUT GRASS
5.4. ENSURE THE SUCCESS OF THE LATER REVEGETATION PROGRAM BY UTILISING A GOOD TOPSOIL MANAGEMENT PROGRAM.
5.5. CONTROL DUST THROUGH PROGRESSIVE REVEGETATION TECHNIQUES, WATER TANKERS ETC.

6. INSPECT AND MAINTAIN CONTROL MEASURES

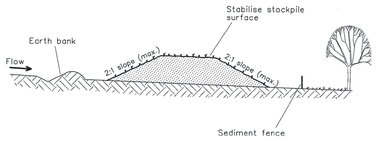
6.1. ENSURE THE PROGRESSIVE AND CONTINUAL IMPLEMENTATION AND MAINTENANCE OF TEMPORARY EROSION AND SEDIMENT CONTROLS (E.G. SEDIMENT FENCES, DIVERSION BANKS, DIVERSION DRAINS, SEDIMENT TRAPS).
6.2. INITIATE A PROGRAM TO ENSURE REGULAR MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL MEASURES. SEDIMENT CLEANED FROM STRUCTURES (E.G. SCRAPE AWAY ACCUMULATED SEDIMENT UPSTREAM OF CHECK DAMS AND REPLACE/REPAIR AS NECESSARY) TO MAINTAIN FUNCTIONALITY.
6.3. ARRANGE REGULAR INSPECTIONS BY AN ENVIRONMENTAL SCIENTIST TO REVIEW AND UPDATE CONTROL MEASURES. ADDITIONAL INSPECTIONS WILL BE CONDUCTED DURING AND/OR IMMEDIATELY FOLLOWING SIGNIFICANT RAINFALL EVENTS TO MONITOR THE FUNCTIONING OF CONTROLS.
6.4. ALL EROSION AND SEDIMENT CONTROLS TO BE MAINTAINED IN PLACE UNTIL ALL WORKS ARE COMPLETED AND DISTURBED AREAS HAVE STABILISED.

EXTRACT FROM LANDCOM (2004). MANAGING URBAN STORMWATER: SOIL AND CONSTRUCTION. VOLUME 2D MAIN ROADS CONSTRUCTION 2008

THIS SEDIMENT AND EROSION CONTROL PLAN CONTAINS COUNCIL'S MINIMUM REQUIREMENTS FOR ENVIRONMENTAL PROTECTION; HOWEVER, IT IS STILL THE PRINCIPAL CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE WORKS AND MITIGATION STRATEGIES ARE PERFORMED IN A MANNER THAT COMPLIES WITH ALL RELEVANT ENVIRONMENTAL LEGISLATION, INCLUDING ANY DEVELOPMENT APPROVAL REQUIREMENTS.

7. EROSION AND SEDIMENT CONTROL COMMENTARY

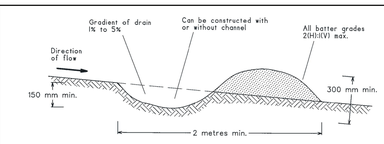
7.1. MONITOR THE 7 DAYS RAIN FORECAST TO DETERMINE TIMING OF WORKS, AND 24 HOUR FORECAST FOR PREPARATION OF EROSION & SEDIMENT CONTROL (ESC) MEASURES.
7.2. LIMIT AREAS OF DISTURBANCE AT ANY ONE TIME WHERE POSSIBLE, AND IDENTIFY VEGETATION NO GO AREAS. ENSURE THAT GUTTERS, PATHWAYS, ROADS ARE SWEPT CLEAN PRIOR TO RAIN OR BEFORE THE END OF THE DAYS SHIFT. HARD SURFACES CLEAN OF SOIL WILL REDUCE THE NEED FOR CONTROLS AND ELIMINATE POTENTIAL TRIP HAZARDS TO PEDESTRIANS AND ROAD HAZARDS FOR DRIVERS.
7.3. DIVERT CLEAN WATER AROUND EXCAVATIONS (WHERE POSSIBLE) TO LIMIT MANAGEMENT OF CONSTRUCTION WATER EG DEWATERING OF OPEN TRENCH OR EXCAVATIONS.
7.4. INSTALL SANDBAGS, COIR LOGS OR SEDIMENT FENCES AS REQUIRED
7.5. STOCKPILES, IF ANY, WILL BE MANAGED AS PER SD4-1.
7.6. AS WORKS ARE COMPLETED ADJACENT TO KERBS, INSTALL TURF TO STABILISE AREAS AS PER SD6-13.
7.7. PROGRESSIVELY INSTALL AND REMOVE CONTROLS AS WORK PROGRESSES ALONG THE ALIGNMENT.



Construction Notes

1. Place stockpiles more than 2 (preferably 5) metres from existing vegetation, concentrated water flow, roads and hazard areas.
2. Construct on the contour as low, flat, elongated mounds.
3. Where there is sufficient area, topsoil stockpiles shall be less than 2 metres in height.
4. Where they are to be in place for more than 10 days, stabilise following the approved ESCP or SWMP to reduce the C-factor to less than 0.10.
5. Construct earth banks (Standard Drawing 5-5) on the upslope side to divert water around stockpiles and sediment fences (Standard Drawing 6-8) 1 to 2 metres downslope.

STOCKPILES **SD 4-1**

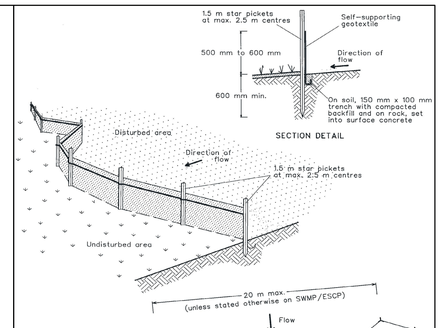


NOTE: Only to be used as temporary bank where maximum upslope length is 80 metres.

Construction Notes

1. Build with gradients between 1 percent and 5 percent.
2. Avoid removing trees and shrubs if possible - work around them.
3. Ensure the structures are free of projections or other irregularities that could impede water flow.
4. Build the drains with circular, parabolic or trapezoidal cross sections, not V shaped.
5. Ensure the banks are properly compacted to prevent failure.
6. Complete permanent or temporary stabilisation within 10 days of construction.

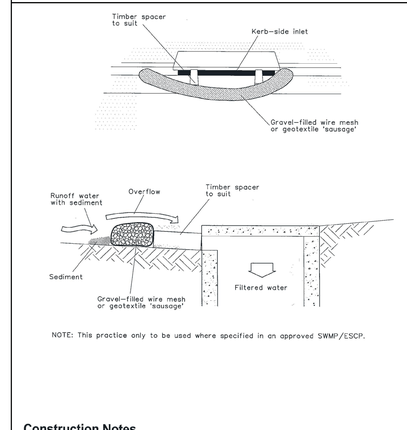
EARTH BANK (LOW FLOW) **SD 5-5**



Construction Notes

1. Construct sediment fences as close as possible to being parallel to the contours of the site, but with small returns as shown in the drawing to limit the catchment area of any one section. The catchment area should be small enough to limit water flow if concentrated at one point to 50 litres per second in the design storm event, usually the 10-year event.
2. Cut a 150-mm deep trench along the upslope line of the fence for the bottom of the fabric to be entrenched.
3. Drive 1.5 metre long star pickets into ground at 2.5 metre intervals (max) at the downslope edge of the trench. Ensure any star pickets are fitted with safety caps.
4. Fix self-supporting geotextile to the upslope side of the posts ensuring it goes to the base of the trench. Fix the geotextile with wire ties or as recommended by the manufacturer. Only use geotextile specifically produced for sediment fencing. The use of shade cloth for this purpose is not satisfactory.
5. Join sections of fabric at a support post with a 150-mm overlap.
6. Backfill the trench over the base of the fabric and compact it thoroughly over the geotextile.

SEDIMENT FENCE **SD 6-8**

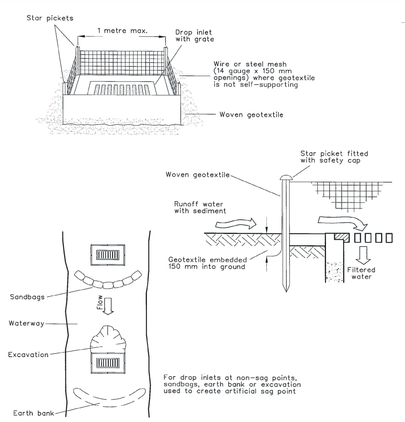


NOTE: This practice only to be used where specified in an approved SWMP/ESCP.

Construction Notes

1. Install filters to kerb inlets only at sag points.
2. Fabricate a sleeve made from geotextile or wire mesh longer than the length of the inlet pit and fill it with 25 mm to 50 mm gravel.
3. Form an elliptical cross-section about 150 mm high x 400 mm wide.
4. Place the filter at the opening leaving at least a 100-mm space between it and the kerb inlet. Maintain the opening with spacer blocks.
5. Form a seal with the kerb to prevent sediment bypassing the filter.
6. Sandbags filled with gravel can substitute for the mesh or geotextile providing they are placed so that they firmly abut each other and sediment-laden waters cannot pass between.

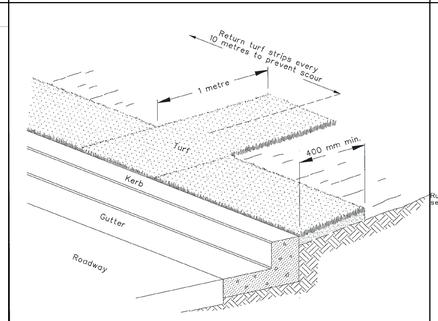
MESH AND GRAVEL INLET FILTER **SD 6-11**



Construction Notes

1. Fabricate a sediment barrier made from geotextile or straw bales.
2. Follow Standard Drawing 6-7 and Standard Drawing 6-8 for installation procedures for the straw bales or geofabric. Reduce the picket spacing to 1 metre centres.
3. In waterways, artificial sag points can be created with sandbags or earth banks as shown in the drawing.
4. Do not cover the inlet with geotextile unless the design is adequate to allow for all waters to bypass it.

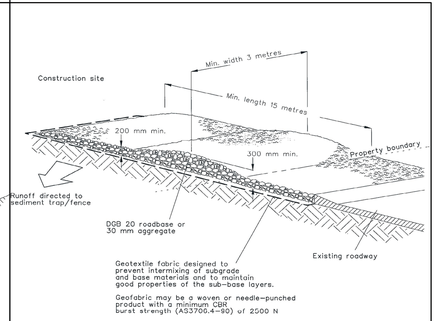
GEOTEXTILE INLET FILTER **SD 6-12**



Construction Notes

1. Install a 400-mm minimum wide roll of turf on the footpath next to the kerb and at the same level as the top of the kerb.
2. Lay 1.4 metre long turf strips normal to the kerb every 10 metres.
3. Rehabilitate disturbed soil behind the

KERBSIDE TURF STRIP **SD 6-13**



Construction Notes

1. Strip the topsoil, level the site and compact the subgrade.
2. Cover the area with needle-punched geotextile.
3. Construct a 200-mm thick pad over the geotextile using road base or 30-mm aggregate.
4. Ensure the structure is at least 15 metres long or to building alignment and at least 3 metres wide.
5. Where a sediment fence joins onto the stabilised access, construct a hump in the stabilised access to divert water to the sediment fence

STABILISED SITE ACCESS **SD 6-14**

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0 20 40 60 80 100 m

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Checked: J.L.A
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Date: 29/04/2025

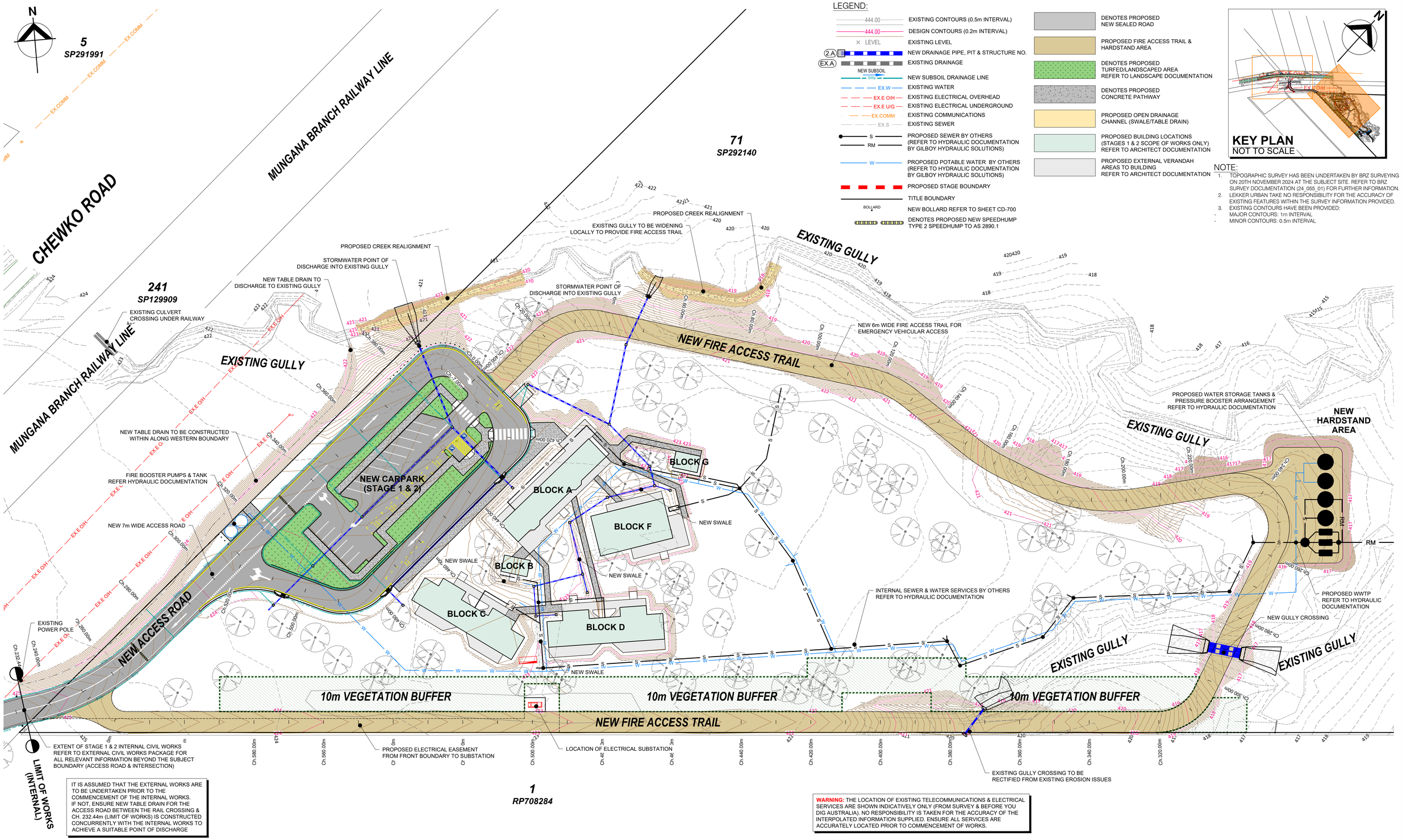
TWO RIVERS COMMUNITY SCHOOL STAGE 1 & 2 - INTERNAL CIVIL WORKS

CONCEPT EROSION & SEDIMENT CONTROL NOTES

CHEWKO ROAD & 267 MCIVER ROAD, MAREEBA QLD
ON BEHALF OF TWO RIVERS COMMUNITY SCHOOL

FOR APPROVAL

DRAWING NUMBER: LU23112-2-CD-102 REV: A



LEGEND:

- EXISTING CONTOURS (0.5m INTERVAL)
- DESIGN CONTOURS (0.2m INTERVAL)
- LEVEL — EXISTING LEVEL
- 2.A — NEW DRAINAGE PIPE, PIT & STRUCTURE NO.
- EX.A — EXISTING DRAINAGE
- NEW SUBSOIL — NEW SUBSOIL DRAINAGE LINE
- EX.W — EXISTING WATER
- EX.E O/H — EXISTING ELECTRICAL OVERHEAD
- EX.E U/G — EXISTING ELECTRICAL UNDERGROUND
- EX.COMM — EXISTING COMMUNICATIONS
- EX.S — EXISTING SEWER
- S — PROPOSED SEWER BY OTHERS (REFER TO HYDRAULIC DOCUMENTATION BY GILBOY HYDRAULIC SOLUTIONS)
- RM
- W — PROPOSED POTABLE WATER BY OTHERS (REFER TO HYDRAULIC DOCUMENTATION BY GILBOY HYDRAULIC SOLUTIONS)
- PROPOSED STAGE BOUNDARY
- TITLE BOUNDARY
- BOLLARD — NEW BOLLARD REFER TO SHEET CD-700
- DENOTES PROPOSED NEW SPEEDHUMP TYPE 2 SPEEDHUMP TO AS 2890.1

- DENOTES PROPOSED NEW SEALED ROAD
- PROPOSED FIRE ACCESS TRAIL & HARDSTAND AREA
- DENOTES PROPOSED TURFED/LANDSCAPED AREA REFER TO LANDSCAPE DOCUMENTATION
- DENOTES PROPOSED CONCRETE PATHWAY
- PROPOSED OPEN DRAINAGE CHANNEL (SWALE/TABLE DRAIN)
- PROPOSED BUILDING LOCATIONS (STAGES 1 & 2 SCOPE OF WORKS ONLY) REFER TO ARCHITECT DOCUMENTATION
- PROPOSED EXTERNAL VERANDAH AREAS TO BUILDING REFER TO ARCHITECT DOCUMENTATION

NOTE:

1. TOPOGRAPHIC SURVEY HAS BEEN UNDERTAKEN BY BRZ SURVEYING ON 20TH NOVEMBER 2024 AT THE SUBJECT SITE. REFER TO BRZ SURVEY DOCUMENTATION (24_055_01) FOR FURTHER INFORMATION.
2. LEKKER URBAN TAKE NO RESPONSIBILITY FOR THE ACCURACY OF EXISTING FEATURES WITHIN THE SURVEY INFORMATION PROVIDED.
3. EXISTING CONTOURS HAVE BEEN PROVIDED:
- MAJOR CONTOURS: 1m INTERVAL
- MINOR CONTOURS: 0.5m INTERVAL

IT IS ASSUMED THAT THE EXTERNAL WORKS ARE TO BE UNDERTAKEN PRIOR TO THE COMMENCEMENT OF THE INTERNAL WORKS. IF NOT, ENSURE NEW TABLE DRAIN FOR THE ACCESS ROAD BETWEEN THE RAIL CROSSING & CH. 232.44m (LIMIT OF WORKS) IS CONSTRUCTED CONCURRENTLY WITH THE INTERNAL WORKS TO ACHIEVE A SUITABLE POINT OF DISCHARGE

WARNING: THE LOCATION OF EXISTING TELECOMMUNICATIONS & ELECTRICAL SERVICES ARE SHOWN INDICATIVELY ONLY (FROM SURVEY & BEFORE YOU DIG AUSTRALIA). NO RESPONSIBILITY IS TAKEN FOR THE ACCURACY OF THE INTERPOLATED INFORMATION SUPPLIED. ENSURE ALL SERVICES ARE ACCURATELY LOCATED PRIOR TO COMMENCEMENT OF WORKS.

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A	100% DESIGN ISSUE - FOR APPROVAL	J.L.A	29/04/2025

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Date: 29/04/2025

TWO RIVERS COMMUNITY SCHOOL
STAGE 1 & 2 - INTERNAL CIVIL WORKS
OVERALL GENERAL ARRANGEMENT LAYOUT PLAN

CHEWKO ROAD & 267 MCIVER ROAD, MAREEBA QLD
ON BEHALF OF TWO RIVERS COMMUNITY SCHOOL

FOR APPROVAL
DRAWING NUMBER: LU23112-2-CD-200 A
REV:

N

5
SP291991

71
SP292140

241
SP129909

1
RP708284

CHEWKO ROAD

MUNGANA BRANCH RAILWAY LINE

MUNGANA BRANCH RAILWAY LINE

EX.COMM

EX.E OH

NOTE:
1. REFER TO LU23112-2-CD-102 FOR EROSION & SEDIMENT CONTROL NOTES.
2. THE LAYOUT PROVIDED IN THIS CONCEPTUAL EROSION AND SEDIMENT CONTROL PLAN IS INDICATIVE AND SERVES AS A PRELIMINARY GUIDE ONLY. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PREPARE AND SUBMIT THEIR OWN DETAILED EROSION AND SEDIMENT CONTROL PLAN, TAILORED TO THE SPECIFIC SITE CONDITIONS AND PROJECT REQUIREMENTS. THE CONTRACTOR'S PLAN MUST COMPLY WITH ALL RELEVANT REGULATIONS AND STANDARDS, AND SHOULD BE APPROVED BY THE SUPERINTENDENT BEFORE IMPLEMENTATION.

LEGEND:
- NEW SEDIMENT FENCING AS PER SD 6-8
- NEW TEMPORARY SITE SECURITY FENCE
- NEW MESH AND GRAVEL INLET FILTER AS PER SD 6-11 AND 6-12
- NEW LOW FLOW CHANNEL
- NEW COIR LOG

KEY PLAN
NOT TO SCALE

PROVIDE COIR LOGS TO NEW DRAINAGE CHANNEL 1

PROVIDE COIR LOGS TO NEW DRAINAGE CHANNEL 2

EXISTING GULLY

NEW 6m WIDE FIRE ACCESS TRAIL FOR EMERGENCY VEHICULAR ACCESS

NEW FIRE ACCESS TRAIL

NEW LOW FLOW CHANNEL TO NEW PIT

EXISTING GULLY

NEW HARDSTAND AREA

PROVIDE 2 KERBSIDE TURF STRIPS BEHIND ALL NEW KERB AS PER SD6-13 ON SHEET CD-102 TO BE INSTALLED AS SOON AS PRACTICAL FOLLOWING KERB CONSTRUCTION AND BATTER SHAPING

PROVIDE COIR LOGS TO NEW TABLE DRAIN

NEW MESH & GRAVEL INLET FILTERS AS PER SD 6-11 ON SHEET CD-102

BLOCK G

BLOCK A

BLOCK F

NEW MESH & GRAVEL INLET FILTERS AS PER SD 6-12 ON SHEET CD-102

BLOCK B

PROVIDE SEDIMENT FENCING AS PER SD6-8 ON SHEET CD-102

PROVIDE TEMPORARY SITE SECURITY FENCE TO EXTERNAL SITE PERIMETER

BLOCK C

BLOCK D

NEW ACCESS ROAD

NEW MESH & GRAVEL INLET FILTERS AS PER SD 6-11 ON SHEET CD-102

PROVIDE COIR LOGS TO NEW DRAINAGE CHANNEL

EXISTING GULLY

EXISTING GULLY

PROVIDE COIR LOGS TO NEW DRAINAGE CHANNEL

10m VEGETATION BUFFER

10m VEGETATION BUFFER

10m VEGETATION BUFFER

NEW FIRE ACCESS TRAIL

LIMIT OF WORKS (INTERNAL)

PROPOSED ELECTRICAL EASEMENT FROM FRONT BOUNDARY TO SUBSTATION

LOCATION OF ELECTRICAL SUBSTATION

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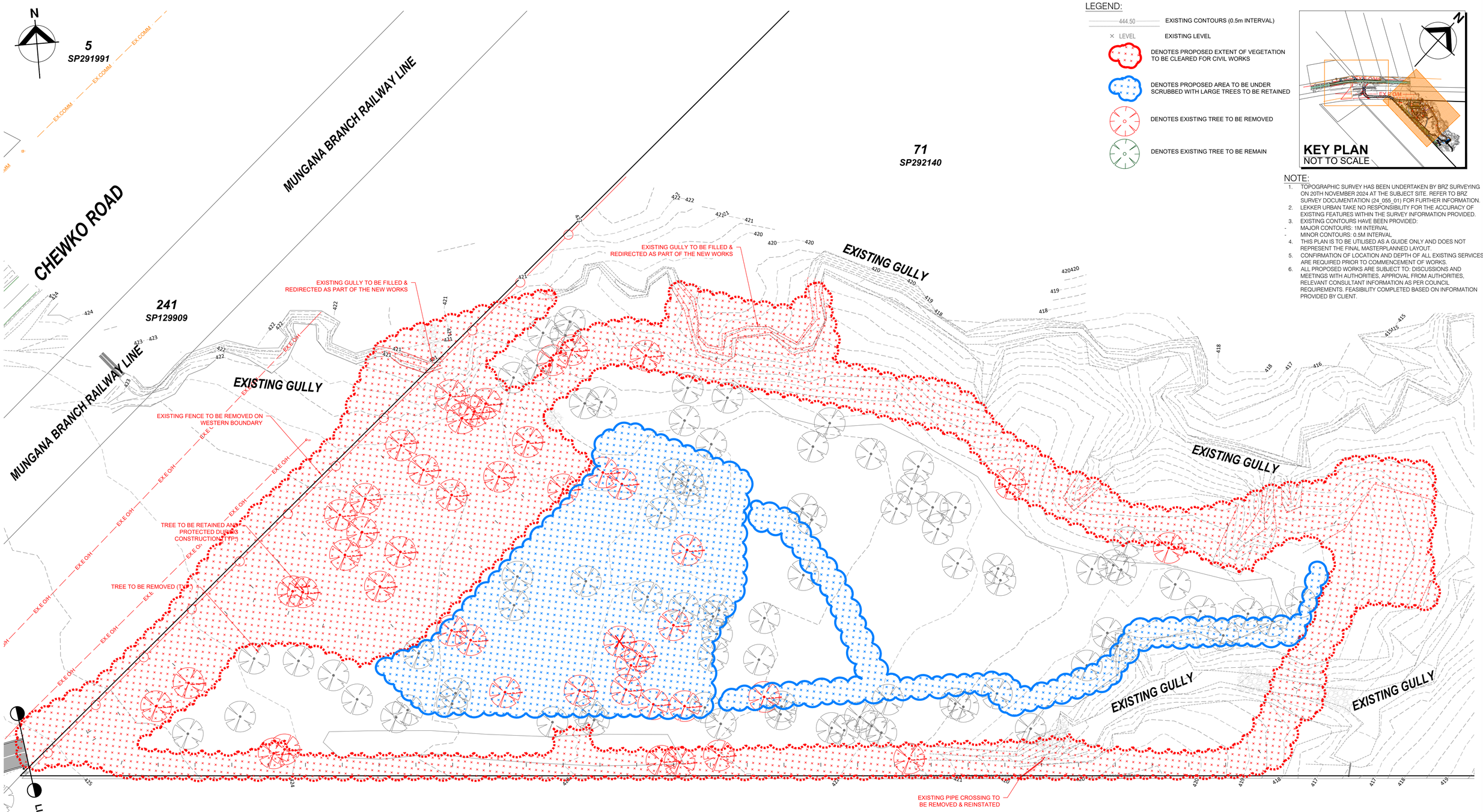
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TWO RIVERS COMMUNITY SCHOOL
STAGE 1 & 2 - INTERNAL CIVIL WORKS
CONCEPT EROSION & SEDIMENT CONTROL LAYOUT PLAN

CHEWKO ROAD & 267 MCIVER ROAD, MAREEBA QLD
ON BEHALF OF TWO RIVERS COMMUNITY SCHOOL

FOR APPROVAL

DRAWING NUMBER: LU23112-2-CD-201
REV: A



LEGEND:

- 444.50 — EXISTING CONTOURS (0.5m INTERVAL)
- × LEVEL — EXISTING LEVEL
- DENOTES PROPOSED EXTENT OF VEGETATION TO BE CLEARED FOR CIVIL WORKS
- DENOTES PROPOSED AREA TO BE UNDER SCRUBBED WITH LARGE TREES TO BE RETAINED
- DENOTES EXISTING TREE TO BE REMOVED
- DENOTES EXISTING TREE TO BE REMAIN

NOTE:

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2. LEKKER URBAN TAKE NO RESPONSIBILITY FOR THE ACCURACY OF EXISTING FEATURES WITHIN THE SURVEY INFORMATION PROVIDED.
3. EXISTING CONTOURS HAVE BEEN PROVIDED:
   - MAJOR CONTOURS: 1M INTERVAL
   - MINOR CONTOURS: 0.5M INTERVAL
4. THIS PLAN IS TO BE UTILISED AS A GUIDE ONLY AND DOES NOT REPRESENT THE FINAL MASTERPLANNED LAYOUT.
5. CONFIRMATION OF LOCATION AND DEPTH OF ALL EXISTING SERVICES ARE REQUIRED PRIOR TO COMMENCEMENT OF WORKS.
6. ALL PROPOSED WORKS ARE SUBJECT TO: DISCUSSIONS AND MEETINGS WITH AUTHORITIES, APPROVAL FROM AUTHORITIES, RELEVANT CONSULTANT INFORMATION AS PER COUNCIL REQUIREMENTS. FEASIBILITY COMPLETED BASED ON INFORMATION PROVIDED BY CLIENT.

WARNING: THE LOCATION OF EXISTING TELECOMMUNICATIONS & ELECTRICAL SERVICES ARE SHOWN INDICATIVELY ONLY (FROM SURVEY & BEFORE YOU DIG AUSTRALIA). NO RESPONSIBILITY IS TAKEN FOR THE ACCURACY OF THE INTERPOLATED INFORMATION SUPPLIED. ENSURE ALL SERVICES ARE ACCURATELY LOCATED PRIOR TO COMMENCEMENT OF WORKS.

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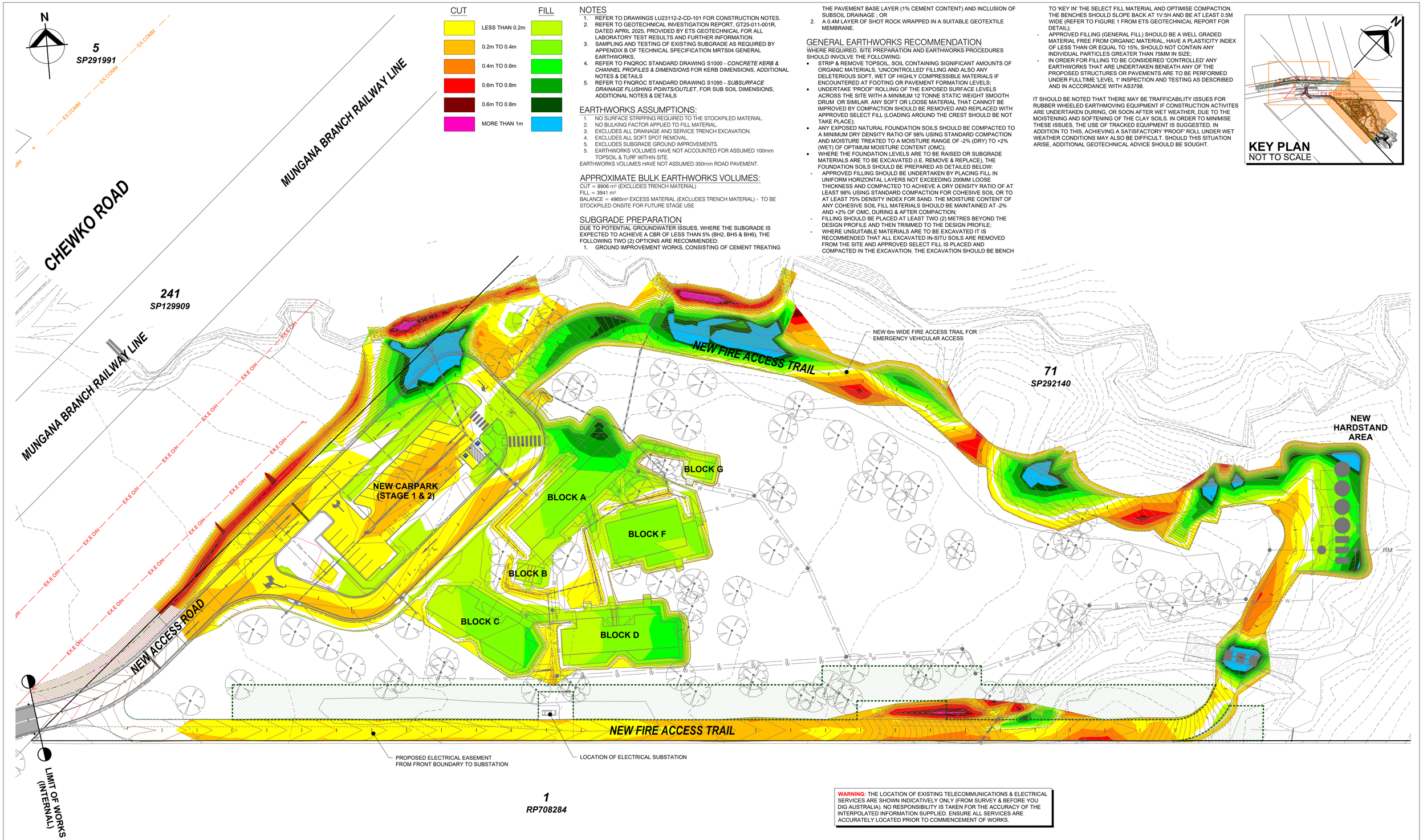
TWO RIVERS COMMUNITY SCHOOL STAGE 1 & 2 - INTERNAL CIVIL WORKS

CLEARING & DEMOLITION LAYOUT PLAN

CHEWKO ROAD & 267 MCIVER ROAD, MAREEBA QLD
ON BEHALF OF TWO RIVERS COMMUNITY SCHOOL

FOR APPROVAL

DRAWING NUMBER: LU23112-2-CD-202
REV: A



CUT		FILL
	LESS THAN 0.2m	
	0.2m TO 0.4m	
	0.4m TO 0.6m	
	0.6m TO 0.8m	
	0.6m TO 0.8m	
	MORE THAN 1m	

NOTES

1. REFER TO DRAWINGS LU23112-2-CD-101 FOR CONSTRUCTION NOTES.
2. REFER TO GEOTECHNICAL INVESTIGATION REPORT, GT25-011-001R, DATED APRIL 2025, PROVIDED BY ETS GEOTECHNICAL FOR ALL LABORATORY TEST RESULTS AND FURTHER INFORMATION.
3. SAMPLING AND TESTING OF EXISTING SUBGRADE AS REQUIRED BY APPENDIX B OF TECHNICAL SPECIFICATION MRTS04 GENERAL EARTHWORKS,
4. REFER TO FNQROC STANDARD DRAWING S1000 - *CONCRETE KERB & CHANNEL PROFILES & DIMENSIONS* FOR KERB DIMENSIONS, ADDITIONAL NOTES & DETAILS
5. REFER TO FNQROC STANDARD DRAWING S1095 - *SUBSURFACE DRAINAGE FLUSHING POINTS/OUTLET*, FOR SUB SOIL DIMENSIONS, ADDITIONAL NOTES & DETAILS

EARTHWORKS ASSUMPTIONS:

1. NO SURFACE STRIPPING REQUIRED TO THE STOCKPILED MATERIAL.
2. NO BULKING FACTOR APPLIED TO FILL MATERIAL.
3. EXCLUDES ALL DRAINAGE AND SERVICE TRENCH EXCAVATION.
4. EXCLUDES ALL SOFT SPOT REMOVAL.
5. EXCLUDES SUBGRADE GROUND IMPROVEMENTS.
5. EARTHWORKS VOLUMES HAVE NOT ACCOUNTED FOR ASSUMED 100mm TOPSOIL & TURF WITHIN SITE.

EARTHWORKS VOLUMES HAVE NOT ASSUMED 350mm ROAD PAVEMENT.

APPROXIMATE BULK EARTHWORKS VOLUMES:

CUT = 8906 m³ (EXCLUDES TRENCH MATERIAL)
FILL = 3941 m³
BALANCE = 4965m³ EXCESS MATERIAL (EXCLUDES TRENCH MATERIAL) - TO BE STOCKPILED ONSITE FOR FUTURE STAGE USE

SUBGRADE PREPARATION

DUE TO POTENTIAL GROUNDWATER ISSUES, WHERE THE SUBGRADE IS EXPECTED TO ACHIEVE A CBR OF LESS THAN 5% (BH2, BH5 & BH6), THE FOLLOWING TWO (2) OPTIONS ARE RECOMMENDED:

1. GROUND IMPROVEMENT WORKS, CONSISTING OF CEMENT TREATING THE PAVEMENT BASE LAYER (1% CEMENT CONTENT) AND INCLUSION OF SUBSOIL DRAINAGE ; OR
2. A 0.4M LAYER OF SHOT ROCK WRAPPED IN A SUITABLE GEOTEXTILE MEMBRANE.

GENERAL EARTHWORKS RECOMMENDATION

WHERE REQUIRED, SITE PREPARATION AND EARTHWORKS PROCEDURES SHOULD INVOLVE THE FOLLOWING:

- STRIP & REMOVE TOPSOIL, SOIL CONTAINING SIGNIFICANT AMOUNTS OF ORGANIC MATERIALS, 'UNCONTROLLED' FILLING AND ALSO ANY DELETERIOUS SOFT, WET OF HIGHLY COMPRESSIBLE MATERIALS IF ENCOUNTERED AT FOOTING OR PAVEMENT FORMATION LEVELS;
- UNDERTAKE 'PROOF' ROLLING OF THE EXPOSED SURFACE LEVELS ACROSS THE SITE WITH A MINIMUM 12 TONNE STATIC WEIGHT SMOOTH DRUM OR SIMILAR. ANY SOFT OR LOOSE MATERIAL THAT CANNOT BE IMPROVED BY COMPACTION SHOULD BE REMOVED AND REPLACED WITH APPROVED SELECT FILL (LOADING AROUND THE CREST SHOULD BE NOT TAKE PLACE);
- ANY EXPOSED NATURAL FOUNDATION SOILS SHOULD BE COMPACTED TO A MINIMUM DRY DENSITY RATIO OF 98% USING STANDARD COMPACTION AND MOISTURE TREATED TO A MOISTURE RANGE OF -2% (DRY) TO +2% (WET) OF OPTIMUM MOISTURE CONTENT (OMC);
- WHERE THE FOUNDATION LEVELS ARE TO BE RAISED OR SUBGRADE MATERIALS ARE TO BE EXCAVATED (I.E. REMOVE & REPLACE), THE FOUNDATION SOILS SHOULD BE PREPARED AS DETAILED BELOW:
  - APPROVED FILLING SHOULD BE UNDERTAKEN BY PLACING FILL IN UNIFORM HORIZONTAL LAYERS NOT EXCEEDING 200MM LOOSE THICKNESS AND COMPACTED TO ACHIEVE A DRY DENSITY RATIO OF AT LEAST 98% USING STANDARD COMPACTION FOR COHESIVE SOIL OR TO AT LEAST 75% DENSITY INDEX FOR SAND. THE MOISTURE CONTENT OF ANY COHESIVE SOIL FILL MATERIALS SHOULD BE MAINTAINED AT -2% AND +2% OF OMC, DURING & AFTER COMPACTION;
  - FILLING SHOULD BE PLACED AT LEAST TWO (2) METRES BEYOND THE DESIGN PROFILE AND THEN TRIMMED TO THE DESIGN PROFILE;
  - WHERE UNSUITABLE MATERIALS ARE TO BE EXCAVATED IT IS RECOMMENDED THAT ALL EXCAVATED IN-SITU SOILS ARE REMOVED FROM THE SITE AND APPROVED SELECT FILL IS PLACED AND COMPACTED IN THE EXCAVATION. THE EXCAVATION SHOULD BE BENCH TO 'KEY IN' THE SELECT FILL MATERIAL AND OPTIMISE COMPACTION. THE BENCHES SHOULD SLOPE BACK AT 1V:5H AND BE AT LEAST 0.5M WIDE (REFER TO FIGURE 1 FROM ETS GEOTECHNICAL REPORT FOR DETAIL);
  - APPROVED FILLING (GENERAL FILL) SHOULD BE A WELL GRADED MATERIAL FREE FROM ORGANIC MATERIAL, HAVE A PLASTICITY INDEX OF LESS THAN OR EQUAL TO 15%, SHOULD NOT CONTAIN ANY INDIVIDUAL PARTICLES GREATER THAN 75MM IN SIZE;
  - IN ORDER FOR FILLING TO BE CONSIDERED 'CONTROLLED' ANY EARTHWORKS THAT ARE UNDERTAKEN BENEATH ANY OF THE PROPOSED STRUCTURES OR PAVEMENTS ARE TO BE PERFORMED UNDER FULLTIME 'LEVEL 1' INSPECTION AND TESTING AS DESCRIBED AND IN ACCORDANCE WITH AS3798.

IT SHOULD BE NOTED THAT THERE MAY BE TRAFFICABILITY ISSUES FOR RUBBER WHEELED EARTHMOVING EQUIPMENT IF CONSTRUCTION ACTIVITES ARE UNDERTAKEN DURING, OR SOON AFTER WET WEATHER, DUE TO THE MOISTENING AND SOFTENING OF THE CLAY SOILS. IN ORDER TO MINIMISE THESE ISSUES, THE USE OF TRACKED EQUIPMENT IS SUGGESTED. IN ADDITION TO THIS, ACHIEVING A SATISFACTORY 'PROOF' ROLL UNDER WET WEATHER CONDITIONS MAY ALSO BE DIFFICULT. SHOULD THIS SITUATION ARISE, ADDITIONAL GEOTECHNICAL ADVICE SHOULD BE SOUGHT.

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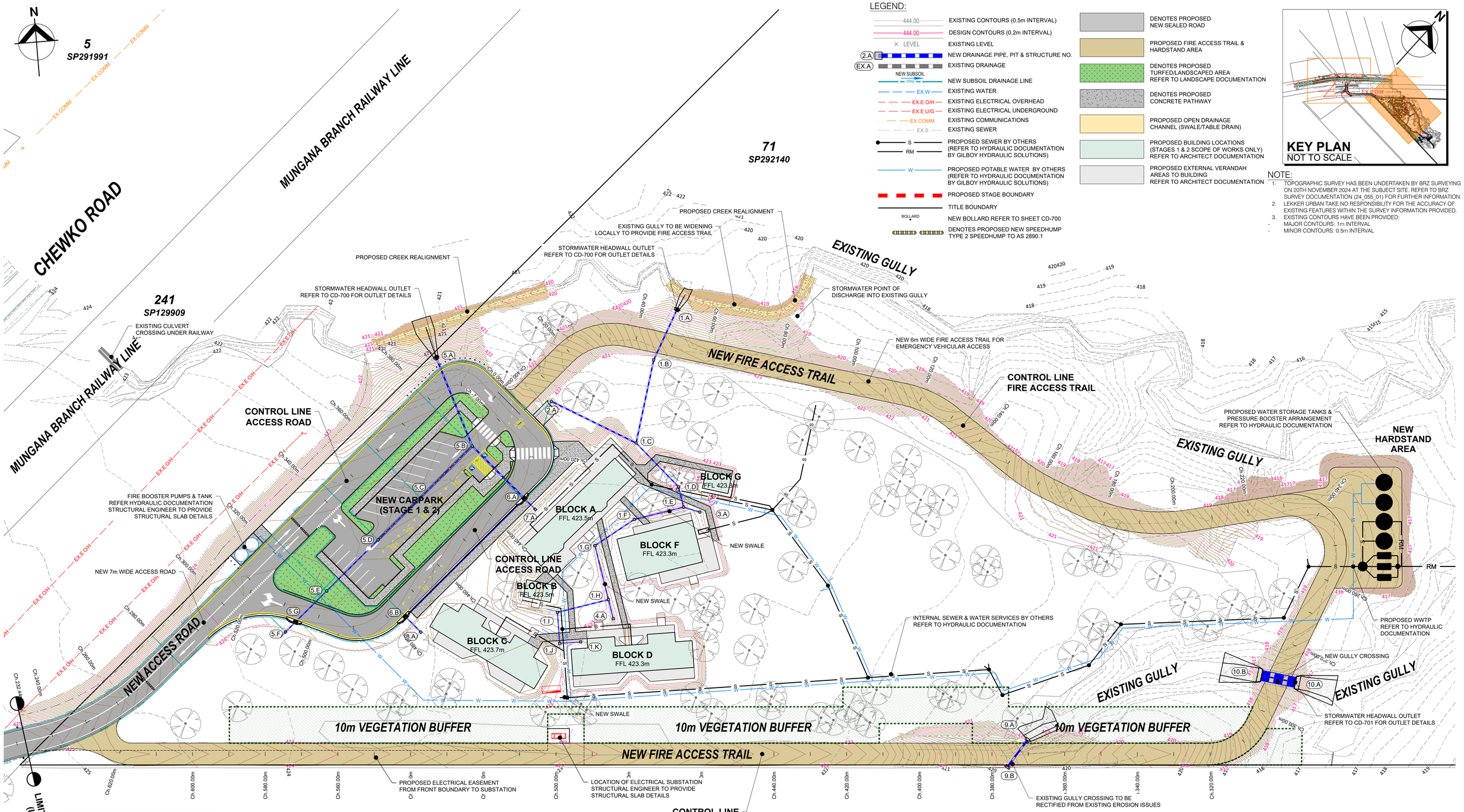
TWO RIVERS COMMUNITY SCHOOL STAGE 1 & 2 - INTERNAL CIVIL WORKS

BULK EARTHWORKS LAYOUT PLAN

CHEWKO ROAD & 267 MCIVER ROAD, MAREEBA QLD
ON BEHALF OF TWO RIVERS COMMUNITY SCHOOL

FOR APPROVAL

DRAWING NUMBER: LU23112-2-CD-203
REV: A



LEGEND:

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- DESIGN CONTOURS (0.2m INTERVAL)
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- DENOTES PROPOSED TURFED/LANDSCAPED AREA REFER TO LANDSCAPE DOCUMENTATION
- DENOTES PROPOSED CONCRETE PATHWAY
- PROPOSED OPEN DRAINAGE CHANNEL (SWALE/TABLE DRAIN)
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NOTE:

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Authorised: J.L.A
Date: 29/04/2025

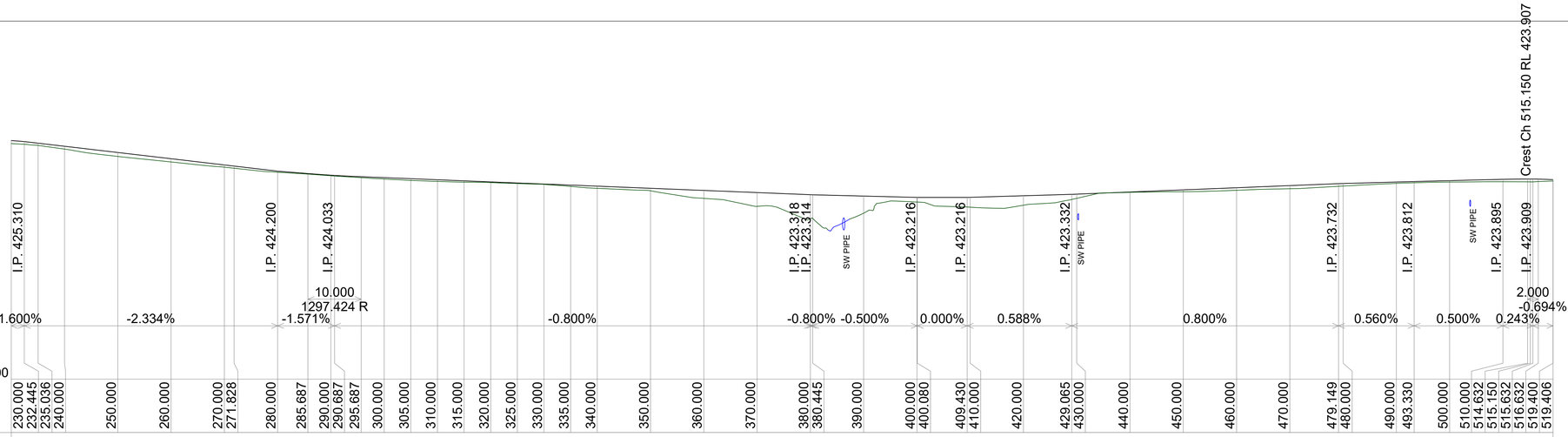
TWO RIVERS COMMUNITY SCHOOL STAGE 1 & 2 - INTERNAL CIVIL WORKS

CIVIL SITE WORKS LAYOUT PLAN

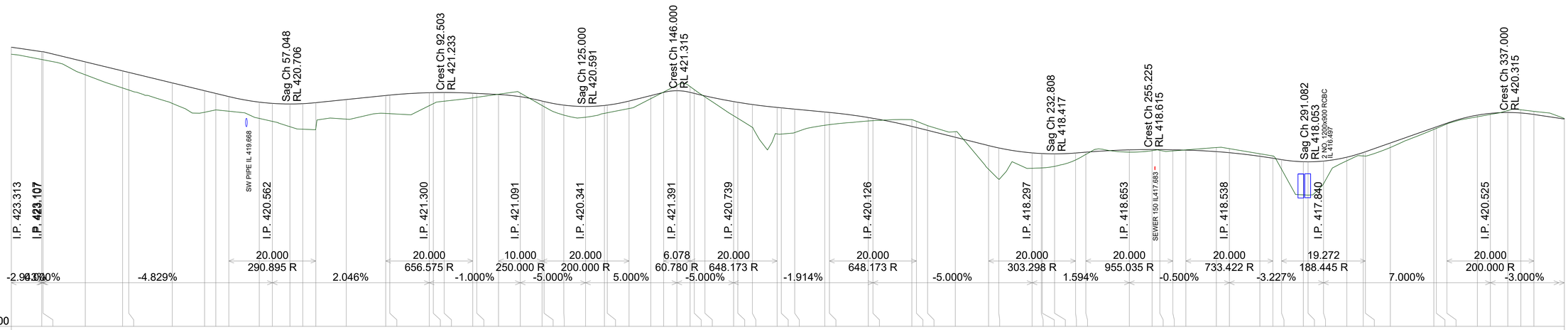
CHEWKO ROAD & 267 MCIVER ROAD, MAREEBA QLD
ON BEHALF OF TWO RIVERS COMMUNITY SCHOOL

FOR APPROVAL

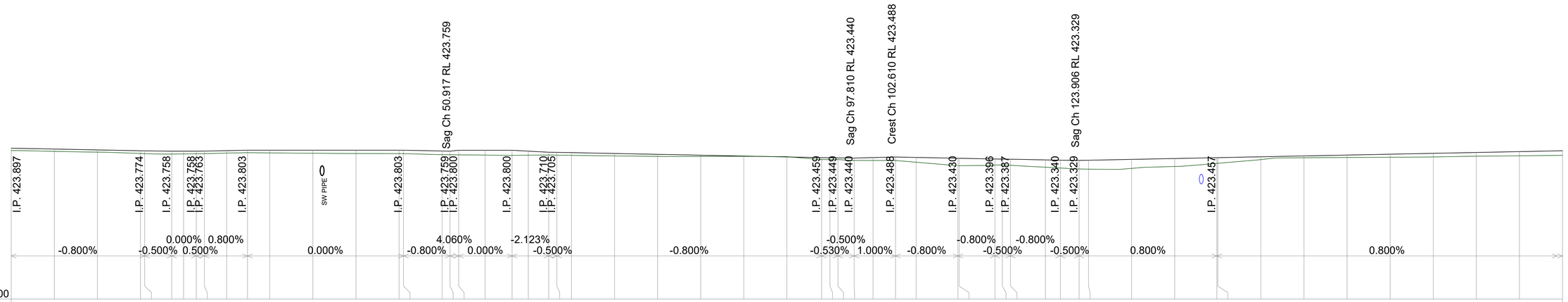
DRAWING NUMBER: LU23112-2-CD-204 REV: A


Crest Ch 515.150 RL 423.907
I.P. 425.310
I.P. 424.200
I.P. 424.033
I.P. 423.318
I.P. 423.314
SW PIPE
I.P. 423.216
I.P. 423.216
I.P. 423.332
SW PIPE
I.P. 423.732
I.P. 423.812
SW PIPE
I.P. 423.895
I.P. 423.909
10.000
1297.424 R
2.000
-1.600%
-2.334%
-1.571%
-0.800%
-0.800%
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0.588%
0.800%
0.560%
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0.243%
-0.694%
R.L. 416.400

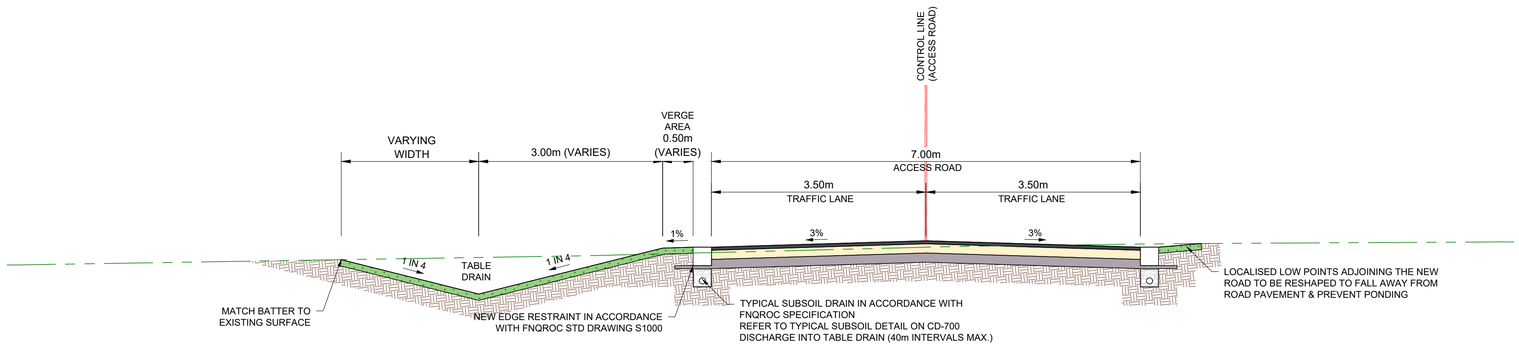
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Sag Ch 57.048
RL 420.706
Crest Ch 92.503
RL 421.233
Sag Ch 125.000
RL 420.591
Crest Ch 146.000
RL 421.315
Sag Ch 232.808
RL 418.417
Crest Ch 255.225
RL 418.615
Sag Ch 291.082
RL 418.053
2 NO. 2200x900 RCBC
IL 416.497
Crest Ch 337.000
RL 420.315
SW PIPE IL 419.668
SEWER 150 IL417.683
I.P. 423.313
I.P. 423.107
I.P. 420.562
I.P. 421.300
I.P. 421.091
I.P. 420.341
I.P. 421.391
I.P. 420.739
I.P. 420.126
I.P. 418.297
I.P. 418.653
I.P. 418.538
I.P. 417.840
I.P. 420.525
20.000
290.895 R
20.000
656.575 R
10.000
250.000 R
20.000
200.000 R
6.078
60.780 R
20.000
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20.000
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2.046%
-1.000%
-5.000%
5.000%
-5.000%
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-3.227%
7.000%
-3.000%
R.L. 410.500

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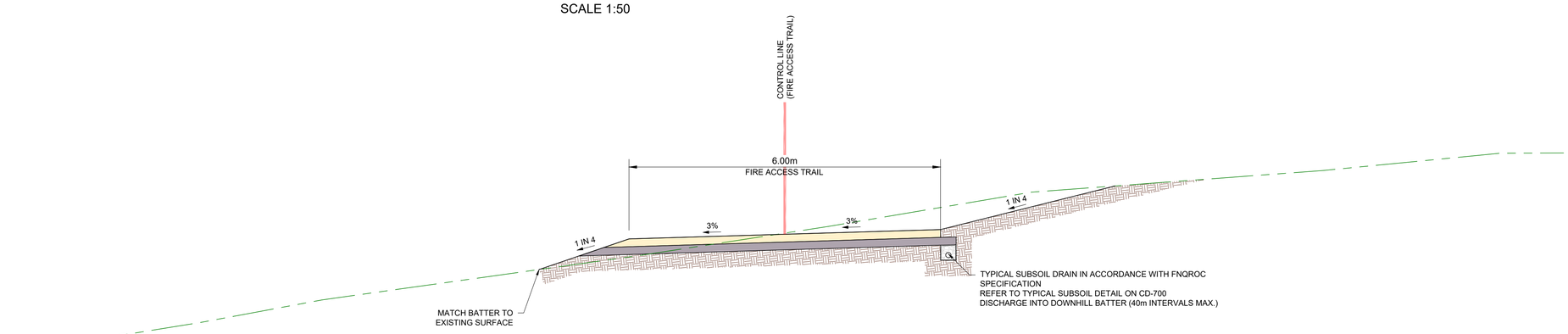

Sag Ch 50.917 RL 423.759
Sag Ch 97.810 RL 423.440
Crest Ch 102.610 RL 423.488
Sag Ch 123.906 RL 423.329
SW PIPE
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I.P. 423.774
I.P. 423.758
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I.P. 423.763
I.P. 423.803
I.P. 423.803
I.P. 423.759
I.P. 423.800
I.P. 423.800
I.P. 423.710
I.P. 423.705
I.P. 423.459
I.P. 423.449
I.P. 423.440
I.P. 423.488
I.P. 423.430
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I.P. 423.387
I.P. 423.340
I.P. 423.329
I.P. 423.457
-0.800%
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R.L. 416.900

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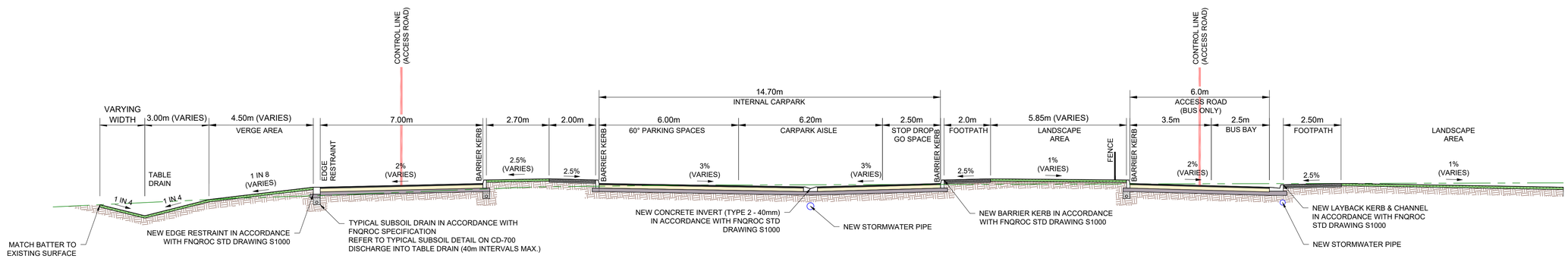
TYPICAL SECTION - ACCESS ROAD (INTERNAL)

SCALE 1:50



TYPICAL SECTION - FIRE ACCESS TRAIL

SCALE 1:50



TYPICAL SECTION - NEW CARPARK (STAGE 1 & 2)

SCALE 1:100

Revision	Amendments	Approved	Date
A	100% DESIGN ISSUE - FOR APPROVAL	J.L.A	29/04/2025

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CONTACT@LEKKERURBAN.COM
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SCALE 1:50@A1
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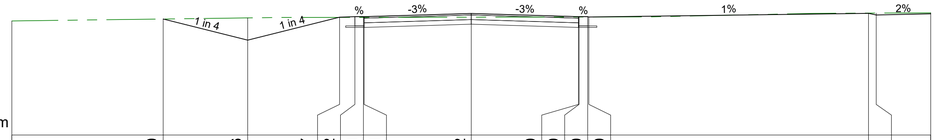
Designed: A.P.B
Checked: J.L.A
Authorised: J.L.A
Date: 29/04/2025

TWO RIVERS COMMUNITY SCHOOL
STAGE 1 & 2 - INTERNAL CIVIL WORKS
TYPICAL ROAD SECTIONS

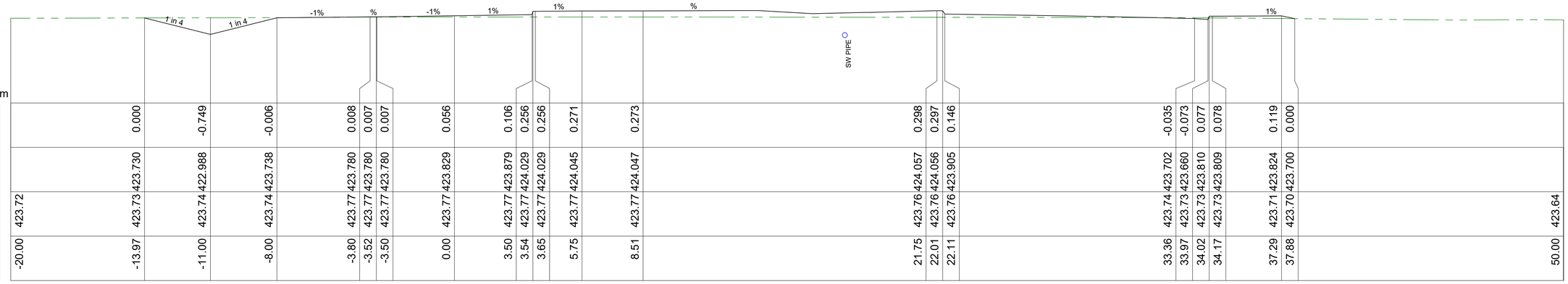
CHEWKO ROAD & 267 MCIVER ROAD, MAREEBA QLD
ON BEHALF OF TWO RIVERS COMMUNITY SCHOOL

FOR APPROVAL

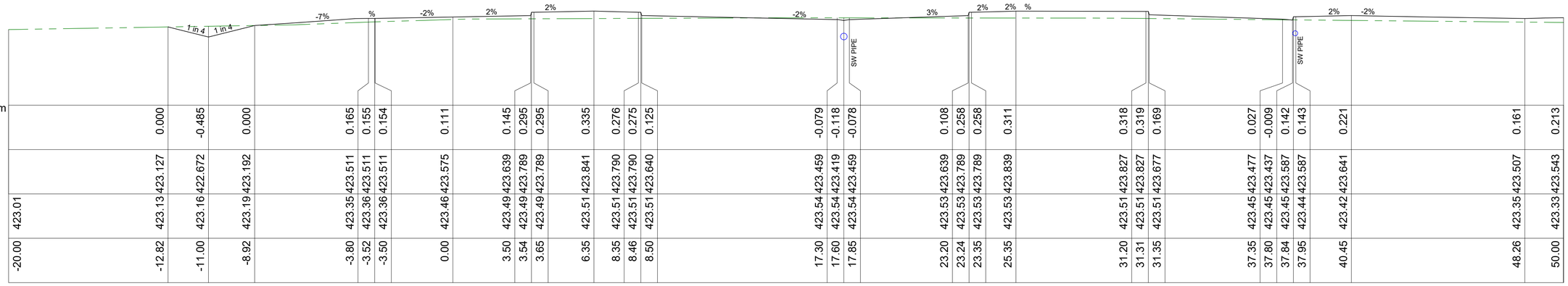
DRAWING NUMBER: LU23112-2-CD-400
REV: A


1 in 4
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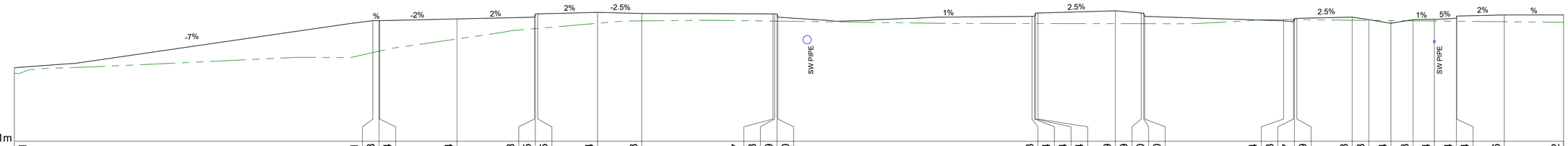
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SW PIPE

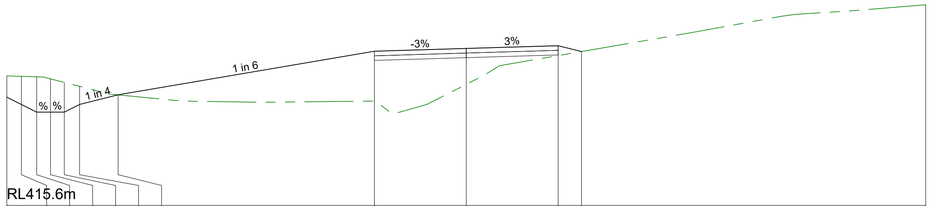
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SW PIPE
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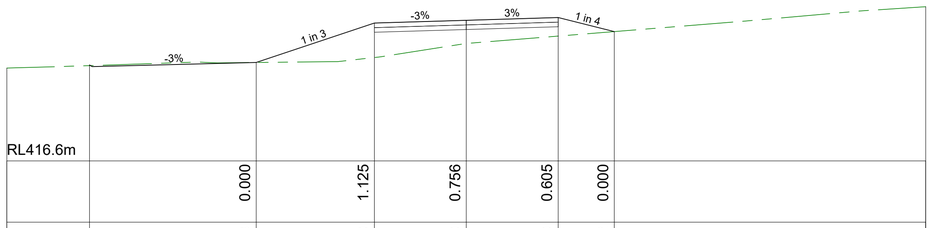

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SW PIPE
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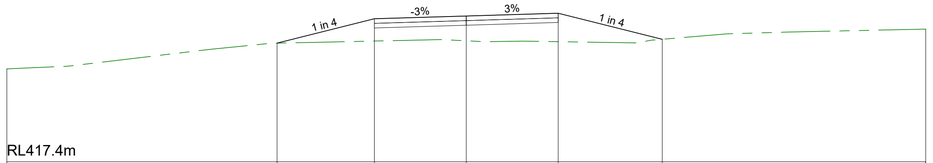
HEIGHT DIFFERENCE				1.639	1.173	0.322	0.000	
DESIGN SURFACE	419.129	418.892	418.642	418.643	418.643	418.893	419.209	
EXISTING SURFACE	419.82	419.81	419.80	419.73	419.61	419.49	419.21	422.15
OFFSET	-15.00	-14.53	-14.02	-13.57	-13.12	-12.62	-11.37	-3.00	0.00	3.00	3.76	15.00

Ch 60.00 m



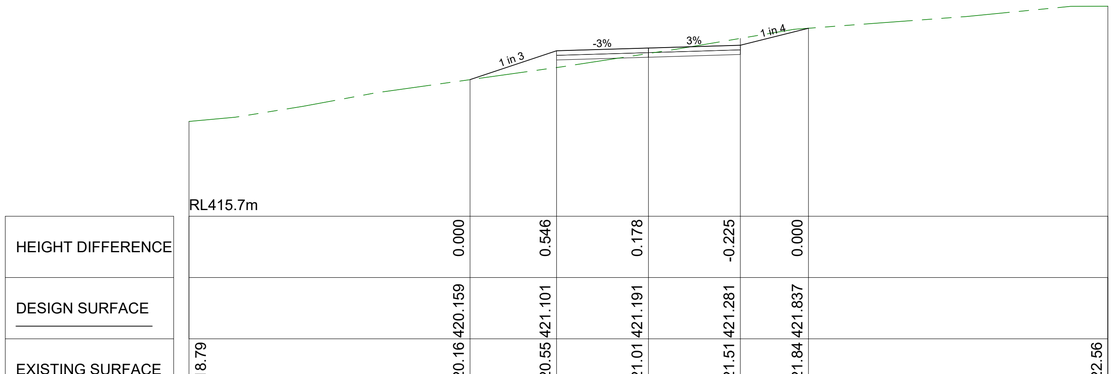
HEIGHT DIFFERENCE		0.000	1.125	0.756	0.605	0.000	
DESIGN SURFACE	419.734	419.813	421.100	421.190	421.280	420.822	
EXISTING SURFACE	419.63	419.71	419.81	419.98	420.43	420.67	420.82	421.63
OFFSET	-15.00	-12.30	-6.86	-3.00	0.00	3.00	4.83	15.00

Ch 40.00 m



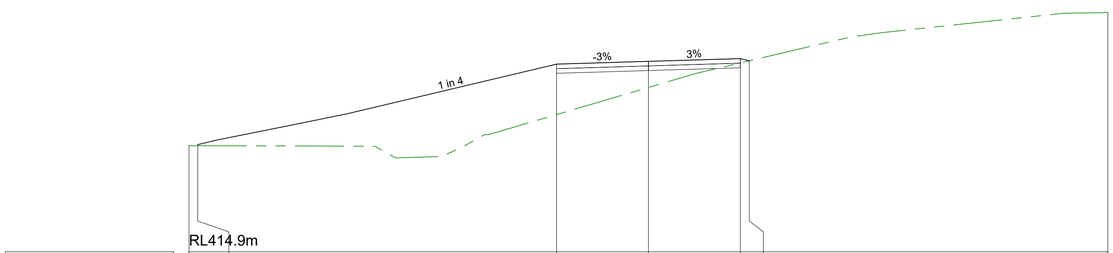
HEIGHT DIFFERENCE	0.000	0.727	0.809	0.927	0.000	
DESIGN SURFACE	421.271	422.066	422.156	422.246	421.396	
EXISTING SURFACE	420.43	421.27	421.34	421.35	421.32	421.40	421.73
OFFSET	-15.00	-6.18	-3.00	0.00	3.00	6.40	15.00

Ch 20.00 m



HEIGHT DIFFERENCE	0.000	0.546	0.178	-0.225	0.000	
DESIGN SURFACE	420.159	421.101	421.191	421.281	421.837	
EXISTING SURFACE	418.79	420.16	420.55	421.01	421.51	421.84	422.56
OFFSET	-15.00	-5.83	-3.00	0.00	3.00	5.22	15.00

Ch 100.00 m



HEIGHT DIFFERENCE	1.647	0.852	0.142	0.000		
DESIGN SURFACE	418.397	421.024	421.114	421.204	421.131	
EXISTING SURFACE	418.36	418.36	419.38	420.26	421.06	421.13	422.71
OFFSET	-15.00	-14.72	-3.00	0.00	3.00	3.29	15.00

Ch 80.00 m

Revision	Amendments	Approved	Date
A	100% DESIGN ISSUE - FOR APPROVAL	J.L.A	29/04/2025

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SCALE 1:100@A1
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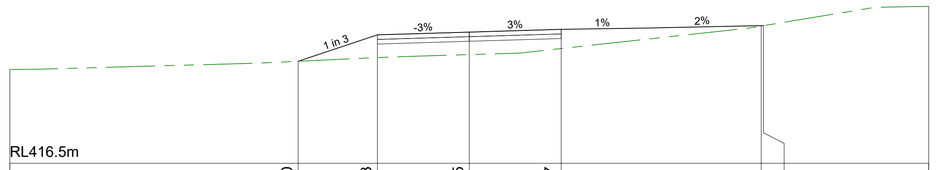
Designed: A.P.B
Checked: J.L.A
Authorised: J.L.A
Date: 29/04/2025

TWO RIVERS COMMUNITY SCHOOL
STAGE 1 & 2 - INTERNAL CIVIL WORKS
ROAD CROSS SECTIONS
FIRE ACCESS TRAIL - SHEET 1 OF 6

CHEWKO ROAD & 267 MCIVER ROAD, MAREEBA QLD
ON BEHALF OF TWO RIVERS COMMUNITY SCHOOL

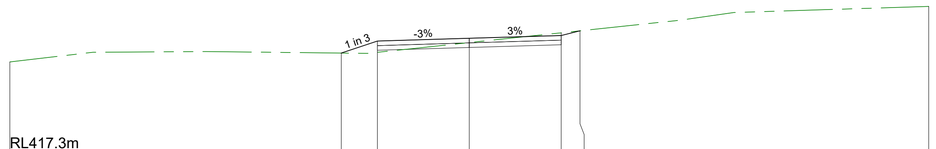
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DRAWING NUMBER: LU23112-2-CD-405 REV: A



RL416.5m								
HEIGHT DIFFERENCE		0.000	0.743	0.735	0.627			
DESIGN SURFACE		419.830	420.693	420.783	420.873	420.995	420.995	
EXISTING SURFACE	419.56	419.83	419.95	420.05	420.25	420.98	420.99	421.63
OFFSET	-15.00	-5.59	-3.00	0.00	3.00	9.53	9.60	15.00

Ch 160.00 m
CL FIRE ACCESS TRAIL



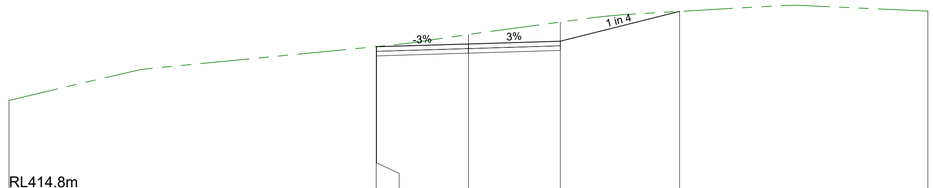
RL417.3m							
HEIGHT DIFFERENCE		0.000	0.368	0.140	-0.088	0.000	
DESIGN SURFACE		420.608	421.001	421.091	421.181	421.334	
EXISTING SURFACE	420.32	420.61	420.63	420.95	421.27	421.33	422.13
OFFSET	-15.00	-4.18	-3.00	0.00	3.00	3.61	15.00

Ch 140.00 m
CL FIRE ACCESS TRAIL



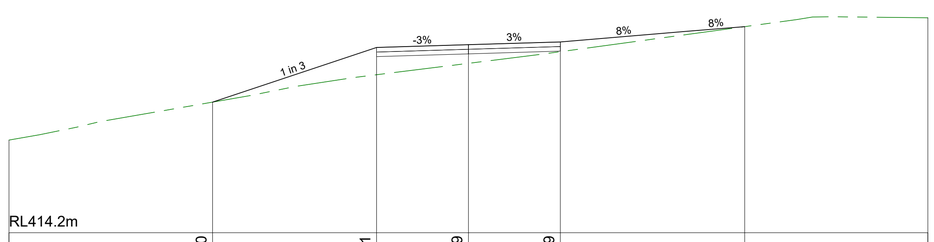
RL414.7m						
HEIGHT DIFFERENCE	0.000	0.985	0.457	-0.124	0.000	
DESIGN SURFACE	418.850	420.563	420.653	420.743	421.245	
EXISTING SURFACE	417.73	418.85	419.58	420.20	420.87	421.25	422.23
OFFSET	-15.00	-8.14	-3.00	0.00	3.00	5.01	15.00

Ch 120.00 m
CL FIRE ACCESS TRAIL



RL414.8m							
HEIGHT DIFFERENCE		0.000	-0.005	-0.308	-0.624	0.000	
DESIGN SURFACE		419.592	419.588	419.678	419.768	420.741	
EXISTING SURFACE	417.83	419.59	419.59	419.99	420.39	420.74	420.75
OFFSET	-15.00	-3.01	-3.00	0.00	3.00	6.89	15.00

Ch 200.00 m
CL FIRE ACCESS TRAIL



RL414.2m						
HEIGHT DIFFERENCE	0.000	0.891	0.609	0.319		
DESIGN SURFACE	418.462	420.247	420.337	420.427	420.927	
EXISTING SURFACE	417.22	418.46	419.36	419.73	420.11	420.93	421.22
OFFSET	-15.00	-8.36	-3.00	0.00	3.00	9.02	15.00

Ch 180.00 m
CL FIRE ACCESS TRAIL

Revision	Amendments	Approved	Date
A	100% DESIGN ISSUE - FOR APPROVAL	J.L.A	29/04/2025

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SCALE 1:100@A1
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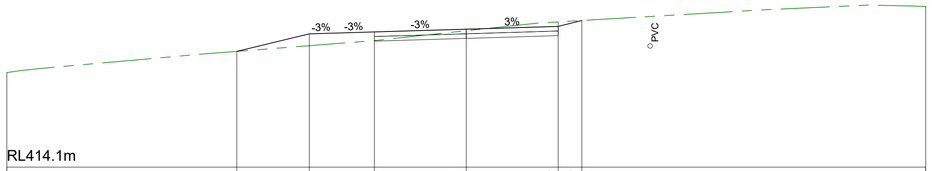
Designed: A.P.B
Checked: J.L.A
Authorised: J.L.A
Date: 29/04/2025

TWO RIVERS COMMUNITY SCHOOL
STAGE 1 & 2 - INTERNAL CIVIL WORKS
ROAD CROSS SECTIONS
FIRE ACCESS TRAIL - SHEET 2 OF 6

CHEWKO ROAD & 267 MCIVER ROAD, MAREEBA QLD
ON BEHALF OF TWO RIVERS COMMUNITY SCHOOL

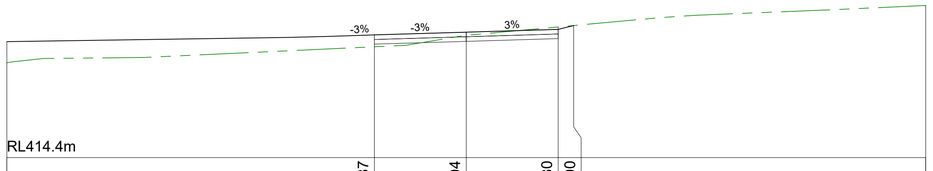
FOR APPROVAL

DRAWING NUMBER: LU23112-2-CD-406
REV: A



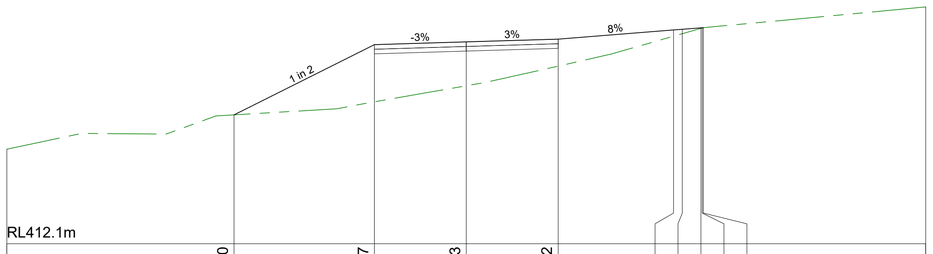
RL414.1m							
HEIGHT DIFFERENCE				0.281	0.051	-0.148	0.000
DESIGN SURFACE		417.879	418.450	418.513	418.603	418.693	418.887
EXISTING SURFACE	417.19	417.88	418.06	418.23	418.55	418.84	418.89	419.35
OFFSET	-15.00	-7.49	-5.13	-3.00	0.00	3.00	3.77	15.00

Ch 260.00 m



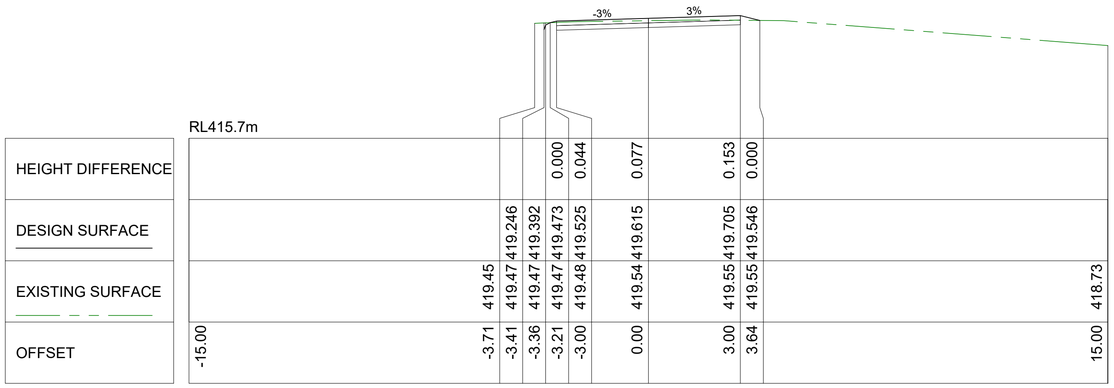
RL414.4m						
HEIGHT DIFFERENCE		0.387	0.104	-0.080	0.000	
DESIGN SURFACE	418.184	418.404	418.494	418.584	418.710	
EXISTING SURFACE	417.50	418.02	418.39	418.66	418.71	419.36
OFFSET	-15.00	-3.00	0.00	3.00	3.51	15.00

Ch 240.00 m



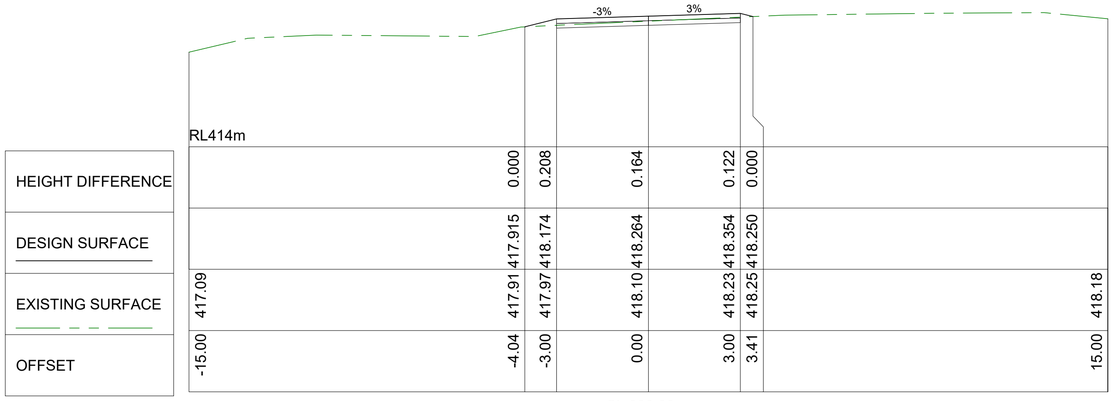
RL412.1m										
HEIGHT DIFFERENCE	0.000	1.867	1.433	0.882						
DESIGN SURFACE	416.306	418.598	418.688	418.778	419.078	419.100	419.146	419.150	419.152	
EXISTING SURFACE	415.18	416.31	416.73	417.26	417.90	418.87	418.96	419.13	419.14	419.15	419.83
OFFSET	-15.00	-7.58	-3.00	0.00	3.00	6.77	7.05	7.66	7.70	7.74	15.00

Ch 220.00 m



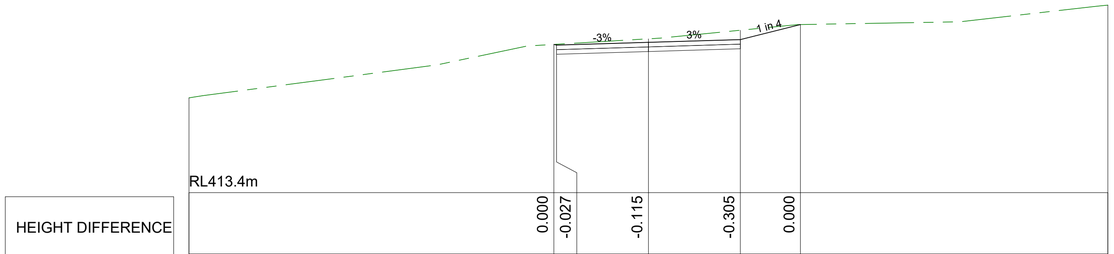
RL415.7m						
HEIGHT DIFFERENCE			0.000	0.044	0.077	0.153	0.000
DESIGN SURFACE		419.246	419.392	419.473	419.525	419.615	419.705	419.546
EXISTING SURFACE	419.45	419.47	419.47	419.47	419.48	419.54	419.55	419.55	418.73
OFFSET	-15.00	-3.71	-3.41	-3.36	-3.21	-3.00	0.00	3.00	3.64	15.00

Ch 320.00 m



RL414m							
HEIGHT DIFFERENCE		0.000	0.208	0.164	0.122	0.000	
DESIGN SURFACE		417.915	418.174	418.264	418.354	418.250	
EXISTING SURFACE	417.09	417.91	417.97	418.10	418.23	418.25	418.18
OFFSET	-15.00	-4.04	-3.00	0.00	3.00	3.41	15.00

Ch 300.00 m



RL413.4m						
HEIGHT DIFFERENCE	0.000	-0.027	-0.115	-0.305	0.000	
DESIGN SURFACE	418.238	418.216	418.306	418.396	418.886	
EXISTING SURFACE	416.49	418.24	418.24	418.42	418.70	418.89	419.52
OFFSET	-15.00	-3.09	-3.00	0.00	3.00	4.96	15.00

Ch 280.00 m

Revision	Amendments	Approved	Date
A	100% DESIGN ISSUE - FOR APPROVAL	J.L.A	29/04/2025

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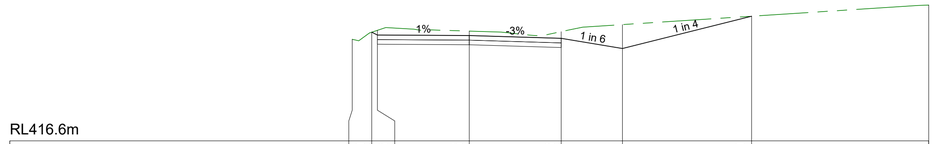
Designed: A.P.B
Checked: J.L.A
Authorised: J.L.A
Date: 29/04/2025

TWO RIVERS COMMUNITY SCHOOL
STAGE 1 & 2 - INTERNAL CIVIL WORKS
ROAD CROSS SECTIONS
FIRE ACCESS TRAIL - SHEET 3 OF 6

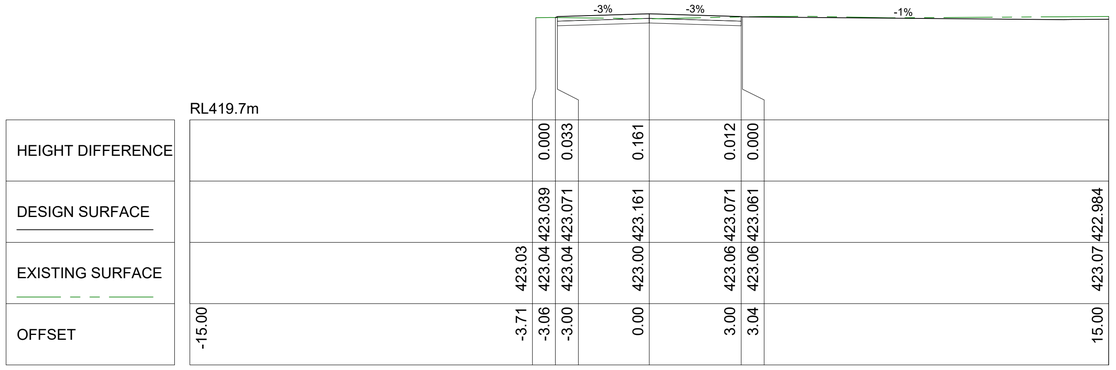
CHEWKO ROAD & 267 MCIVER ROAD, MAREEBA QLD
ON BEHALF OF TWO RIVERS COMMUNITY SCHOOL

FOR APPROVAL

DRAWING NUMBER: LU23112-2-CD-407 REV: A


1%
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1 in 6
1 in 4

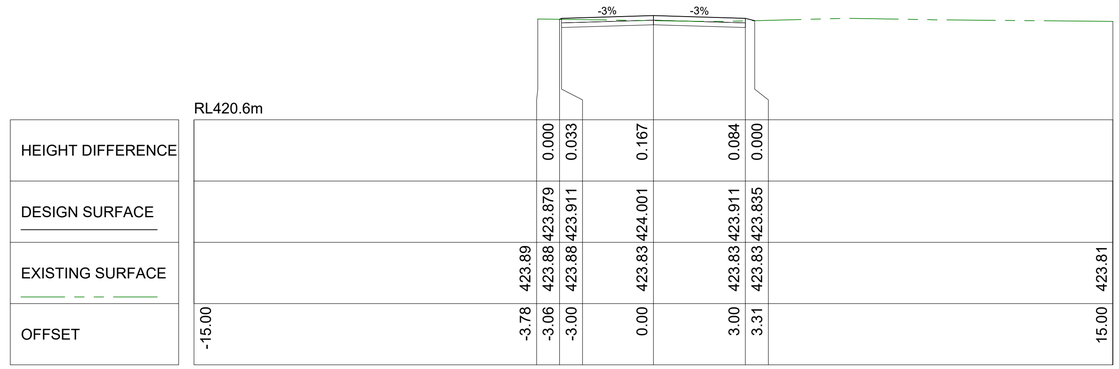
| | | |



RL419.7m

HEIGHT DIFFERENCE			0.000	0.033	0.161	0.012	0.000	
DESIGN SURFACE			423.039	423.071	423.161	423.071	423.061	422.984
EXISTING SURFACE		423.03	423.04	423.04	423.00	423.06	423.06	423.07
OFFSET	-15.00	-3.71	-3.06	-3.00	0.00	3.00	3.04	15.00

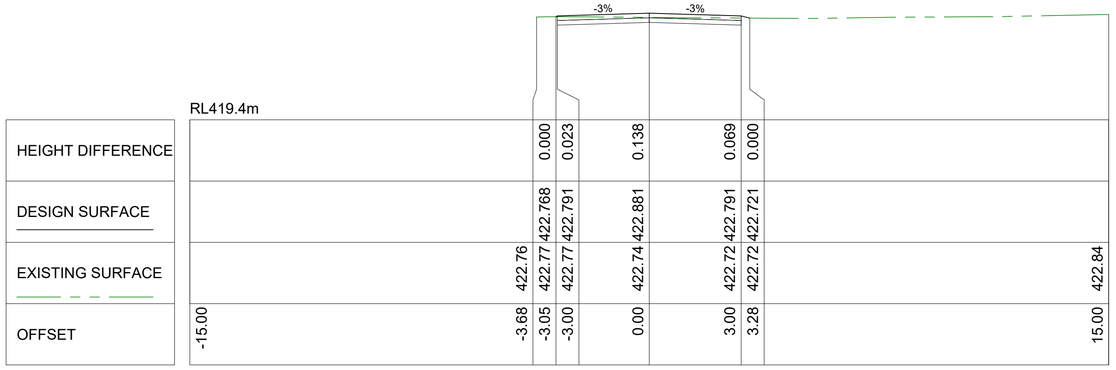
Ch 500.00 m



RL420.6m

HEIGHT DIFFERENCE			0.000	0.033	0.167	0.084	0.000	
DESIGN SURFACE			423.879	423.911	424.001	423.911	423.835	
EXISTING SURFACE		423.89	423.88	423.88	423.83	423.83	423.83	423.81
OFFSET	-15.00	-3.78	-3.06	-3.00	0.00	3.00	3.31	15.00

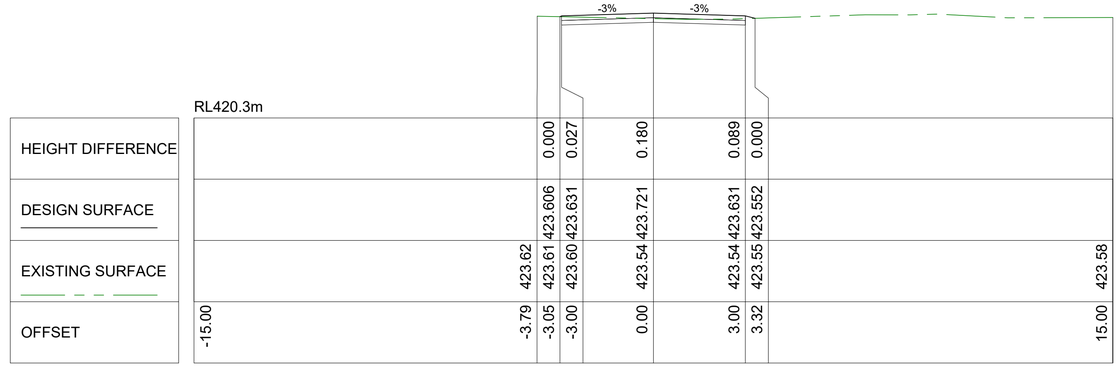
Ch 560.00 m



RL419.4m

HEIGHT DIFFERENCE			0.000	0.023	0.138	0.069	0.000	
DESIGN SURFACE			422.768	422.791	422.881	422.791	422.721	
EXISTING SURFACE		422.76	422.77	422.77	422.74	422.72	422.72	422.84
OFFSET	-15.00	-3.68	-3.05	-3.00	0.00	3.00	3.28	15.00

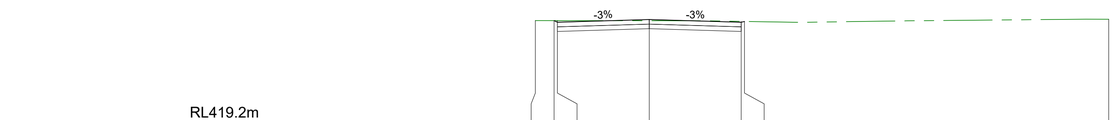
Ch 480.00 m



RL420.3m

HEIGHT DIFFERENCE			0.000	0.027	0.180	0.089	0.000	
DESIGN SURFACE			423.606	423.631	423.721	423.631	423.552	
EXISTING SURFACE		423.62	423.61	423.60	423.54	423.54	423.55	423.58
OFFSET	-15.00	-3.79	-3.05	-3.00	0.00	3.00	3.32	15.00

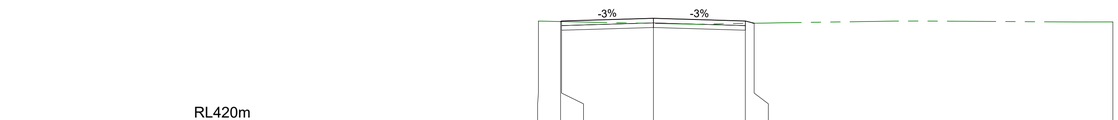
Ch 540.00 m



RL419.2m

HEIGHT DIFFERENCE			0.000	-0.054	0.040	-0.029	0.000	
DESIGN SURFACE			422.565	422.511	422.601	422.511	422.538	
EXISTING SURFACE		422.57	422.57	422.57	422.56	422.54	422.54	422.61
OFFSET	-15.00	-3.72	-3.11	-3.00	0.00	3.00	3.11	15.00

Ch 460.00 m



RL420m

HEIGHT DIFFERENCE			0.000	0.017	0.169	0.077	0.000	
DESIGN SURFACE			423.335	423.351	423.441	423.351	423.279	
EXISTING SURFACE		423.35	423.33	423.33	423.27	423.27	423.28	423.32
OFFSET	-15.00	-3.76	-3.03	-3.00	0.00	3.00	3.29	15.00

Ch 520.00 m

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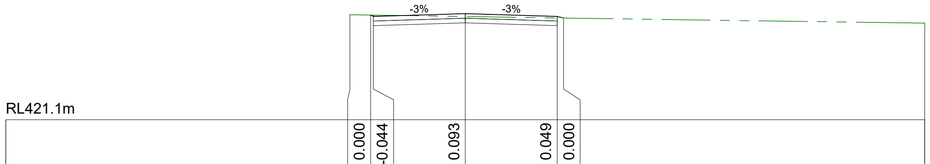
Designed: A.P.B
Checked: J.L.A
Authorised: J.L.A
Date: 29/04/2025

TWO RIVERS COMMUNITY SCHOOL
STAGE 1 & 2 - INTERNAL CIVIL WORKS
ROAD CROSS SECTIONS
FIRE ACCESS TRAIL - SHEET 5 OF 6

CHEWKO ROAD & 267 MCIVER ROAD, MAREEBA QLD
ON BEHALF OF TWO RIVERS COMMUNITY SCHOOL

FOR APPROVAL

DRAWING NUMBER: LU23112-2-CD-409
REV: A


-3%
-3%

| | | |

EXISTING POWER POLE

EXISTING OVERHEAD ELECTRICAL SERVICE TO REMAIN

EXISTING POWER POLE

EX.E O/H

FIRE BOOSTER PUMPS & TANK
REFER HYDRAULIC DOCUMENTATION
STRUCTURAL ENGINEER TO PROVIDE
STRUCTURAL SLAB DETAILS

NEW SUBSOIL OUTLET

NEW 7m WIDE ACCESS ROAD

NEW TABLE DRAIN

STORMWATER HEADWALL OUTLET
REFER TO CD-700 FOR OUTLET DETAILS

PROPOSED CREEK REALIGNMENT

LIMIT OF WORKS (INTERNAL)

EDGE RESTRAINT

NEW SUBSOIL

BOLLARDS

ACCESS ROAD
(7.0m WIDE)
(NEW PAVEMENT)

BARRIER KERB

OPEN SPACE (GRASSED)

2m WIDE PATH

TRANSITION BARRIER KERB & CHANNEL TO EDGE RESTRAINT

TRANSITION BARRIER KERB & CHANNEL TO EDGE RESTRAINT AT FIRE ACCESS INTERFACE

BATTER DOWN TO EXISTING SURFACE 1 IN 2 MAX.

KERB RAMP

CONCRETE INVERT (TYPE 2)

PROVIDE 2m LONG STUB AT 1% FOR FUTURE CONNECTION

NEW FENCE TO ARCHITECTS SPECIFICATION TO PERIMETER OF 'BUS ONLY' ACCESS'

PROVIDE 2.5m WIDE VERGE FROM BACK OF BARRIER KERB & CHANNEL FOR FUTURE FOOTPATH CONNECTION

NEW FIRE ACCESS TRAIL

PROVIDE TWO (2) 1m BREAKS IN BACK OF BARRIER KERB & CHANNEL WITH 4m WIDE ROCK CHUTE (24m²) TO STORMWATER PIT 2.A & SWALE
PROVIDE 400mm (MIN.) LAYER OF ANGULAR D50 (200MM Ø SPALL) ROCK RIP RAP
PROVIDE NON-WOVEN GEOTEXTILE (BIDIM A64) OR APPROVED EQUIVALENT TO BASE OF EXCAVATED AREA

NEW 2m WIDE KERB RAMP IN ACCORDANCE WITH FNQROC STD DWG S1016 & AS1428 (TYP.)

BATTER DOWN TO EXISTING SURFACE 1 IN 4 MAX.

ACCESS ROAD
(5.8m WIDE)
(NEW PAVEMENT)

2.5m WIDE PATH

NEW SWALE

BLOCK A
FFL 423.5m

BLOCK B
FFL 423.5m

BLOCK C
FFL 423.7m

BLOCK D
FFL 423.3m

BLOCK F
FFL 423.3m

BLOCK G
FFL 423.3m

SWALE DRAIN FROM STORMWATER PIT 1.J TO FALL TOWARDS THE REAR (SOUTH OF BLOCK D) PROVIDE SMOOTH TRANSITION TO ALLOW POINT OF DISCHARGE TO REAR AREA

LOCATION OF ELECTRICAL SUBSTATION
STRUCTURAL ENGINEER TO PROVIDE
STRUCTURAL SLAB DETAILS

INTERNAL SEWER & WATER SERVICES BY OTHERS
REFER TO HYDRAULIC DOCUMENTATION

PROPOSED ELECTRICAL EASEMENT FROM FRONT BOUNDARY TO SUBSTATION

10m VEGETATION BUFFER

NEW FIRE ACCESS TRAIL

IT IS ASSUMED THAT THE EXTERNAL WORKS ARE TO BE UNDERTAKEN PRIOR TO THE COMMENCEMENT OF THE INTERNAL WORKS. IF NOT, ENSURE NEW TABLE DRAIN FOR THE ACCESS ROAD BETWEEN THE RAIL CROSSING & CH. 232.44m (LIMIT OF WORKS) IS CONSTRUCTED CONCURRENTLY WITH THE INTERNAL WORKS TO ACHIEVE A SUITABLE POINT OF DISCHARGE

WARNING: THE LOCATION OF EXISTING TELECOMMUNICATIONS & ELECTRICAL SERVICES ARE SHOWN INDICATIVELY ONLY (FROM SURVEY & BEFORE YOU DIG AUSTRALIA). NO RESPONSIBILITY IS TAKEN FOR THE ACCURACY OF THE INTERPOLATED INFORMATION SUPPLIED. ENSURE ALL SERVICES ARE ACCURATELY LOCATED PRIOR TO COMMENCEMENT OF WORKS.

LEGEND:

- 444.00 — EXISTING CONTOURS (0.5m INTERVAL)
- 444.00 — DESIGN CONTOURS (0.2m INTERVAL)
- × LEVEL — EXISTING LEVEL
- 2.A — NEW DRAINAGE PIPE, PIT & STRUCTURE NO.
- EX.A — EXISTING DRAINAGE
- NEW SUBSOIL SWp — NEW SUBSOIL DRAINAGE LINE
- EX.W — EXISTING WATER
- EX.E O/H — EXISTING ELECTRICAL OVERHEAD
- EX.E U/G — EXISTING ELECTRICAL UNDERGROUND
- EX.COMM — EXISTING COMMUNICATIONS
- EX.S — EXISTING SEWER
- S / RM — PROPOSED SEWER BY OTHERS (REFER TO HYDRAULIC DOCUMENTATION BY GILBOY HYDRAULIC SOLUTIONS)
- W — PROPOSED POTABLE WATER BY OTHERS (REFER TO HYDRAULIC DOCUMENTATION BY GILBOY HYDRAULIC SOLUTIONS)
- PROPOSED STAGE BOUNDARY
- TITLE BOUNDARY
- BOLLARD — NEW BOLLARD REFER TO SHEET CD-700
- DENOTES PROPOSED NEW SPEEDHUMP TYPE 2 SPEEDHUMP TO AS 2890.1

- DENOTES PROPOSED NEW SEALED ROAD
- PROPOSED FIRE ACCESS TRAIL & HARDSTAND AREA
- DENOTES PROPOSED TURFED/LANDSCAPED AREA REFER TO LANDSCAPE DOCUMENTATION
- DENOTES PROPOSED CONCRETE PATHWAY
- PROPOSED OPEN DRAINAGE CHANNEL (SWALE/TABLE DRAIN)
- PROPOSED BUILDING LOCATIONS (STAGES 1 & 2 SCOPE OF WORKS ONLY) REFER TO ARCHITECT DOCUMENTATION
- PROPOSED EXTERNAL VERANDAH AREAS TO BUILDING REFER TO ARCHITECT DOCUMENTATION

KEY PLAN
NOT TO SCALE

Revision	Amendments	Approved	Date
A	100% DESIGN ISSUE - FOR APPROVAL	J.L.A	29/04/2025

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

Designed: A.P.B
Checked: J.L.A
Authorised: J.L.A
Date: 29/04/2025

TWO RIVERS COMMUNITY SCHOOL
STAGE 1 & 2 - INTERNAL CIVIL WORKS
DETAIL LAYOUT PLAN
CIVIL SITE WORKS

CHEWKO ROAD & 267 MCIVER ROAD, MAREEBA QLD
ON BEHALF OF TWO RIVERS COMMUNITY SCHOOL

FOR APPROVAL

DRAWING NUMBER: LU23112-2-CD-500 REV: A

EXISTING POWER POLE

EXISTING OVERHEAD ELECTRICAL SERVICE TO REMAIN

EXISTING POWER POLE

EX.E O/H

LIMIT OF WORKS (INTERNAL)

EDGE RESTRAINT

NEW TABLE DRAIN

CONTROL LINE ACCESS ROAD

CONTROL LINE KERB 1

CONTROL LINE KERB 3

CONTROL LINE KERB 2

ACCESS ROAD
(7.0m WIDE)
(NEW PAVEMENT)

Ch.0.00m (START)
Ch.260.11m (END)

Ch.0.00m (START)
Ch.224.29m (END)

Ch.0.00m (START)
Ch.125.51m (END)

BARRIER KERB

CONCRETE INVERT (TYPE 2)

OPEN SPACE (GRASSED)

BUS ONLY

ACCESS ROAD
(5.8m WIDE)
(NEW PAVEMENT)

PROPOSED CREEK REALIGNMENT

TRANSITION BARRIER KERB & CHANNEL TO EDGE RESTRAINT AT FIRE ACCESS INTERFACE

NEW FIRE ACCESS TRAIL

BATTER DOWN TO EXISTING SURFACE 1 IN 4 MAX.

PROVIDE 2.5m WIDE VERGE FROM BACK OF BARRIER KERB & CHANNEL FOR FUTURE FOOTPATH CONNECTION

IT IS ASSUMED THAT THE EXTERNAL WORKS ARE TO BE UNDERTAKEN PRIOR TO THE COMMENCEMENT OF THE INTERNAL WORKS. IF NOT, ENSURE NEW TABLE DRAIN FOR THE ACCESS ROAD BETWEEN THE RAIL CROSSING & CH. 232.44m (LIMIT OF WORKS) IS CONSTRUCTED CONCURRENTLY WITH THE INTERNAL WORKS TO ACHIEVE A SUITABLE POINT OF DISCHARGE

WARNING: THE LOCATION OF EXISTING TELECOMMUNICATIONS & ELECTRICAL SERVICES ARE SHOWN INDICATIVELY ONLY (FROM SURVEY & BEFORE YOU DIG AUSTRALIA). NO RESPONSIBILITY IS TAKEN FOR THE ACCURACY OF THE INTERPOLATED INFORMATION SUPPLIED. ENSURE ALL SERVICES ARE ACCURATELY LOCATED PRIOR TO COMMENCEMENT OF WORKS.

OPEN SPACE (GRASSED)

NEW SWALE

FALL

BLOCK A
FFL 423.5m

BLOCK B
FFL 423.5m

BLOCK C
FFL 423.7m

BLOCK D
FFL 423.3m

BLOCK F
FFL 423.3m

BLOCK G
FFL 423.3m

10m VEGETATION BUFFER

PROPOSED ELECTRICAL EASEMENT FROM FRONT BOUNDARY TO SUBSTATION

LOCATION OF ELECTRICAL SUBSTATION STRUCTURAL ENGINEER TO PROVIDE STRUCTURAL SLAB DETAILS

INTERNAL SEWER & WATER SERVICES BY OTHERS REFER TO HYDRAULIC DOCUMENTATION

LEGEND:

- 444.00 — EXISTING CONTOURS (0.5m INTERVAL)
- 444.00 — DESIGN CONTOURS (0.2m INTERVAL)
- × LEVEL — EXISTING LEVEL
- DENOTES PROPOSED NEW SEALED ROAD
- PROPOSED FIRE ACCESS TRAIL & HARDSTAND AREA
- DENOTES PROPOSED TURFED/LANDSCAPED AREA REFER TO LANDSCAPE DOCUMENTATION
- DENOTES PROPOSED CONCRETE PATHWAY
- PROPOSED OPEN DRAINAGE CHANNEL (SWALE/TABLE DRAIN)
- PROPOSED BUILDING LOCATIONS (STAGES 1 & 2 SCOPE OF WORKS ONLY) REFER TO ARCHITECT DOCUMENTATION
- PROPOSED EXTERNAL VERANDAH AREAS TO BUILDING REFER TO ARCHITECT DOCUMENTATION

KEY PLAN
NOT TO SCALE

Revision	Amendments	Approved	Date
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SCALE 1:250@A1
0 5 10 15 20 25 m

Designed: A.P.B
Checked: J.L.A
Authorised: J.L.A
Date: 29/04/2025

TWO RIVERS COMMUNITY SCHOOL
STAGE 1 & 2 - INTERNAL CIVIL WORKS
DETAIL LAYOUT PLAN
CONTROL LINE ARRANGEMENT

CHEWKO ROAD & 267 MCIVER ROAD, MAREEBA QLD
ON BEHALF OF TWO RIVERS COMMUNITY SCHOOL

FOR APPROVAL

DRAWING NUMBER: LU23112-2-CD-501
REV: A

EXISTING POWER POLE

EX.E O/H — EX.E O/H — EX.E O/H — EX.E O/H — EX.E O/H — EX.E O/H — EX.E O/H

EXISTING OVERHEAD ELECTRICAL SERVICE TO REMAIN

EX.E O/H — EX.E O/H — EX.E O/H — EX.E O/H — EX.E O/H — EX.E O/H — EX.E O/H

EXISTING POWER POLE

EDGE RESTRAINT

EDGE RESTRAINT

LIMIT OF WORKS (INTERNAL)

NEW TABLE DRAIN

NEW TABLE DRAIN

EDGE RESTRAINT

EDGE RESTRAINT

ACCESS ROAD
(7.0m WIDE)
(NEW PAVEMENT)

EDGE RESTRAINT

BARRIER KERB

BARRIER KERB

BARRIER KERB

BARRIER KERB

BARRIER KERB

BARRIER KERB

BARRIER KERB

OPEN SPACE (GRASSED)

OPEN SPACE (GRASSED)

OPEN SPACE (GRASSED)

OPEN SPACE (GRASSED)

OPEN SPACE (GRASSED)

OPEN SPACE (GRASSED)

OPEN SPACE (GRASSED)

OPEN SPACE (GRASSED)

PROPOSED CREEK REALIGNMENT

TRANSITION BARRIER KERB & CHANNEL TO EDGE RESTRAINT AT FIRE ACCESS INTERFACE

NEW FIRE ACCESS TRAIL

CONCRETE INVERT (TYPE 2)

CONCRETE INVERT (TYPE 2)

BUS ONLY

ACCESS ROAD
(5.8m WIDE)
(NEW PAVEMENT)

NEW SWALE

NEW SWALE

NEW SWALE

NEW SWALE

NEW SWALE

NEW SWALE

FALL

FALL

FALL

FALL

FALL

FALL

FALL

FALL

FALL

FALL

FALL

FALL

BLOCK A
FFL 423.5m

BLOCK B
FFL 423.5m

BLOCK C
FFL 423.7m

BLOCK D
FFL 423.3m

BLOCK F
FFL 423.3m

BLOCK G
FFL 423.3m

BATTER DOWN TO EXISTING SURFACE 1 IN 4 MAX.

BATTER DOWN TO EXISTING SURFACE 1 IN 4 MAX.

BATTER DOWN TO EXISTING SURFACE 1 IN 4 MAX.

INTERNAL SEWER & WATER SERVICES BY OTHERS REFER TO HYDRAULIC DOCUMENTATION

PROVIDE 2.5m WIDE VERGE FROM BACK OF BARRIER KERB & CHANNEL FOR FUTURE FOOTPATH CONNECTION

PROPOSED ELECTRICAL EASEMENT FROM FRONT BOUNDARY TO SUBSTATION

LOCATION OF ELECTRICAL SUBSTATION STRUCTURAL ENGINEER TO PROVIDE STRUCTURAL SLAB DETAILS

10m VEGETATION BUFFER

NEW FIRE ACCESS TRAIL

IT IS ASSUMED THAT THE EXTERNAL WORKS ARE TO BE UNDERTAKEN PRIOR TO THE COMMENCEMENT OF THE INTERNAL WORKS. IF NOT, ENSURE NEW TABLE DRAIN FOR THE ACCESS ROAD BETWEEN THE RAIL CROSSING & CH. 232.44m (LIMIT OF WORKS) IS CONSTRUCTED CONCURRENTLY WITH THE INTERNAL WORKS TO ACHIEVE A SUITABLE POINT OF DISCHARGE

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PROPOSED WATER STORAGE TANKS & PRESSURE BOOSTER ARRANGEMENT REFER TO HYDRAULIC DOCUMENTATION

NEW HARDSTAND AREA

PROPOSED WWTP REFER TO HYDRAULIC DOCUMENTATION

INSET - NEW HARDSTAND AREA
NOT TO SCALE

LEGEND:

444.00 EXISTING CONTOURS (0.5m INTERVAL)

444.00 DESIGN CONTOURS (0.2m INTERVAL)

× LEVEL EXISTING LEVEL

DENOTES PROPOSED NEW SEALED ROAD

PROPOSED FIRE ACCESS TRAIL & HARDSTAND AREA

DENOTES PROPOSED TURFED/LANDSCAPED AREA REFER TO LANDSCAPE DOCUMENTATION

DENOTES PROPOSED CONCRETE PATHWAY

PROPOSED OPEN DRAINAGE CHANNEL (SWALE/TABLE DRAIN)

PROPOSED BUILDING LOCATIONS (STAGES 1 & 2 SCOPE OF WORKS ONLY) REFER TO ARCHITECT DOCUMENTATION

PROPOSED EXTERNAL VERANDAH AREAS TO BUILDING REFER TO ARCHITECT DOCUMENTATION

Revision	Amendments	Approved	Date
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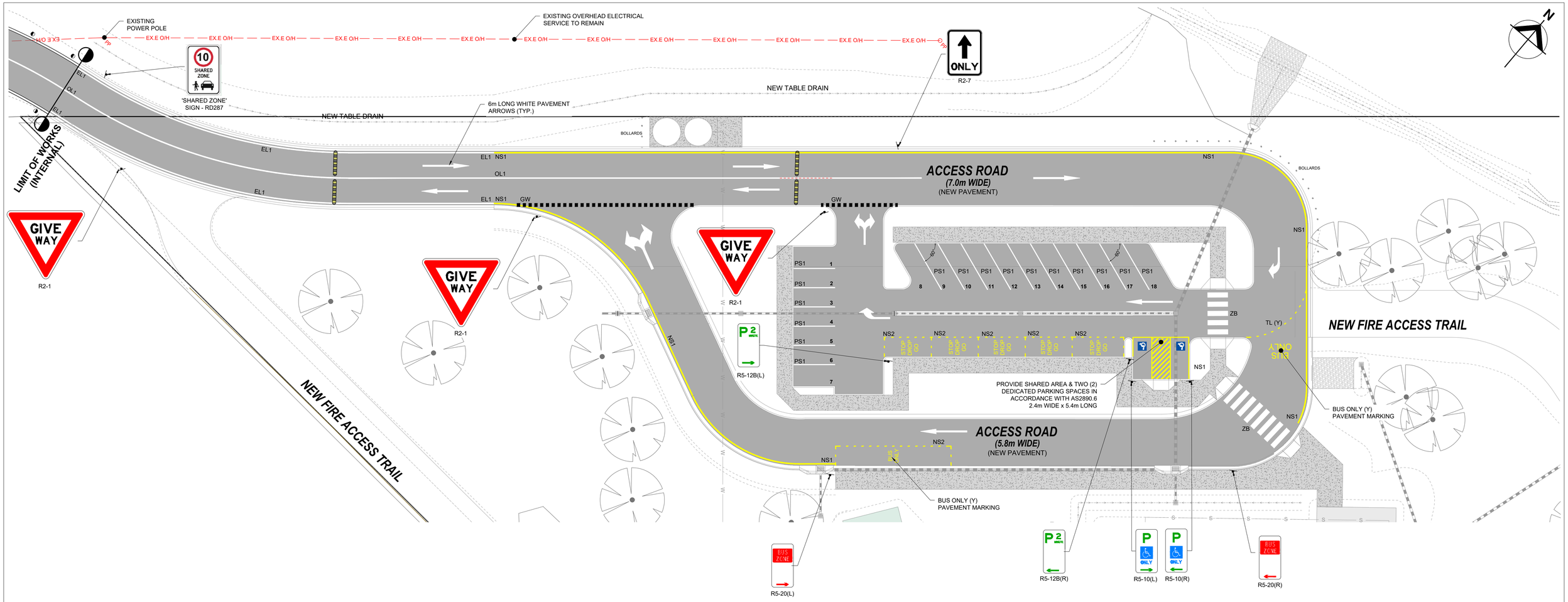
TWO RIVERS COMMUNITY SCHOOL STAGE 1 & 2 - INTERNAL CIVIL WORKS

DETAIL LAYOUT PLAN
SITE LEVELS & GRADINING

CHEWKO ROAD & 267 MCIVER ROAD, MAREEBA QLD
ON BEHALF OF TWO RIVERS COMMUNITY SCHOOL

FOR APPROVAL

DRAWING NUMBER: LU23112-2-CD-502 REV: A



LEGEND:

- TITLE BOUNDARY
- BOLLARD — NEW BOLLARD REFER TO SHEET CD-700
- DENOTES PROPOSED NEW SPEEDHUMP TYPE 2 SPEEDHUMP TO AS 2890.1
- DENOTES PROPOSED NEW SEALED ROAD
- DENOTES PROPOSED CONCRETE PATHWAY
- PROPOSED BUILDING LOCATIONS (STAGES 1 & 2 SCOPE OF WORKS ONLY) REFER TO ARCHITECT DOCUMENTATION
- PROPOSED EXTERNAL VERANDAH AREAS TO BUILDING REFER TO ARCHITECT DOCUMENTATION

NOTE:

1. ALL PROPOSED WORKS ARE SUBJECT TO: DISCUSSIONS AND MEETINGS WITH AUTHORITIES, APPROVAL FROM AUTHORITIES, RELEVANT CONSULTANT INFORMATION AS PER COUNCIL REQUIREMENTS. FEASIBILITY COMPLETED BASED ON INFORMATION PROVIDED BY CLIENT.
2. ALL LINEMARKING IS TO BE INSTALLED AS PER DTMR/MUTCD SPECIFICATION.
3. ALL CAR PARKS TO BE INSTALLED AS PER AS2890.1 - PARKING FACILITIES - OFF-STREET CARPARKING.
4. ALL TACTILES (TGSI) AND SIGNAGE HAS BEEN OMITTED FOR CLARITY. THESE WILL BE PROVIDED DURING DETAILED DESIGN.

SUMMARY OF OFF-STREET PARKING SPACES:

PRE-DEVELOPMENT	
2	SHARED SPACES
18	PASSENGER VEHICLE

NOTE: COUNTS ABOVE EXCLUDE INFORMAL PARKING SPACES.

EDGE, CONTINUITY AND OTHER LINES

		WIDTH mm
Edge line	EL1	150
Edge line — May be used on expressway type roads.	EL2	200
Continuity line	CL1	150
Continuity line — May be used on expressway type roads.	CL2	200
Continuity line — See Note 1.	CL3	150
Outline marking	OL1	150
Outline marking — May be used on expressway type roads.	OL2	200
Turn line — See Note 2.	TL	100

PARKING CONTROL LINES

		WIDTH mm	
Continuous line - No stopping — For use, refer to AS 1742.11.	NS1	100	Yellow
Broken line - Zone (special purpose) — For use, refer to AS 1742.11.	NS2	100	Yellow
Continuous line - Parking space — For use, refer to AS 1742.11.	PS1	100	White
Broken line - Parking space (special use) — For use, refer to AS 1742.11.	PS2	100	Yellow

TRANSVERSE LINES

		WIDTH mm
Give way line	GW	450
Stop line	SL	450
Pedestrian guide line — For use, refer to AS 1742.14 and AS 1742.10.	PL	150
Pedestrian crossing marking (zebra) — See Note 1. For use, refer to AS 1742.10.	ZB	3.5 m min.
Road hump marking — For use, refer to AS 1742.13.	PK	1000
Give way line - Path — For use, refer to AS 1742.9.	GWP	200
Stop line - Path — For use, refer to AS 1742.9.	SLP	200

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0 5 10 15 20 25 m

Designed: A.P.B | Checked: J.L.A
Authorised: J.L.A | Date: 29/04/2025

TWO RIVERS COMMUNITY SCHOOL
STAGE 1 & 2 - INTERNAL CIVIL WORKS
DETAIL LAYOUT PLAN
SIGNAGE & LINEMARKING

CHEWKO ROAD & 267 MCIVER ROAD, MAREEBA QLD
ON BEHALF OF TWO RIVERS COMMUNITY SCHOOL

FOR APPROVAL

DRAWING NUMBER: LU23112-2-CD-503 REV: A

NOTE:
1. REFER TO LEKKER URBAN DRAWING LU231112-2-CD-101 FOR ALL RELEVANT CONSTRUCTION NOTES.

LEGEND:
- DENOTES SUBJECT SITE TO DISCHARGE TO EXISTING GULLY TO THE NORTH VIA NEW UNDERGROUND NETWORK (LINE 4 - CARPARK)
- DENOTES SUBJECT SITE TO DISCHARGE TO EXISTING GULLY TO THE NORTH VIA NEW UNDERGROUND NETWORK (LINE 1 - INTERNAL)
- DENOTES SUBJECT & ADJOINING SITE TO DISCHARGE TO EXISTING GULLY TO THE EAST VIA THE NEW CULVERT CROSSING (LINE 10 - INTERNAL)
- DRAINAGE CATCHMENT EXTENT
- OVERLAND FLOW PATH

CHEWKO ROAD

MUNGANA BRANCH RAILWAY LINE

5
SP291991

241
SP129909

71
SP292140

1
RP708284

EXISTING CULVERT CROSSING UNDER RAILWAY

PROPOSED CREEK REALIGNMENT

STORMWATER POINT OF DISCHARGE INTO EXISTING GULLY

EXISTING GULLY TO BE WIDENING LOCALLY TO PROVIDE FIRE ACCESS TRAIL

EXISTING GULLY

NOTE: ALL INTERNAL BUILDINGS ARE TO BE SERVICED BY RAINWATER TANKS FOR WATER SUPPLY. ROOF CATCHMENTS HAVE BEEN EXCLUDED FROM STORMWATER CALCULATIONS.

BLOCK A
BLOCK B
BLOCK C
BLOCK D
BLOCK F
BLOCK G

NEW ACCESS ROAD

10m VEGETATION BUFFER

NEW GULLY CROSSING

NOTE: EXISTING DAM EXISTS ON ADJOINING PROPERTY & THE SPILLWAY DISCHARGES DIRECTLY ONTO THE SUBJECT SITE DESIGN HAS EXCLUDED THE DAM

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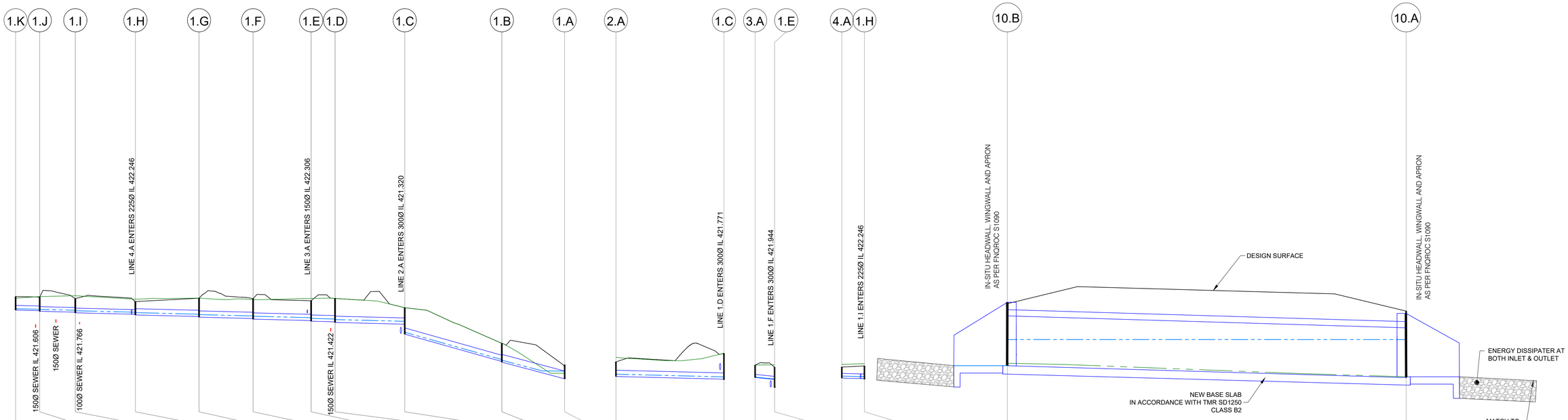
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TWO RIVERS COMMUNITY SCHOOL
STAGE 1 & 2 - INTERNAL CIVIL WORKS
STORMWATER CATCHMENT LAYOUT PLAN (10% AEP EVENT) POST-DEVELOPMENT

CHEWKO ROAD & 267 MCIVER ROAD, MAREEBA QLD
ON BEHALF OF TWO RIVERS COMMUNITY SCHOOL

FOR APPROVAL

DRAWING NUMBER: LU23112-2-CD-600
REV: A



	1.K	1.J	1.I	1.H	1.G	1.F	1.E	1.D	1.C	1.B	1.A	2.A
FLOW (l/sec)	0.72	5.04	18.62	25.97	32.64	35.13	40.24	42.47	53.71	81.74		
CAPACITY (l/sec)	46	46	46	99	99	99	99	99	332	584		
VELOCITY (m/s)	0.45	0.77	1.09	1.18	1.25	1.28	1.32	1.34	3.45	3.73		
PIPE DETAILS	225Ø PVC	225Ø PVC	225Ø PVC	300Ø PVC	300Ø PVC	300Ø PVC	300Ø PVC	300Ø PVC	300Ø PVC	375Ø Class 3 RRJ		
SLOPE/GRADE	1:200.3 0.5%	1:200.0 0.5%	1:200.0 0.5%	1:200.0 0.5%	1:200.1 0.5%	1:200.0 0.5%	1:200.0 0.5%	1:200.0 0.5%	1:17.7 5.6%	1:18.8 5.3%		
DATUM RL 413.1												
HGL (20% AEP)	422.517	422.487	422.486	422.443	422.418	422.346	422.328	422.251	422.232	422.167	422.154	422.084
DEPTH TO INVERT	0.650	0.659	0.689	0.652	0.682	0.614	0.644	0.882	0.912	0.956	0.986	0.956
INVERT LEVEL	422.450	422.421	422.391	422.348	422.318	422.246	422.216	422.139	422.109	422.044	422.014	421.944
DESIGN SURFACE	423.100	423.080		423.000		422.860		423.021		423.000		422.900
EXISTING SURFACE	423.022	423.103		423.143		422.973		423.027		422.955		423.011
CHAINAGE	0.000	5.808		14.364		28.832		44.151		57.155		71.135
	5.808		8.556		14.468		15.318		13.004		13.981	

LINE 1
SCALES: H 1:500 V 1:100

	1.D ENTERS 300Ø	
FLOW (l/sec)	11.60	
CAPACITY (l/sec)	99	
VELOCITY (m/s)	0.94	
PIPE DETAILS	300Ø PVC	
SLOPE/GRADE	1:200.0 0.5%	
DATUM RL 415.3		
HGL (20% AEP)	421.584	421.431
DEPTH TO INVERT	0.700	1.244
INVERT LEVEL	421.450	421.320
DESIGN SURFACE	422.150	422.564
EXISTING SURFACE	422.376	422.564
CHAINAGE	0.000	25.996
	25.996	

LINE 2
SCALES: H 1:500 V 1:100

	1.F ENTERS 300Ø	
FLOW (l/sec)	1.09	
CAPACITY (l/sec)	31	
VELOCITY (m/s)	0.81	
PIPE DETAILS	150Ø PVC	
SLOPE/GRADE	1:50.0 2.0%	
DATUM RL 416.3		
HGL (20% AEP)	422.423	422.326
DEPTH TO INVERT	0.600	0.594
INVERT LEVEL	422.400	422.306
DESIGN SURFACE	423.000	422.900
EXISTING SURFACE	423.001	423.011
CHAINAGE	0.000	4.687
	4.687	

LINE 3
SCALES: H 1:500 V 1:100

	1.I ENTERS 225Ø	
FLOW (l/sec)	3.26	
CAPACITY (l/sec)	46	
VELOCITY (m/s)	0.66	
PIPE DETAILS	225Ø PVC	
SLOPE/GRADE	1:200.0 0.5%	
DATUM RL 416.2		
HGL (20% AEP)	422.375	422.341
DEPTH TO INVERT	0.529	0.614
INVERT LEVEL	422.273	422.246
DESIGN SURFACE	422.802	422.860
EXISTING SURFACE	422.929	422.973
CHAINAGE	0.000	5.439
	5.439	

LINE 4
SCALES: H 1:500 V 1:100

	10.B	10.A
FLOW (l/sec)	800.00	
CAPACITY (l/sec)	11903	
VELOCITY (m/s)	2.84	
PIPE DETAILS	2 No. 1200x900mm RCBC	
SLOPE/GRADE	1:33.3 3.0%	
DATUM RL 413.3		
HGL (20% AEP)	417.325	
DEPTH TO INVERT	1.494	1.604
INVERT LEVEL	416.635	416.347
DESIGN SURFACE	418.129	417.951
EXISTING SURFACE	416.694	416.368
CHAINAGE	0.000	9.600
	9.600	

LINE 10
SCALES: H 1:50 V 1:50

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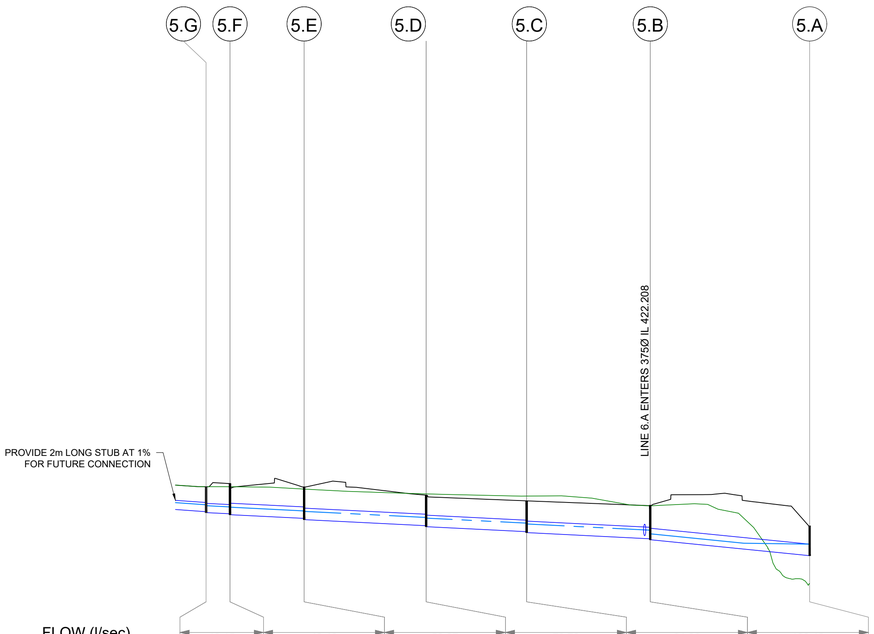
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TWO RIVERS COMMUNITY SCHOOL
STAGE 1 & 2 - INTERNAL CIVIL WORKS
DRAINAGE LONGITUDINAL SECTIONS
SHEET 1 OF 2

CHEWKO ROAD & 267 MCIVER ROAD, MAREEBA QLD
ON BEHALF OF TWO RIVERS COMMUNITY SCHOOL

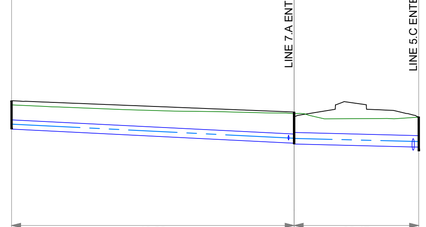
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LINE 5

SCALES: H 1:500 V 1:100



LINE 6

SCALES: H 1:500 V 1:100



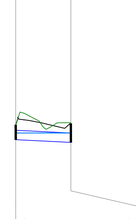
LINE 7

SCALES: H 1:500 V 1:100



LINE 8

SCALES: H 1:500 V 1:100



LINE 9

SCALES: H 1:500 V 1:100

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TWO RIVERS COMMUNITY SCHOOL
STAGE 1 & 2 - INTERNAL CIVIL WORKS
DRAINAGE LONGITUDINAL SECTIONS
SHEET 2 OF 2

CHEWKO ROAD & 267 MCIVER ROAD, MAREEBA QLD
ON BEHALF OF TWO RIVERS COMMUNITY SCHOOL

FOR APPROVAL

DRAWING NUMBER: LU23112-2-CD-602 REV: A

DRAINAGE PIT SCHEDULE

Pit No.	Pit Type	Pit Width	Pit Length	Outlet Diameter	Outlet Invert RL	Inlet Diameter	Inlet Invert RL	Pit Depth	Pit Lid Level	Easting	Northing	Comment
		(mm)	(mm)	(mm)	(m)	(mm)	(m)	(m)	(m)	(m)	(m)	
1.A	HEADWALL (OUTLET)	375	-			375	419.137	0.679	419.816	329064.18	8117369.010	REFER TO FNQROC STANDARD DRAWING "CONCRETE PIPE HEADWALL, WINGWALLS AND APRON" S1085 FOR FURTHER DETAILS - APRON LENGTH TO BE MIN. 1m DEEP. PROVIDE 1000mm (MIN.) LAYER OF ANGULAR D50 (500mm Ø SPALL) ROCK RIP RAP OVER A LAYER OF NON-WOVEN GEOTEXTILE (BIDIM A64) TO BASE OF EXCAVATED AREA LAP UNDER HEADWALL TO PREVENT SCOUR. (16m2 TOTAL AT 6m LENGTH)
1.B	FIELD INLET PIT (GRATED)	600	900	375	419.941	300	419.971	0.912	420.853	329056.72	8117355.861	NEW EVERHARD (OR APPROVED EQUIV.) PRECAST STORMWATER PIT PROVIDE CLASS D (TRAFFICABLE) GRATE - NO STEP IRONS REQUIRED
1.C	FIELD INLET PIT (GRATED)	600	900	300	421.290	300	421.771	1.274	422.564	329050.01	8117333.464	NEW EVERHARD (OR APPROVED EQUIV.) STORMWATER PIT PROVIDE CLASS D (TRAFFICABLE) GRATE - WITH STEP IRONS
						300	421.320					
1.D	FIELD INLET PIT (GRATED)	600	600	300	421.855	300	421.885	1.155	423.010	329060.64	8117320.499	NEW EVERHARD (OR APPROVED EQUIV.) PRECAST STORMWATER PIT PROVIDE CLASS D (TRAFFICABLE) GRATE - NO STEP IRONS REQUIRED
1.E	FIELD INLET PIT (GRATED)	600	600	300	421.914	300	421.944	0.986	422.900	329061.57	8117314.818	NEW EVERHARD (OR APPROVED EQUIV.) PRECAST STORMWATER PIT PROVIDE CLASS D (TRAFFICABLE) GRATE - NO STEP IRONS REQUIRED
						150	422.306					
1.F	FIELD INLET PIT (GRATED)	600	600	300	422.014	300	422.044	0.986	423.000	329047.77	8117312.553	NEW EVERHARD (OR APPROVED EQUIV.) PRECAST STORMWATER PIT PROVIDE CLASS D (TRAFFICABLE) GRATE - NO STEP IRONS REQUIRED
1.G	FIELD INLET PIT (GRATED)	600	600	300	422.109	300	422.139	0.912	423.021	329036.39	8117306.264	NEW EVERHARD (OR APPROVED EQUIV.) PRECAST STORMWATER PIT PROVIDE CLASS D (TRAFFICABLE) GRATE - NO STEP IRONS REQUIRED
1.H	FIELD INLET PIT (GRATED)	600	600	300	422.216	225	422.246	0.644	422.860	329038.87	8117291.148	NEW EVERHARD (OR APPROVED EQUIV.) PRECAST STORMWATER PIT PROVIDE CLASS D (TRAFFICABLE) GRATE - NO STEP IRONS REQUIRED
						225	422.246					
1.I	FIELD INLET PIT (GRATED)	600	600	225	422.318	225	422.348	0.682	423.000	329024.60	8117288.803	NEW EVERHARD (OR APPROVED EQUIV.) PRECAST STORMWATER PIT PROVIDE CLASS D (TRAFFICABLE) GRATE - NO STEP IRONS REQUIRED
1.J	FIELD INLET PIT (GRATED)	600	600	225	422.391	225	422.421	0.689	423.080	329024.52	8117280.247	NEW EVERHARD (OR APPROVED EQUIV.) PRECAST STORMWATER PIT PROVIDE CLASS D (TRAFFICABLE) GRATE - NO STEP IRONS REQUIRED
1.K	FIELD INLET PIT (GRATED)	600	600	225	422.450			0.650	423.100	329030.32	8117280.170	NEW EVERHARD (OR APPROVED EQUIV.) PRECAST STORMWATER PIT PROVIDE CLASS D (TRAFFICABLE) GRATE - NO STEP IRONS REQUIRED
2.A	FIELD INLET PIT (GRATED)	600	600	300	421.450			0.700	422.150	329027.71	8117346.821	NEW EVERHARD (OR APPROVED EQUIV.) PRECAST STORMWATER PIT PROVIDE CLASS D (TRAFFICABLE) GRATE - NO STEP IRONS REQUIRED
3.A	FIELD INLET PIT (GRATED)	600	600	150	422.400			0.600	423.000	329065.92	8117313.066	NEW EVERHARD (OR APPROVED EQUIV.) PRECAST STORMWATER PIT PROVIDE CLASS D (TRAFFICABLE) GRATE - NO STEP IRONS REQUIRED
4.A	FIELD INLET PIT (GRATED)	600	600	225	422.273			0.529	422.802	329039.76	8117285.781	NEW EVERHARD (OR APPROVED EQUIV.) PRECAST STORMWATER PIT PROVIDE CLASS D (TRAFFICABLE) GRATE - NO STEP IRONS REQUIRED
5.A	HEADWALL (OUTLET)	375	-			375	421.558	0.973	422.531	328997.17	8117361.179	REFER TO FNQROC STANDARD DRAWING "BOX CULVERT HEADWALL, WINGWALLS AND APRON" S1090 FOR FURTHER DETAILS - APRON LENGTH TO BE MIN. 1m DEEP. PROVIDE 400mm (MIN.) LAYER OF ANGULAR D50 (200mm Ø SPALL) ROCK RIP RAP OVER A LAYER OF NON-WOVEN GEOTEXTILE (BIDIM A64) TO BASE OF EXCAVATED AREA LAP UNDER HEADWALL TO PREVENT SCOUR. (44m2 TOTAL AT 11m LENGTH)
5.B	FIELD INLET PIT (GRATED)	600	600	375	422.078	375	422.108	1.121	423.199	329004.99	8117336.371	NEW EVERHARD (OR APPROVED EQUIV.) PRECAST STORMWATER PIT PROVIDE CLASS D (TRAFFICABLE) GRATE - NO STEP IRONS REQUIRED
						375	422.208					
5.C	FIELD INLET PIT (GRATED)	600	600	375	422.310	375	422.340	1.037	423.346	328989.58	8117323.340	NEW EVERHARD (OR APPROVED EQUIV.) PRECAST STORMWATER PIT PROVIDE CLASS D (TRAFFICABLE) GRATE - NO STEP IRONS REQUIRED
5.D	FIELD INLET PIT (GRATED)	600	600	375	422.504	375	422.534	1.027	423.531	328977.04	8117312.766	NEW EVERHARD (OR APPROVED EQUIV.) PRECAST STORMWATER PIT PROVIDE CLASS D (TRAFFICABLE) GRATE - NO STEP IRONS REQUIRED
5.E	FIELD INLET PIT (GRATED)	600	600	375	422.733	375	422.773	1.067	423.800	328961.80	8117299.912	NEW EVERHARD (OR APPROVED EQUIV.) PRECAST STORMWATER PIT PROVIDE CLASS D (TRAFFICABLE) GRATE - NO STEP IRONS REQUIRED
5.F	GRATED KERB INLET PIT (ON-GRADE)	835	930	375	422.894	300	422.924	1.017	423.910	328952.55	8117292.112	REFER TO FNQROC STANDARD DRAWING "GRATED KERB INLET PIT" S1050 FOR FURTHER DETAILS - INLET ON GRADE (SIZE SMALL LINTEL) - NO STEP IRONS REQUIRED
5.G	FIELD INLET PIT (GRATED)	600	600	300	422.963	300	422.993	0.847	423.810	328949.57	8117289.596	NEW EVERHARD (OR APPROVED EQUIV.) PRECAST STORMWATER PIT PROVIDE CLASS D (TRAFFICABLE) GRATE - NO STEP IRONS REQUIRED
6.A	GRATED KERB INLET PIT (ON-GRADE)	835	930	375	422.310	300	422.335	1.043	423.353	329018.09	8117320.806	REFER TO FNQROC STANDARD DRAWING "GRATED KERB INLET PIT" S1050 FOR FURTHER DETAILS - INLET ON GRADE (SIZE SMALL LINTEL) - NO STEP IRONS REQUIRED
						150	422.440					
6.B	GRATED KERB INLET PIT (ON-GRADE)	835	930	300	422.796	150	422.926	0.926	423.722	328982.83	8117291.066	REFER TO FNQROC STANDARD DRAWING "GRATED KERB INLET PIT" S1050 FOR FURTHER DETAILS - INLET ON GRADE (SIZE SMALL LINTEL) - NO STEP IRONS REQUIRED
7.A	FIELD INLET PIT (GRATED)	600	600	150	422.568			0.552	423.120	329020.85	8117317.532	NEW EVERHARD (OR APPROVED EQUIV.) PRECAST STORMWATER PIT PROVIDE CLASS D (TRAFFICABLE) GRATE - NO STEP IRONS REQUIRED
8.A	FIELD INLET PIT (GRATED)	600	600	150	422.986			0.556	423.542	328986.69	8117286.479	NEW EVERHARD (OR APPROVED EQUIV.) PRECAST STORMWATER PIT PROVIDE CLASS D (TRAFFICABLE) GRATE - NO STEP IRONS REQUIRED
9.A	HEADWALL (OUTLET)	1100	565			450x300	419.130	0.615	419.745	329150.58	8117243.102	REFER TO FNQROC STANDARD DRAWING "BOX CULVERT HEADWALL, WINGWALLS AND APRON" S1090 FOR FURTHER DETAILS - APRON LENGTH TO BE MIN. 1m DEEP. PROVIDE 600mm (MIN.) LAYER OF ANGULAR D50 (300mm Ø SPALL) ROCK RIP RAP OVER A LAYER OF NON-WOVEN GEOTEXTILE (BIDIM A64) TO BASE OF EXCAVATED AREA LAP UNDER HEADWALL TO PREVENT SCOUR. (64m2 TOTAL AT 10m LENGTH)
9.B	HEADWALL (INLET)	1100	565	450x300	419.220			0.475	419.695	329144.59	8117236.378	REFER TO FNQROC STANDARD DRAWING "BOX CULVERT HEADWALL, WINGWALLS AND APRON" S1090 FOR FURTHER DETAILS - APRON LENGTH TO BE MIN. 1m DEEP. PROVIDE 600mm (MIN.) LAYER OF ANGULAR D50 (300mm Ø SPALL) ROCK RIP RAP OVER A LAYER OF NON-WOVEN GEOTEXTILE (BIDIM A64) TO BASE OF EXCAVATED AREA LAP UNDER HEADWALL TO PREVENT SCOUR. (5m2 TOTAL AT 1m LENGTH)
10.A	HEADWALL (OUTLET)	2400	-			2 No. 1200x900	416.347	1.604	417.951	329225.46	8117252.874	REFER TO FNQROC STANDARD DRAWING "BOX CULVERT HEADWALL, WINGWALLS AND APRON" S1090 FOR FURTHER DETAILS - APRON LENGTH TO BE MIN. 2m DEEP. PROVIDE 600mm (MIN.) LAYER OF ANGULAR D50 (300mm Ø SPALL) ROCK RIP RAP OVER A LAYER OF NON-WOVEN GEOTEXTILE (BIDIM A64) TO BASE OF EXCAVATED AREA LAP UNDER HEADWALL TO PREVENT SCOUR. (64m2 TOTAL AT 10m LENGTH)
10.B	HEADWALL (INLET)	2400	-	2 No. 1200x900	416.635			1.494	418.129	329216.24	8117255.566	REFER TO FNQROC STANDARD DRAWING "BOX CULVERT HEADWALL, WINGWALLS AND APRON" S1090 FOR FURTHER DETAILS - APRON LENGTH TO BE MIN. 2m DEEP. PROVIDE 600mm (MIN.) LAYER OF ANGULAR D50 (300mm Ø SPALL) ROCK RIP RAP OVER A LAYER OF NON-WOVEN GEOTEXTILE (BIDIM A64) TO BASE OF EXCAVATED AREA LAP UNDER HEADWALL TO PREVENT SCOUR. (64m2 TOTAL AT 10m LENGTH)

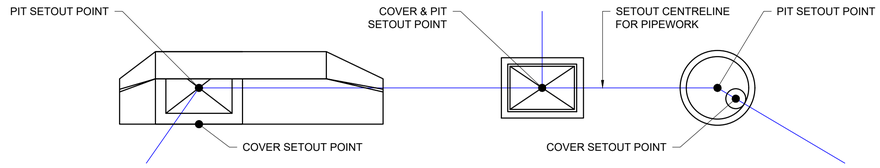


FIGURE 1

Revision	Amendments	Approved	Date
A	100% DESIGN ISSUE - FOR APPROVAL	J.L.A	29/04/2025

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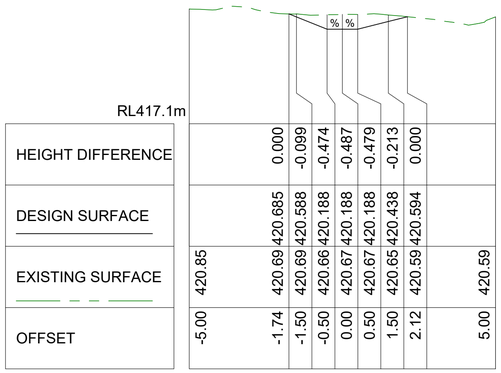
SCALE 1:500@A1
0 10 20 30 40 50 m

Designed: A.P.B
Checked: J.L.A
Authorised: J.L.A
Date: 29/04/2025

TWO RIVERS COMMUNITY SCHOOL
STAGE 1 & 2 - INTERNAL CIVIL WORKS
DRAINAGE PIT SCHEDULES & SETOUT

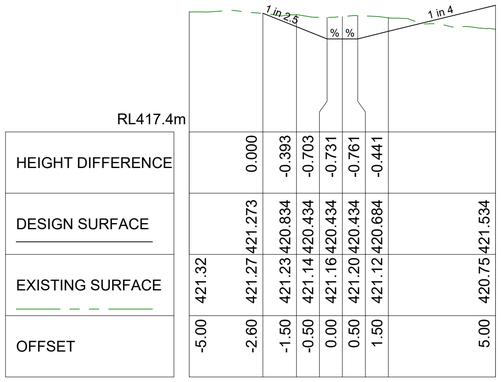
CHEWKO ROAD & 267 MCIVER ROAD, MAREEBA QLD
ON BEHALF OF TWO RIVERS COMMUNITY SCHOOL

FOR APPROVAL
DRAWING NUMBER: LU23112-2-CD-603
REV: A



HEIGHT DIFFERENCE		0.000	-0.099	-0.474	-0.487	-0.479	-0.213	0.000		
DESIGN SURFACE		420.685	420.588	420.188	420.188	420.188	420.438	420.594		
EXISTING SURFACE	420.85	420.69	420.69	420.66	420.67	420.67	420.65	420.59		420.59
OFFSET	-5.00	-1.74	-1.50	-0.50	0.00	0.50	1.50	2.12		5.00

Ch 30.00 m
CL DIVERSION DRAIN 1

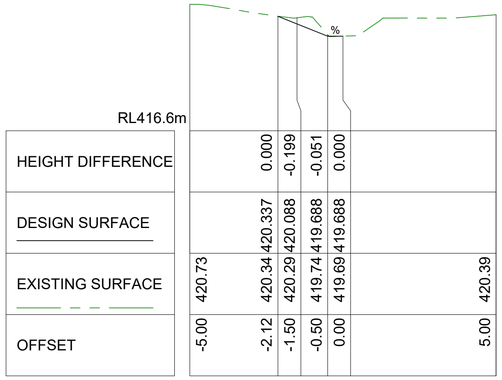


HEIGHT DIFFERENCE		0.000	-0.393	-0.703	-0.731	-0.761	-0.441			
DESIGN SURFACE		421.273	421.234	420.834	421.144	420.434	421.204	420.684		421.534
EXISTING SURFACE	421.32	421.27	421.23	421.14	421.16	420.434	421.20	421.12		420.75
OFFSET	-5.00	-2.60	-1.50	-0.50	0.00	0.50	0.50	1.50		5.00

Ch 20.00 m
CL DIVERSION DRAIN 1

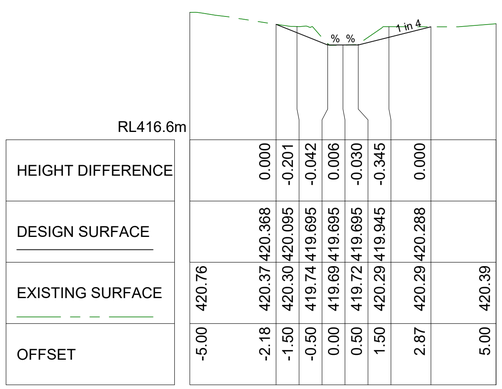
HEIGHT DIFFERENCE		0.000	-0.775	-1.059	-1.064	-1.068	-0.789			
DESIGN SURFACE		421.618	421.081	420.681	420.681	420.681	420.931			421.562
EXISTING SURFACE	421.62	421.62	421.86	421.74	421.74	421.75	421.72			421.26
OFFSET	-5.00	-2.84	-1.50	-0.50	0.00	0.50	1.50			5.00

Ch 10.00 m
CL DIVERSION DRAIN 1



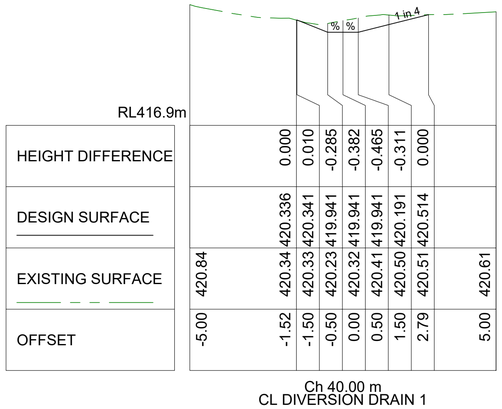
HEIGHT DIFFERENCE		0.000	-0.199	-0.051	0.000					
DESIGN SURFACE		420.337	420.088	419.688	419.688					
EXISTING SURFACE	420.73	420.34	420.29	419.74	419.69					420.39
OFFSET	-5.00	-2.12	-1.50	-0.50	0.00					5.00

Ch 50.28 m
CL DIVERSION DRAIN 1



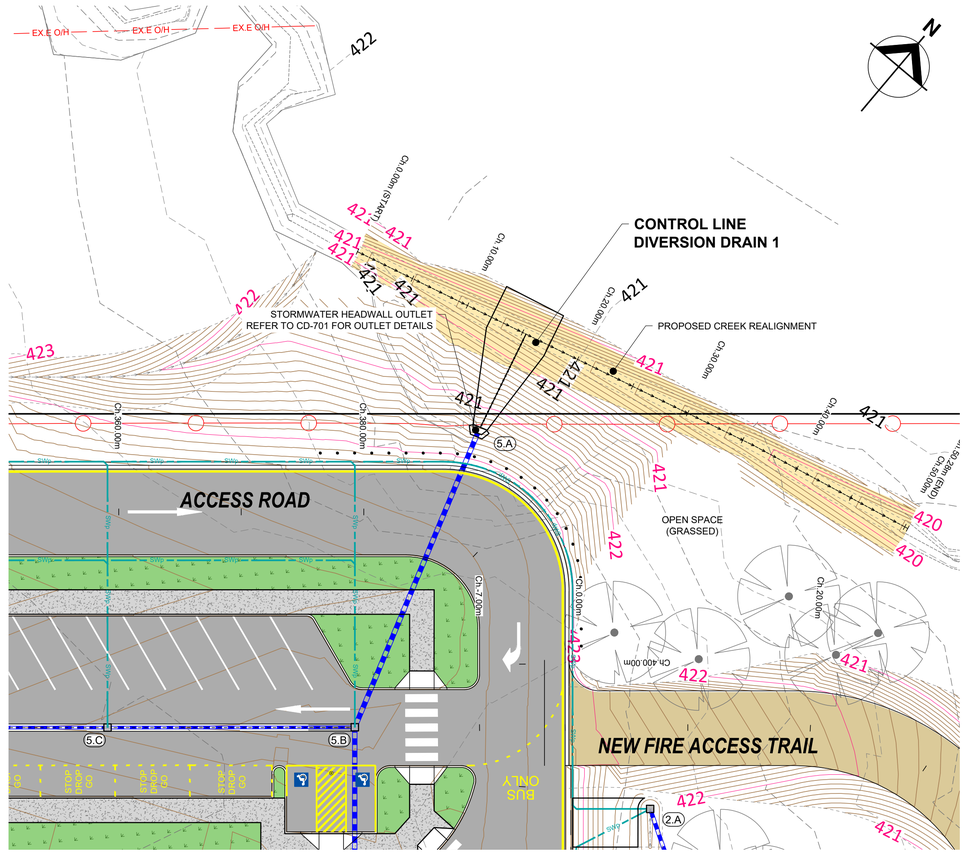
HEIGHT DIFFERENCE		0.000	-0.201	-0.042	0.006	-0.030	-0.345	0.000		
DESIGN SURFACE		420.368	420.095	419.695	419.695	419.695	419.945	420.288		
EXISTING SURFACE	420.76	420.37	420.30	419.74	419.69	419.72	420.29	420.29		420.39
OFFSET	-5.00	-2.18	-1.50	-0.50	0.00	0.50	1.50	2.87		5.00

Ch 50.00 m
CL DIVERSION DRAIN 1



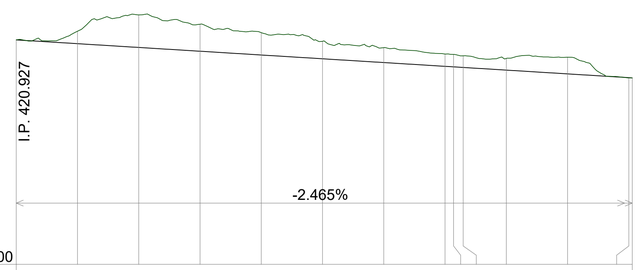
HEIGHT DIFFERENCE		0.000	0.010	-0.285	-0.382	-0.465	-0.311	0.000		
DESIGN SURFACE		420.336	420.341	419.941	419.941	419.941	420.191	420.514		
EXISTING SURFACE	420.84	420.34	420.33	420.23	420.32	420.41	420.50	420.51		420.61
OFFSET	-5.00	-1.52	-1.50	-0.50	0.00	0.50	1.50	2.79		5.00

Ch 40.00 m
CL DIVERSION DRAIN 1



DETAIL PLAN - DIVERSION DRAIN 1

SCALE: 1:250



R.L. 413.600													
HORIZONTAL GEOMETRY AT INVERT (CENTRELINE)	L=36 B=75°55'06"								L=1 R=20		L=14 B=78°09'48"		
HEIGHT DIFFERENCE (m)	+0.00	-0.41	-1.06	-0.88	-0.73	-0.57	-0.48	-0.41	-0.40	-0.38	-0.38	-0.54	+0.00	+0.00
DESIGN LEVELS AT INVERT (CENTRELINE)	420.927	420.804	420.681	420.557	420.434	420.311	420.188	420.064	420.047	420.028	419.941	419.818	419.695	419.688
EXISTING LEVELS AT INVERT (CENTRELINE)	420.93	421.21	421.74	421.44	421.16	420.88	420.67	420.47	420.45	420.41	420.32	420.36	419.69	419.69
CONTROL LINE CHAINAGE AT INVERT (CENTRELINE)	0.000	5.000	10.000	15.000	20.000	25.000	30.000	35.000	35.696	36.480	40.000	45.000	50.000	50.282

LONGITUDINAL SECTION - DIVERSION DRAIN 1 (CENTRELINE) - Ch 0.0m to Ch 50.282m

SCALE H: 1:250 V: 1:100

Revision	Amendments	Approved	Date
A	100% DESIGN ISSUE - FOR APPROVAL	J.L.A	29/04/2025

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CONTACT@LEKKERURBAN.COM
WWW.LEKKERURBAN.COM.AU ABN 32 669 311 479

SCALE 1:250@A1

0 5 10 15 20 25 m

Designed: A.P.B | Checked: J.L.A

Authorised: J.L.A | Date: 29/04/2025

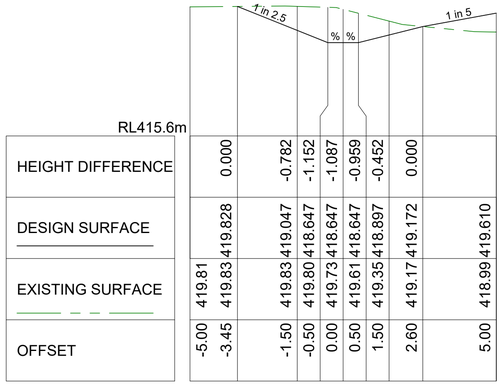
TWO RIVERS COMMUNITY SCHOOL STAGE 1 & 2 - INTERNAL CIVIL WORKS

DETAIL LAYOUT PLAN & SECTIONS
DIVERSION DRAIN 1

CHEWKO ROAD & 267 MCIVER ROAD, MAREEBA QLD
ON BEHALF OF TWO RIVERS COMMUNITY SCHOOL

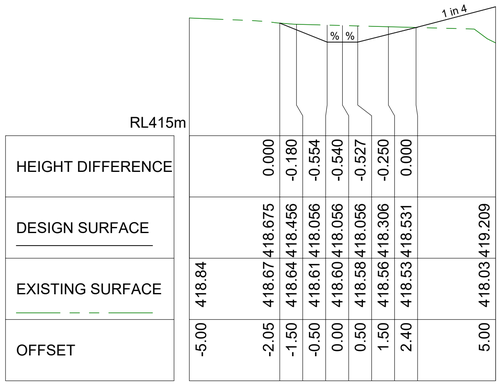
FOR APPROVAL

DRAWING NUMBER: LU23112-2-CD-604 REV: A



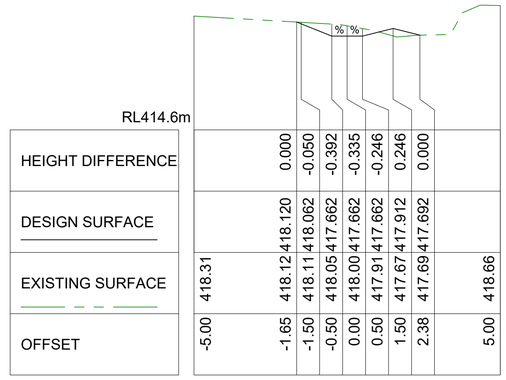
RL415.6m										
HEIGHT DIFFERENCE	0.000	-0.782	-1.152	-1.087	-0.959	-0.452	0.000			
DESIGN SURFACE	419.828	419.047	418.647	418.647	418.647	418.897	419.172			419.610
EXISTING SURFACE	419.81	419.83	419.80	419.73	419.61	419.35	419.17			418.99
OFFSET	-5.00	-3.45	-1.50	-0.50	0.00	0.50	1.50	2.60		5.00

Ch 15.00 m
CL DIVERSION DRAIN 2



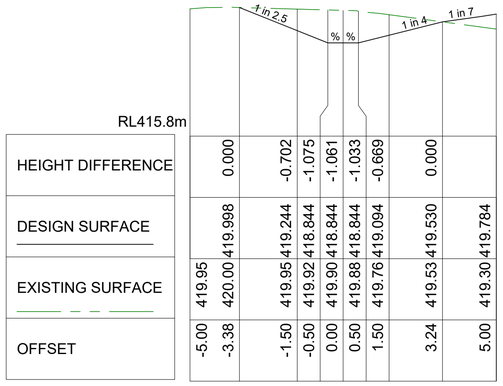
RL415m										
HEIGHT DIFFERENCE	0.000	-0.180	-0.554	-0.540	-0.527	-0.250	0.000			
DESIGN SURFACE	418.675	418.456	418.056	418.056	418.056	418.306	418.531			419.209
EXISTING SURFACE	418.84	418.67	418.64	418.61	418.60	418.58	418.56	418.53		418.03
OFFSET	-5.00	-2.05	-1.50	-0.50	0.00	0.50	1.50	2.40		5.00

Ch 30.00 m
CL DIVERSION DRAIN 2



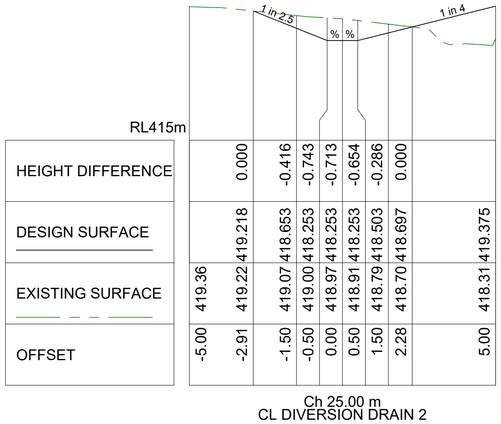
RL414.6m										
HEIGHT DIFFERENCE	0.000	-0.050	-0.392	-0.335	-0.246	0.246	0.000			
DESIGN SURFACE	418.120	418.062	417.662	417.662	417.662	417.912	417.692			
EXISTING SURFACE	418.31	418.12	418.11	418.05	418.00	417.91	417.67	417.69		418.66
OFFSET	-5.00	-1.65	-1.50	-0.50	0.00	0.50	1.50	2.38		5.00

Ch 40.00 m
CL DIVERSION DRAIN 2



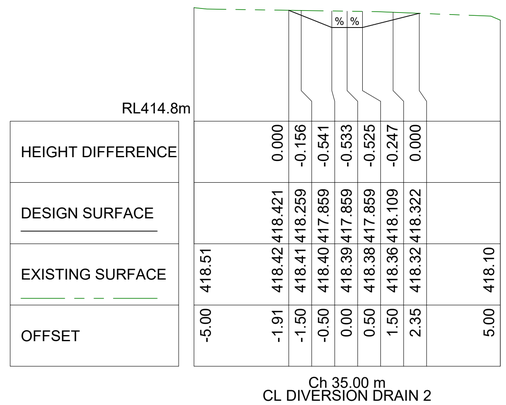
RL415.8m										
HEIGHT DIFFERENCE	0.000	-0.702	-1.075	-1.061	-1.033	-0.669	0.000			
DESIGN SURFACE	419.998	419.244	418.844	418.844	418.844	419.094		419.530		419.784
EXISTING SURFACE	419.95	420.00	419.95	419.92	419.90	419.88	419.76	419.53		419.30
OFFSET	-5.00	-3.38	-1.50	-0.50	0.00	0.50	1.50	3.24		5.00

Ch 10.00 m
CL DIVERSION DRAIN 2



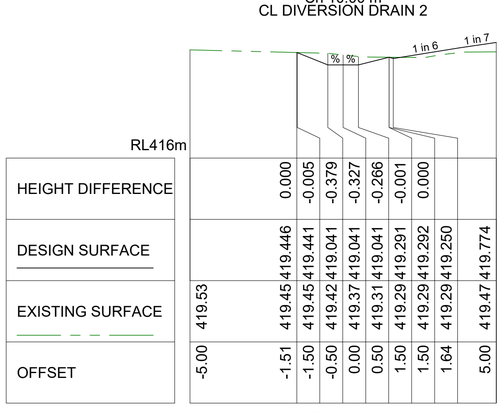
RL415m										
HEIGHT DIFFERENCE	0.000	-0.416	-0.743	-0.713	-0.654	-0.286	0.000			
DESIGN SURFACE	419.218	418.653	418.253	418.253	418.253	418.503	418.697			419.375
EXISTING SURFACE	419.36	419.22	419.07	419.00	418.97	418.91	418.79	418.70		418.31
OFFSET	-5.00	-2.91	-1.50	-0.50	0.00	0.50	1.50	2.28		5.00

Ch 25.00 m
CL DIVERSION DRAIN 2



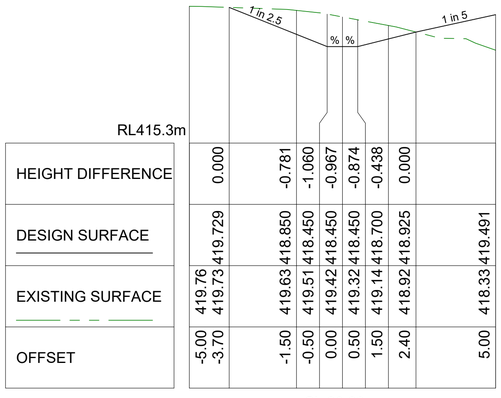
RL414.8m										
HEIGHT DIFFERENCE	0.000	-0.156	-0.541	-0.533	-0.525	-0.247	0.000			
DESIGN SURFACE	418.421	418.259	417.859	417.859	417.859	418.109	418.322			
EXISTING SURFACE	418.51	418.42	418.41	418.40	418.39	418.38	418.36	418.32		418.10
OFFSET	-5.00	-1.91	-1.50	-0.50	0.00	0.50	1.50	2.35		5.00

Ch 35.00 m
CL DIVERSION DRAIN 2



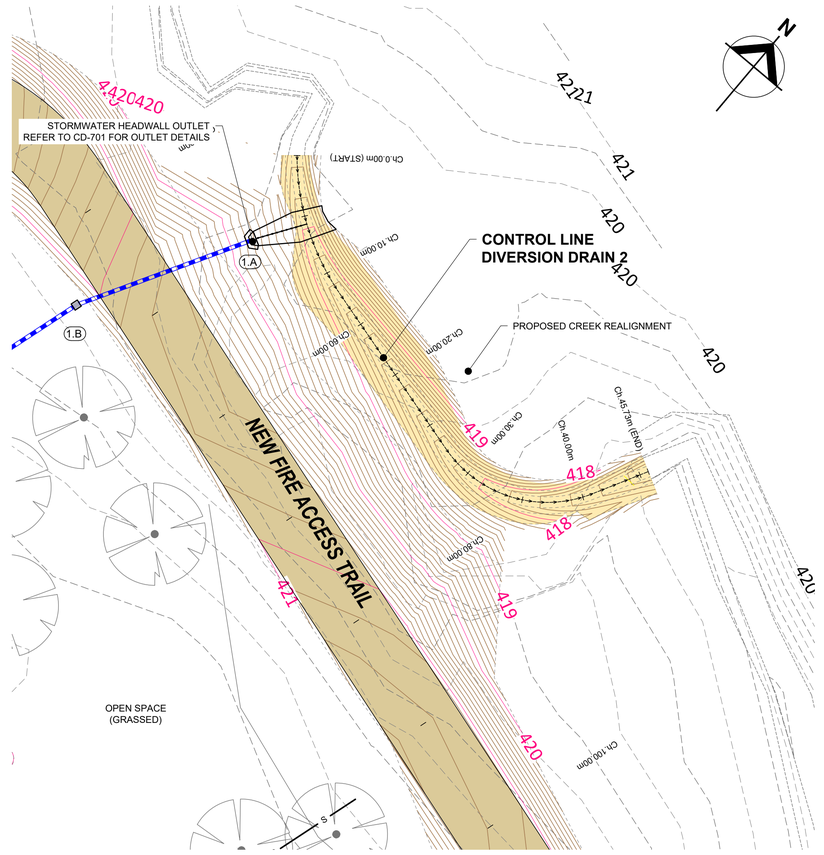
RL416m										
HEIGHT DIFFERENCE	0.000	-0.005	-0.379	-0.327	-0.266	-0.001	0.000			
DESIGN SURFACE	419.446	419.441	419.041	419.041	419.041	419.291	419.292	419.250		419.774
EXISTING SURFACE	419.53	419.45	419.45	419.42	419.37	419.31	419.29	419.29	419.29	419.47
OFFSET	-5.00	-1.51	-1.50	-0.50	0.00	0.50	1.50	1.50	1.64	5.00

Ch 5.00 m
CL DIVERSION DRAIN 2



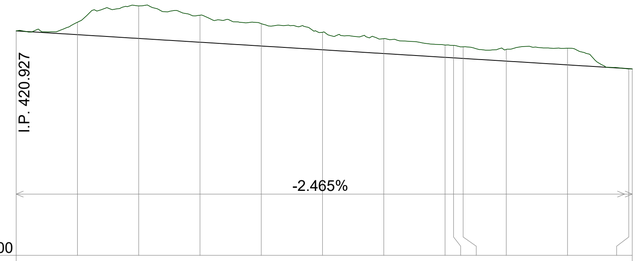
RL415.3m										
HEIGHT DIFFERENCE	0.000	-0.781	-1.060	-0.967	-0.874	-0.438	0.000			
DESIGN SURFACE	419.729	418.850	418.450	418.450	418.450	418.700	418.925			419.491
EXISTING SURFACE	419.76	419.63	419.51	419.42	419.32	419.14	418.92			418.33
OFFSET	-5.00	-3.70	-1.50	-0.50	0.00	0.50	1.50	2.40		5.00

Ch 20.00 m
CL DIVERSION DRAIN 2



DETAIL PLAN - DIVERSION DRAIN 2

SCALE: 1:250



HORIZONTAL GEOMETRY AT INVERT (CENTRELINE)	L=36 B=75°55'06"																L=1 R=20		L=14 B=78°09'48"						
HEIGHT DIFFERENCE (m)	+0.00	-0.41	-1.06	-0.88	-0.73	-0.57	-0.48	-0.41	-0.40	-0.38	-0.38	-0.54	+0.00	+0.00											
DESIGN LEVELS AT INVERT (CENTRELINE)	420.927	420.804	420.681	420.557	420.434	420.311	420.188	420.064	420.047	420.028	419.941	419.818	419.695	419.688											
EXISTING LEVELS AT INVERT (CENTRELINE)	420.93	421.21	421.74	421.44	421.16	420.88	420.67	420.47	420.45	420.41	420.32	420.36	419.69	419.69											
CONTROL LINE CHAINAGE AT INVERT (CENTRELINE)	0.000	5.000	10.000	15.000	20.000	25.000	30.000	35.000	35.696	36.480	40.000	45.000	50.000	50.282											

LONGITUDINAL SECTION - DIVERSION DRAIN 2 (CENTRELINE) - Ch 0.0m to Ch 50.282m

SCALE H: 1:250 V: 1:100

Revision	Amendments	Approved	Date
A	100% DESIGN ISSUE - FOR APPROVAL	J.L.A	29/04/2025

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SCALE 1:250@A1
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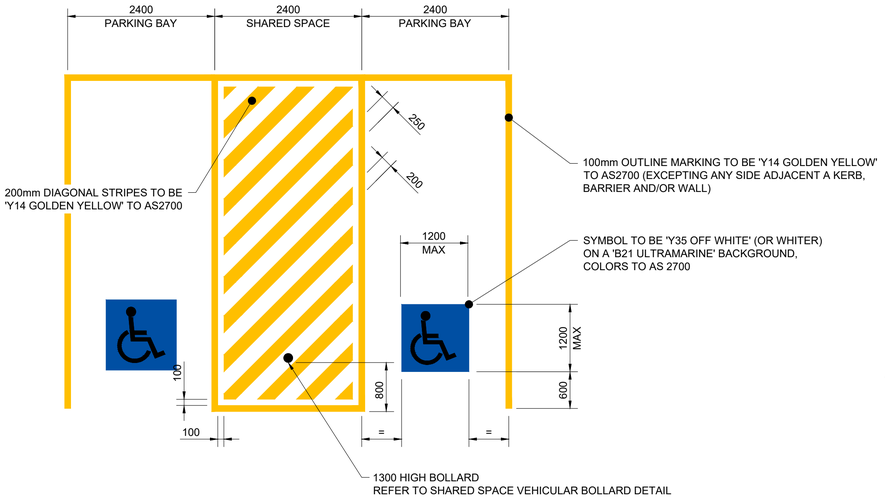
Designed: A.P.B
Checked: J.L.A
Authorised: J.L.A
Date: 29/04/2025

TWO RIVERS COMMUNITY SCHOOL
STAGE 1 & 2 - INTERNAL CIVIL WORKS
DETAIL LAYOUT PLAN & SECTIONS
DIVERSION DRAIN 2

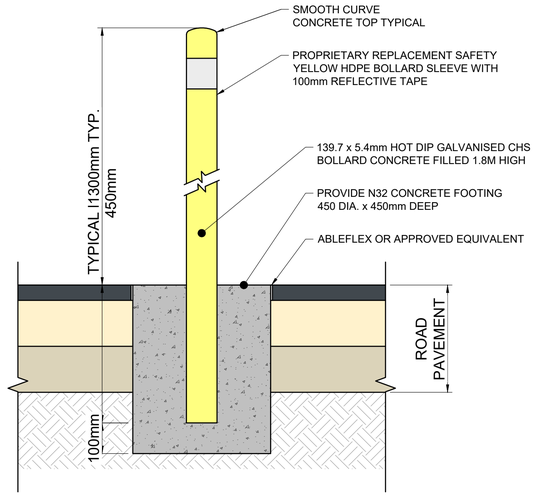
CHEWKO ROAD & 267 MCIVER ROAD, MAREEBA QLD
ON BEHALF OF TWO RIVERS COMMUNITY SCHOOL

FOR APPROVAL

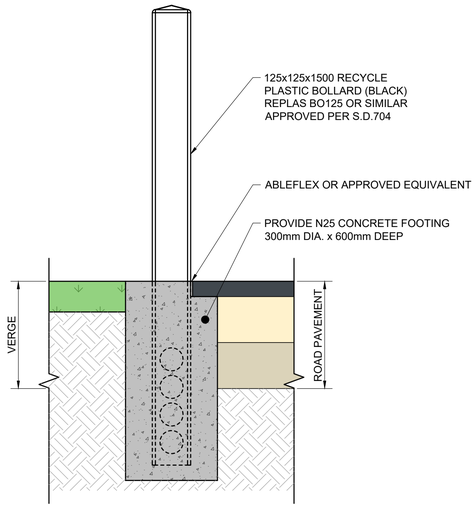
DRAWING NUMBER: LU23112-2-CD-605
REV: A



PWD PARKING DETAIL
NOT TO SCALE



TYPICAL SHARED SPACE VEHICULAR BOLLARD DETAIL
NOT TO SCALE



TYPICAL LANDSCAPE BOLLARD DETAIL
NOT TO SCALE

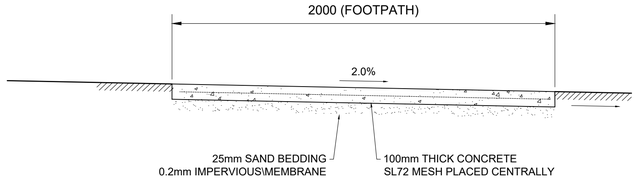
NOTES
1. REFER TO DRAWINGS LU23112-2-CD-101 FOR CONSTRUCTION NOTES.
2. REFER TO PAVEMENT INVESTIGATION & DESIGN, GT25-011-001R , DATED 15 APRIL 2025, PROVIDED BY ETS GEOTECHNICAL FOR ALL LABORATORY TEST RESULTS AND FURTHER INFORMATION.
3. SAMPLING AND TESTING OF EXISTING SUBGRADE AS REQUIRED BY APPENDIX B OF TECHNICAL SPECIFICATION MRTS04 GENERAL EARTHWORKS.
4. REFER TO FNQROC - STANDARD DRAWING - S1000 - CONCRETE KERB & CHANNEL PROFILES, FOR KERB DIMENSIONS, ADDITIONAL NOTES & DETAILS.
5. REFER TO FNQROC - STANDARD DRAWING - S1095 - SUBSURFACE DRAINAGE FLUSHING POINT OUTLET, FOR SUB SOIL DIMENSIONS, ADDITIONAL NOTES & DETAIL

SUBGRADE PREPARATION
DUE TO POTENTIAL GROUNDWATER ISSUES, WHERE THE SUBGRADE IS EXPECTED TO ACHIEVE A CBR OF LESS THAN 5% (BH2, BH5 & BH6), THE FOLLOWING TWO (2) OPTIONS ARE RECOMMENDED:
1. GROUND IMPROVEMENT WORKS, CONSISTING OF CEMENT TREATING THE PAVEMENT BASE LAYER (1% CEMENT CONTENT) AND INCLUSION OF SUBSOIL DRAINAGE ; OR
2. A 0.4m LAYER OF SHOT ROCK WRAPPED IN A SUITABLE GEOTEXTILE MEMBRANE.

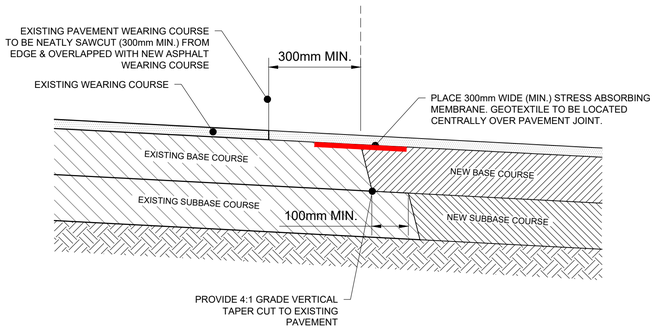
GENERAL EARTHWORKS RECOMMENDATION
WHERE REQUIRED, SITE PREPARATION AND EARTHWORKS PROCEDURES SHOULD INVOLVE THE FOLLOWING:
- STRIP & REMOVE TOPSOIL, SOIL CONTAINING SIGNIFICANT AMOUNTS OF ORGANIC MATERIALS, 'UNCONTROLLED' FILLING AND ALSO ANY DELETERIOUS SOFT, WET OF HIGHLY COMPRESSIBLE MATERIALS IF ENCOUNTERED AT FOOTING OR PAVEMENT FORMATION LEVELS;
- UNDERTAKE 'PROOF' ROLLING OF THE EXPOSED SURFACE LEVELS ACROSS THE SITE WITH A MINIMUM 12 TONNE STATIC WEIGHT SMOOTH DRUM OR SIMILAR. ANY SOFT OR LOOSE MATERIAL THAT CANNOT BE IMPROVED BY COMPACTION SHOULD BE REMOVED AND REPLACED WITH APPROVED SELECT FILL (LOADING AROUND THE CREST SHOULD BE NOT TAKE PLACE);
- ANY EXPOSED NATURAL FOUNDATION SOILS SHOULD BE COMPACTED TO A MINIMUM DRY DENSITY RATIO OF 98% USING STANDARD COMPACTION AND MOISTURE TREATED TO A MOISTURE RANGE OF -2% (DRY) TO +2% (WET) OF OPTIMUM MOISTURE CONTENT (OMC);
- WHERE THE FOUNDATION LEVELS ARE TO BE RAISED OR SUBGRADE MATERIALS ARE TO BE EXCAVATED (I.E. REMOVE & REPLACE), THE FOUNDATION SOILS SHOULD BE PREPARED AS DETAILED BELOW:
  - APPROVED FILLING SHOULD BE UNDERTAKEN BY PLACING FILL IN UNIFORM HORIZONTAL LAYERS NOT EXCEEDING 200mm LOOSE THICKNESS AND COMPACTED TO ACHIEVE A DRY DENSITY RATIO OF AT LEAST 98% USING STANDARD COMPACTION FOR COHESIVE SOIL OR TO AT LEAST 75% DENSITY INDEX FOR SAND. THE MOISTURE CONTENT OF ANY COHESIVE SOIL FILL MATERIALS SHOULD BE MAINTAINED AT -2% AND +2% OF OMC, DURING & AFTER COMPACTION;
  - FILLING SHOULD BE PLACED AT LEAST TWO (2) METRES BEYOND THE DESIGN PROFILE AND THEN TRIMMED TO THE DESIGN PROFILE;
  - WHERE UNSUITABLE MATERIALS ARE TO BE EXCAVATED IT IS RECOMMENDED THAT ALL EXCAVATED IN-SITU SOILS ARE REMOVED FROM THE SITE AND APPROVED SELECT FILL IS PLACED AND COMPACTED IN THE EXCAVATION. THE EXCAVATION SHOULD BE BENCH TO 'KEY IN' THE SELECT FILL MATERIAL AND OPTIMISE COMPACTION. THE BENCHES SHOULD SLOPE BACK AT 1V:5H AND BE AT LEAST 0.5m WIDE (REFER TO FIGURE 1 FROM ETS GEOTECHNICAL REPORT FOR DETAIL);
  - APPROVED FILLING (GENERAL FILL) SHOULD BE A WELL GRADED MATERIAL FREE FROM ORGANIC MATERIAL, HAVE A PLASTICITY INDEX OF LESS THAN OR EQUAL TO 15%, SHOULD NOT CONTAIN ANY INDIVIDUAL PARTICLES GREATER THAN 75mm IN SIZE;
  - IN ORDER FOR FILLING TO BE CONSIDERED 'CONTROLLED' ANY EARTHWORKS THAT ARE UNDERTAKEN BENEATH ANY OF THE PROPOSED STRUCTURES OR PAVEMENTS ARE TO BE PERFORMED UNDER FULLTIME 'LEVEL 1' INSPECTION AND TESTING AS DESCRIBED AND IN ACCORDANCE WITH AS3798.

IT SHOULD BE NOTED THAT THERE MAY BE TRAFFICABILITY ISSUES FOR RUBBER WHEELED EARTHMOVING EQUIPMENT IF CONSTRUCTION ACTIVITES ARE UNDERTAKEN DURING, OR SOON AFTER WET WEATHER, DUE TO THE MOISTENING AND SOFTENING OF THE CLAY SOILS. IN ORDER TO MINIMISE THESE ISSUES, THE USE OF TRACKED EQUIPMENT IS SUGGESTED. IN ADDITION TO THIS, ACHIEVING A SATISFACTORY 'PROOF' ROLL UNDER WET WEATHER CONDITIONS MAY ALSO BE DIFFICULT. SHOULD THIS SITUATION ARISE, ADDITIONAL GEOTECHNICAL ADVICE SHOULD BE SOUGHT.

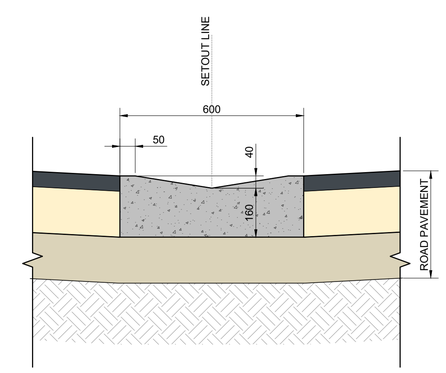
PARAMETER	DESIGN VALUES
	CARPARK AREA
AADT	< 250
STREET TYPE (FNQROC)	ACCESS
% CV	5%
% ESA/CV	1.0
MINIMUM ESA's	1.0×10^5
DESIGN SUBGRADE CBR	5%



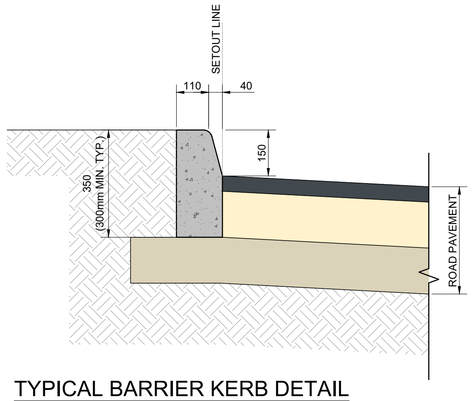
TYPICAL CONCRETE FOOTPATH DETAIL
(FNQROC STANDARD DRAWING S1035)
NOT TO SCALE



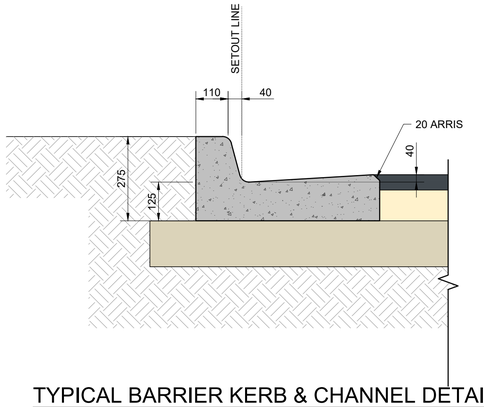
TYPICAL PAVEMENT JOINT DETAIL
NOT TO SCALE



TYPICAL CONCRETE INVERT DETAIL
SCALE 1:10

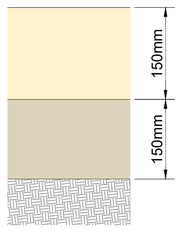


TYPICAL BARRIER KERB DETAIL
SCALE 1:10



TYPICAL BARRIER KERB & CHANNEL DETAIL
SCALE 1:10

PAVEMENT PROFILE - NEW FIRE ACCESS TRAIL



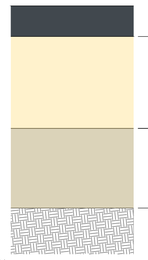
BASE COURSE:
TYPE 2.2 PER MRTS05
150mm THICK THROUGHOUT
(MIN. CBR 60%)

SUB-BASE COURSE:
CEMENT TREAT THE PAVEMENT BASE LAYER (1% CEMENT CONTENT)
TYPE 2.3 PER MRTS05
150mm THICK THROUGHOUT
(MIN. CBR 45%)

DESIGN SUBGRADE:
CBR 5%

SUBGRADE TREATMENT WHERE CBR < 5% (PROVISIONAL) FOR THE FOLLOWING OPTIONS:
1. GROUND IMPROVEMENT WORKS, CONSISTING OF THE EXCAVATION OF THE EXISTING INSITU SUBGRADE MATERIAL, TO BE PLACED & RECOMPACTED - FOR RE-USE.
2. EXISTING A 0.4m LAYER OF SHOT ROCK WRAPPED IN A SUITABLE GEOTEXTILE MEMBRANE.

PAVEMENT PROFILE - NEW ACCESS ROAD/CARPARK



WEARING COURSE:
50mm ASPHALT (DG10)
BITUMEN EMULSION PRIME

BASE COURSE:
TYPE 2.2 PER MRTS05
150mm THICK THROUGHOUT
(MIN. CBR 60%)

SUB-BASE COURSE:
CEMENT TREAT THE PAVEMENT BASE LAYER (1% CEMENT CONTENT)
TYPE 2.3 PER MRTS05
150mm THICK THROUGHOUT
(MIN. CBR 45%)

DESIGN SUBGRADE:
CBR 5%

SUBGRADE TREATMENT WHERE CBR < 5% (PROVISIONAL) FOR THE FOLLOWING OPTIONS:
1. GROUND IMPROVEMENT WORKS, CONSISTING OF THE EXCAVATION OF THE EXISTING INSITU SUBGRADE MATERIAL, TO BE PLACED & RECOMPACTED - FOR RE-USE.
2. EXISTING A 0.4m LAYER OF SHOT ROCK WRAPPED IN A SUITABLE GEOTEXTILE MEMBRANE.

Revision	Amendments	Approved	Date
A	100% DESIGN ISSUE - FOR APPROVAL	J.L.A	29/04/2025

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CONTACT@LEKKERURBAN.COM
WWW.LEKKERURBAN.COM.AU ABN 32 669 311 479

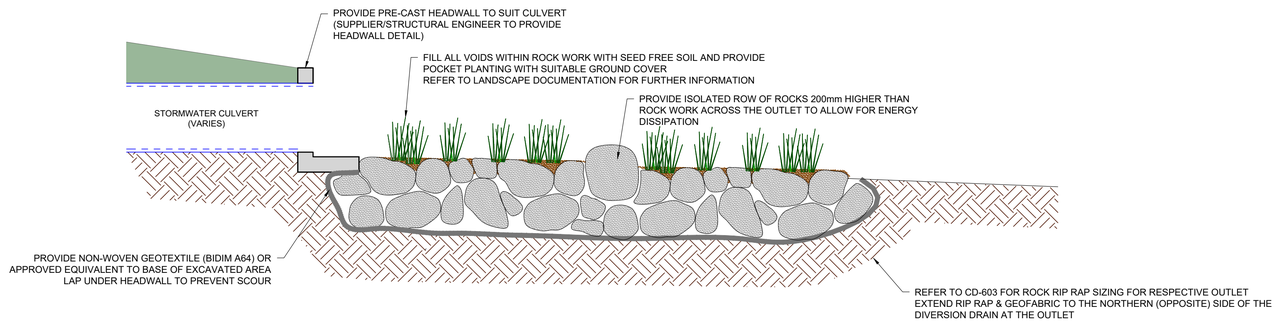
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Designed: A.P.B
Checked: J.L.A
Authorised: J.L.A
Date: 29/04/2025

TWO RIVERS COMMUNITY SCHOOL STAGE 1 & 2 - INTERNAL CIVIL WORKS
TYPICAL CONSTRUCTION DETAILS SHEET 1 OF 2
CHEWKO ROAD & 267 MCIVER ROAD, MAREEBA QLD
ON BEHALF OF TWO RIVERS COMMUNITY SCHOOL

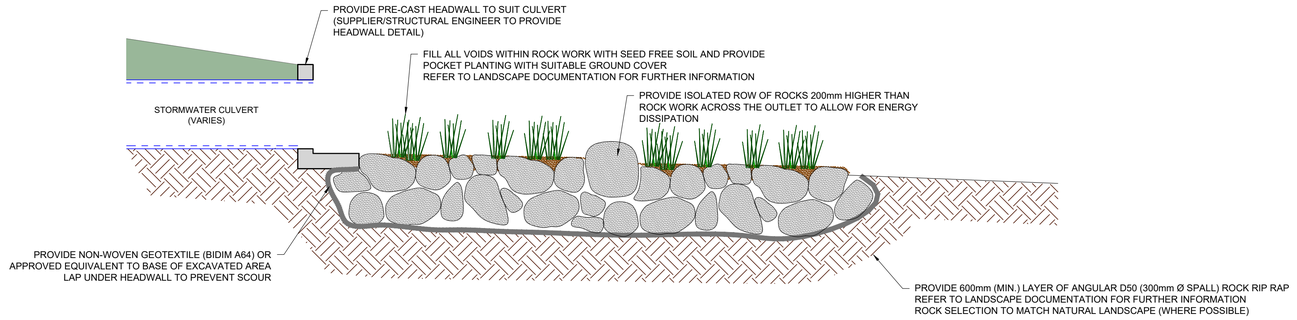
FOR APPROVAL

DRAWING NUMBER: LU23112-2-CD-700 REV: A



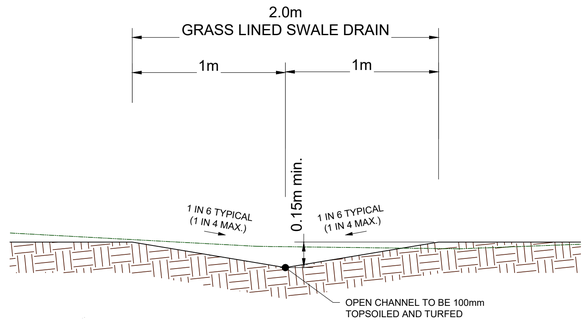
DRAINAGE LINE 1 & 5 - INLET/OUTLET DETAIL

NOT TO SCALE



DRAINAGE LINE 10 (CULVERT CROSSING) AT FIRE ACCESS TRAIL - INLET/OUTLET DETAIL

NOT TO SCALE



TYPICAL SECTION - NEW SWALE (INTERNAL)

SCALE 1:20

Revision	Amendments	Approved	Date
A	100% DESIGN ISSUE - FOR APPROVAL	J.L.A	29/04/2025

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SCALE 1:1000@A1
0 20 40 60 80 100 m

Designed: A.P.B
Checked: J.L.A
Authorised: J.L.A
Date: 29/04/2025

TWO RIVERS COMMUNITY SCHOOL
STAGE 1 & 2 - INTERNAL CIVIL WORKS

TYPICAL CONSTRUCTION DETAILS
SHEET 2 OF 2

CHEWKO ROAD & 267 MCIVER ROAD, MAREEBA QLD
ON BEHALF OF TWO RIVERS COMMUNITY SCHOOL

FOR APPROVAL

DRAWING NUMBER: LU23112-2-CD-701
REV: A

Appendix A3 – Statement of Compliance – Operational Works Design (Civil)

FNQROC DEVELOPMENT MANUAL

Council Mareeba Shire Council
(INSERT COUNCIL NAME)

STATEMENT OF COMPLIANCE
OPERATIONAL WORKS DESIGN

This form duly completed and signed by an authorised agent of the Designer shall be submitted with the Operational Works Application for Council Approval.

Name of Development Two Rivers Community School

Location of Development Chewko Road & 267 McIver Road, Mareeba QLD

Applicant Two Rivers Community School

Designer Lekker Urban

It is hereby certified that the Calculations, Drawings, Specifications and related documents submitted herewith have been prepared, checked and amended in accordance with the requirements of the FNQROC Development Manual and that the completed works comply with the requirements therein, **except** as noted below.

Compliance with the requirements of the Operational Works Design Guidelines	Non-Compliance refer to non-compliance report / drawing number
Plan Presentation	-
Geotechnical requirements	NA - Geotechnical By Others
Geometric Road Design	-
Pavements	NA - Pavement By Others
Structures / Bridges	NA - Not Included
Subsurface Drainage	-
Stormwater Drainage	-
Site Re-grading	-
Erosion Control and Stormwater Management	-
Pest Plant Management	NA - Not Included
Cycleway / Pathways	NA - Not Included

Landscaping	NA - Landscaping By Others
Water Source and Disinfection/Treatment Infrastructure (if applicable)	NA - By Others
Water Reticulation, Pump Stations and water storages	NA - By Others
Sewer Reticulation and Pump Stations	NA - By Others
Electrical Reticulation and Street Lighting	NA - By Others
Public Transport	NA - Not Included
Associated Documentation/ Specification	-
Priced Schedule of Quantities	Excluded
Referral Agency Conditions	Responses to Civil Conditions provided in Appendix A4
Supporting Information (AP1.08)	Refer Civil Report
Other	-

Conscientiously believing the above statements to be true and correct, signed on behalf of:

Designer Lekker Urban **RPEQ No** 24039

Name in Full Joshua Affleck

Signature J.affleck **Date** 13/05/2025

Appendix A4 – Review of Development Approval Conditions

This Operational Works Application is submitted with consideration of the Mareeba Shire Council Negotiated Decision Notice MCU/23/0012 dated 19th September 2024. Responses to the development approval conditions is noted below for the Assessment Manger and Referral Agency conditions with respect to the civil engineering aspects only. Responses to conditions relating to other disciplines are covered under separate documentation.

Table A3.1 – Development Approval Conditions Review

Condition Number	Condition | Response
(a) Development assessable against the Planning Scheme	
3.4	**All works must be designed/ constructed and carried out in accordance with FNQROC Development Manual requirements (as amended) and to the satisfaction of Council's delegated officer.** Civil works designed and documented by Lekker Urban have been designed in accordance with FNQROC with amendments to the standard referenced in this report for Council acceptance.
3.9	**Safety Fencing** **A child proof fence or physical barrier is provided to prevent unintended access to the following areas, directly from indoor or outdoor areas intended to accommodate children:** **(a) Vehicle manoeuvring and parking areas;** **(b) Refuse storage and servicing areas; and** **(c) Air conditioning, refrigeration plant and mechanical plant.** **The location and extent of fencing shall be determined by the applicant/developer after carrying out a risk assessment.** Safety fencing to carparking has been nominated within the Civil Drawings for the internal works package.
4	**Infrastructure Services**
4.1	**Development Access**
4.1.1	**The access off Chewko Road must be designed and constructed in accordance with FNQROC Development Manual standard drawing for Rural Access S1105. The width and turn radius of the seal must be determined based on swept paths of the largest vehicle that would enter and exit the site.**
4.1.2	**The full length of the access road from Chewko Road to the property boundary must be upgraded/constructed to provide pavement and seal of a suitable standard to accommodate expected traffic volumes accessing the school.**

Condition Number	Condition | Response
4.1.3	**The access road must be of a suitable width to accommodate two-way traffic including two buses passing each other. Turning paths confirming that vehicles can safely navigate the bends along the access road must be provided as part of the Operational Works application.**
4.1.4	**The railway level crossing must be upgraded in accordance with the State Assessment and Referral Agency response dated 30 May 2024.**
4.1.5	**The intersection of the existing access to the neighbouring properties to the south must be formalised from the new access road.**
	The works described above must be undertaken prior to commencement of use of Stage 1, at no cost to Council and will require approval under an Operational Works permit.
4.1.1	Three (3) rural allotment access have been nominated in the design plans for reinstatement along Chewko Road. Access into the site has been designed in accordance with FNQROC, refer response to condition 4.2 for details. An additional rural allotment access is provided access at CH60m along the new internal road.
4.1.2	Two (2) drawings packages have been provided which document the external access and internal works for the proposed development. External works package documents the access road from CH0m (intersection with Chewko Road) to CH238.13m. Typical sections and road cross sections have been provided demonstrating the nominated road widths with turning movements for a 14.5m rigid bus and 19m semi-trailer at critical intersections and bends. Road pavement comprises of a flexible pavement with asphalt surfacing, edge restraint kerbing and table drains. Internal works road and parking has been designed and documented with asphalt pavements.
4.1.3	Refer response to 4.1.2
4.1.4	Noted. Documentation for the railway upgrade has been provided in the external Civil Works package.
4.1.5	Refer response to 4.1.1.

Condition Number	Condition | Response
4.2	**External Works**
4.2.1	**Design and construct the widening of Chewko Road pavement and seal on both approaches to the access intersection to provide trafficable shoulders of a width and length in accordance with Austroads Guide to Traffic Management Part 6 and Austroads Guide to Road Design Part 4A for a Rural Basic left and right turn treatment (BAL and BAR).** **The works described above must be undertaken prior to commencement of use of Stage 1, at no cost to Council and will require approval under an Operational Works permit.** Refer to commentary within Section 2.3.2 of this report for commentary.
4.4	**Car Parking/Internal Driveways**
4.4.1	**The applicant/developer must ensure the development is provided with staged on-site car parking spaces generally in accordance with the approved plans, which are available solely for the parking of vehicles associated with the use of the premises.**
4.4.2	**All car parking spaces and internal driveways must be concrete/bitumen or asphalt sealed and appropriately drained prior to the commencement of the use and to the satisfaction of Council's delegated officer.**
4.4.3	**The car park must be designed in accordance with AS2890.1 Off-Street Car Parking including parking bay dimensions, aisle widths/speed control etc. The design is to be certified by an RPEQ that the car park provisions comply with Australian standards.**
4.4.4	**An internal traffic circulation design plan demonstrating swept paths must be submitted as part of the development application for Operational Works to demonstrate that adequate provision has been made for the manoeuvring of vehicles and buses.**
4.4.1	Stage 1 of the development has been documented with the documentation of future works to be provided as part of future applications. The Stage 1 design has been undertaken such that suitable allowance has been made for the future development as presented at the time of this application.
4.4.2	Formal carparking has been documented as asphalt as part of the internal civil works package.
4.4.3	Carparking has been documented as previously specified with the nominated design vehicles. The number of carparks have been documented as specified by others.
4.4.4	Vehicle turning movements have been undertaken and supplied for the project.

Condition Number	Condition | Response
4.5	**Stormwater Management**
4.5.1	**Prior to building or operational works commencing, the applicant/developer must submit a Stormwater Management Plan and Report prepared and certified by a suitably qualified design engineer (RPEQ) that meets or exceeds the standards of design and construction set out in the Queensland Urban Drainage Manual (QUDM) and the FNQROC Development Manual to the satisfaction of Council's delegated officer.** **The Stormwater Management Plan must allow for the proposed staging of the development.**
4.5.2	**The Stormwater Management Plan must ensure a non-worsening effect on surrounding land as a consequence of the development, and must take all reasonable and practicable measures to ensure discharge occurs in compliance with the Queensland Urban Drainage Manual (QUDM) and the FNQROC Development Manual.**
4.5.3	**The applicant/developer must construct the stormwater drainage infrastructure for the development in accordance with the approved Stormwater Management Plan and Report.**
4.5.4	**All stormwater drainage must be collected from site and discharged to an approved legal point of discharge.**
4.5.1	The management of stormwater has been documented as part of this Civil Engineering Design Report. The design of the internal stormwater has been undertaken such that it allows for expansion and staging as currently nominated in the masterplan.
4.5.2	Refer Section 2.6.3.5 for commentary.
4.5.3	Compliance to be achieved through suitable construction supervision and construction management.
4.5.4	Refer Section 2.6.3.5 for commentary.
	Referral Agency Response
1	**Clearing of vegetation must:** **(a) only occur within Area A(A1) and Area C(C1) as shown on the attached:** **(i) Vegetation Management Plan, prepared by Queensland Government, reference VMP 2311.38006 SRA, Sheet 1 of 1, version 1: and**

Condition Number	Condition | Response
	(ii) Attachment to Vegetation Management Plan VMP 2311-38006 SRA Derived Reference Points for GPS; **(b) not exceed 3.314 hectares.** Civil design has occurred within the development footprint provided to Lekker Urban.
2	**Built infrastructure, other than for roads, tracks, fences and underground services, must not be established, constructed or located within Area C(C1) as shown on the attached:** **(i) Vegetation Management Ran, prepared by Queensland Government, reference VMP 2311 -38006 SRA, Sheet 1 of 1, version 1; and** **(ii) Attachment to Vegetation Management Plan VMP 2311-380D6 SRA Derived Reference Points for GPS.** Refer response to Referral Agency Response, Condition 1
4	**Stormwater Management** **(a) The stormwater management of the development must not cause a worsening to the operating performance of the railway corridor such that any works on the (and must not:** **(i) create any new discharge points for stormwater runoff onto the railway corridor.** **(ii) concentrate or increase the velocity of flows to the railway corridor.** **(iii) interfere with and/or cause damage to the existing stormwater drainage on the railway corridor** **(iv) surcharge any existing culvert or drain on the railway corridor.** **(v) reduce the quality of stormwater discharge onto the railway corridor.** **(b) Submit RPEQ certification, with supporting documentation, to the Program Delivery and Operations Unit, Far North Queensland Region (Far.North.Queensland.lDAS@tnir.qld.gov.au) within the Department of Transport and Main Roads, confirming that the development has been designed in accordance with part (a) of this condition.** **(c) Submit RPEQ certification, with supporting documentation, to the Program Delivery and Operations Unit, Far North Queensland Region (Far.North.Queensland.lDAS@tnir.qld.gov.au) within the Department of Transport and Main Roads, confirming that the development has been constructed in accordance with part (a) of this condition.**
4(a)	Noted. Compliance is achieved with this condition, refer design drawings for details. Refer response to Referral Agency Response, Condition 4(a).
4(b)	Not applicable to this application, subject to future works.

Condition Number	Condition | Response
4(c)	
	Railway Level Safety
5	**(a) The railway level crossing of the Mungana Branch Line at Chewko Road (ID: LXR_02336) must be upgraded to include the following:** **(i) the road approaching the crossing is aligned to be perpendicular to the railway corridor between its intersection with Chewko Road and extending for at least 20m beyond the outer rail track (edge running rail) on the southern approach to the crossing.** **(ii) a road carriageway width at the level crossing that is at least 7.5m (2 x 3.75m traffic lanes), plus a 1.5m wide verge on both sides of the road.** **(iii) a sealed surface of asphaltic concrete, or similar material, which extends over the crossing and for a minimum distance of 10m from the outer rail track (edge running rail) on each road approach to the crossing, ensuring a maximum grade change of 6%, in accordance with the following standards:** **• 'Level crossings - Details of Sign Posting', prepared by Queensland Rail, dated 13/08/20, drawing numberQR-C-S3394 and issue A.** **• 'Level crossings - Details of Private and Queensland Rail Maintenance Road Grading and Sign Posting', prepared by Queensland Rail, dated 13^08/20, drawing number QR-C-S3395 and issue A.** **• a RPEQ certified crossing foundation suitable for the proposed weight and volume of the maximum design vehicle.** **(b) Provide written evidence from the railway manager to the Program Delivery and Operations Unit, Far North Queensland Region (Far.North.QueenslarHi.lDAS@tnir.qld.gov.au) within the Department of Transport and Main Roads confirming that the development has been designed and constructed in accordance with part (a) of this condition.**
5(a)	Compliance is achieved with this condition, refer Civil Drawings for details.
5(b)	Refer response to Referral Agency Response, Condition 5(a).
6	**a) The railway level crossing of the Mungana Branch Line at Chewko Road (ID: LXR_02336) must be upgraded to include the following safety controls in accordance with AS1742.7:2016 Manual of uniform traffic control devices, Part 7: Railway Crossings, comprising the following for each road approach to the level crossing:** **(i) a RX-2 assembly with R6-25 signage with two pipe posts in accordance with section 2.2.2 of AS1742.7:2016 Manual of uniform traffic control devices, Port 7: Railway Crossings and associated Queensland Rail's 'Standard Level Crossings Traffic Signs for Private & QR Maintenance Level Crossings', dated 25/05/2005 and drawing number 2588;**

Condition Number	Condition | Response
	(ii) stop lines in accordance with section 3.3 and Figure 4.6 of AS1742.7:2016 Manual of uniform traffic control devices, Part 7: Railway Crossings; **(iii) no-overtaking barrier line in accordance with Section 3.5 and Figure 4.6 of AS1742.7:2016 Manual of uniform traffic control devices, Part 7: Railway Crossings, and** **(iv) incident Reporting Signage (quoting crossing reference 2336) in accordance with 'Level Crossings – Incident Reporting Sign', prepared by Queensland Rail, dated 16/02/06, drawing number 2622 and Issue A** **(v) railway crossing advance warning signage on both Chewko Road approaches to the railway level crossing in accordance with Section 2.2.5 and Figure 4.10 of AS1742.7:2016 Manual of uniform traffic control devices, Part 7: Railway Crossings** **(vi) railway crossing advance warning signage on the southern approach (Unnamed Road) to the railway level crossing in accordance with:** **• Section 2.2.5 and Figure 4 of AS1742.7;2016 Manual of uniform traffic control devices. Port 7: Railway Crossings: OR** **• Figure 4.5 of AS 1742.7:2016 Manual uniform traffic control devices, Part 7: Railway Crossings.** **(b) The existing safety controls at the railway level crossing of the Mungana Branch Line at Chewko Road (ID: D(R_0233G) namely, the railway crossing stop assembly (RX-2) must be removed.** **(c) Provide written evidence from the railway manager to the Program Delivery and Operations Unit, Far North Queensland Region (Far.North.Queensland.1DAS@tmr.qld.gov.au) within them Department of Transport and Main Roads confirming that the development has been designed and constructed in accordance with part (a) and (b) of this condition.**
6(a)	Compliance is achieved with this condition, refer Civil Drawings for details.
6(b)	Compliance is achieved with this condition, refer Civil Drawings for details.
6(c)	Refer response to Referral Agency Response, Condition 6(a) and 6(b).
	Public Passenger Transport
7.	**(a) Provide a school bus setdown facility at the location shown on the Stage 1 Plan - Parking and Dropoff, prepared by Life Design, dated 24/07/2023, drawing number 162/A112 and issue 3 (as amended in red).** **(b) The school bus setdown facility must be in accordance with the Disability Standards for Accessible Public Transport 2002 made under subsection 31 (1) of the Disability Discrimination Act 1992 and include the following components:**

Condition Number	Condition | Response
	(i) one (1) continuous bus 2one with capacity to accommodate the setdown of 1 x single unit rigid bus of 14.5m in length in accordance with Section 5.6.3.1 and Table 5-7 of Chapter 5 of the Public Transport Infrastructure Manual 2015. **(ii) bus zone line marking and bus zone signage at either end of the bus zone in accordance with AS1742.11 - Manual of uniform traffic control devices, Part 11: Parking controls.** **(iii) a waiting area with shelter, seats and a bin in accordance with P2.1 - P2.4, S2, Outcome 1, Table 2 of Planning for Safe Transport Infrastructure at Schools.**
7(a)	Compliance is achieved with this condition, refer Civil Drawings for details.
7(b)	Compliance is achieved with this condition, refer Civil Drawings for details.
8.	**(a) Provide a school bus setdown facility at the location shown on Uie Final Plan - Parking and Drop-off, prepared by Life Design, dated 24/07/2023, drawing number 162/A162 and issue 3 (as amended in red).** **(b) The school bus setdown facility must be in accordance with the Disability Standards for Accessible Public Transport 2002 made under subsection 31(1) of the Disability Discrimination Act 1992 and include the following components:** **(i) one (1) continuous bus zone with capacity to accommodate the concurrent setdown of 3 x single unit rigid buses of 14.5m in length with independent operation in-between in accordance with Section 5.6.3.1 and Table 5-7 of Chapter 5 of the Public Transport Infrastructure Manual 2015.** **(ii) bus zone line marking and bus zone signage at either end of the bus zone in accordance with AS1742.11 -Manual of uniform traffic control devices, Part 11: Parking controls.** **(iii) a waiting area with shelter, seats and a bin in accordance withP2.1 -P2.4.S2, Outcome 1, Table 2 of Planning for Safe Transport Infrastructure to Schools.**
8(a)	Compliance is achieved with this condition, refer Civil Drawings for details.
8(b)	Compliance is achieved with this condition, refer Civil Drawings for details.
9.	**The property access and internal roadway shown on Masterplan 2041 School B&W, prepared by Life Design, dated 10/10/2023, drawing number 162/A041c and issue 6 (as amended in red) must be designed and constructed to be in accordance with the following to accommodate a single unit rigid bus of 14.5m in length:** **(c) accommodate the swept path of a single unit rigid bus of 14.5m in length in accordance with Austroads Design Vehicles and Turning Path Templates;**

Condition Number	Condition | Response
	(d) include wayfinding signage to identity the separate vehicular routes to passenger loading zones, parking areas, exits and the like in accordance with Uw Queensland Manual of Uniform Traffic Control Devices, Part 2: Traffic Control Devices for Genera! Use; and **(e) provide priority movement to the 'bus route' over private vehicle routes by installing give way pavement marking and signage in accordance with sections 2.5 and 5.5.2 of Queensland Manual of Uniform Traffic Control Devices, Part 2; Traffic Control Devices for General Use.**
9(c)	Turn movements have been undertaken and provided within the Civil documentation.
9(d)	Refer Civil Drawings for details.
9(d)	Refer Civil Drawings for details.
	Pedestrian and Cyclist Access
10.	**(a) Provide the external and internal pedestrian pathway network, generally in accordance with the Stage 1 Plan - Parking and Drop-off, prepared by Life Design. dated 24/07/2023, drawing number 162/A112 and issue 3 (as amended by SARA in red).** **(b) The active transport network in part (a) of this condition must be in accordance with Table 1: Active Transport and Schedule 1 of Planning for Safe Transport infrastructure to Schools.**
(a)	No external pedestrian network has been provided as part of the development, refer commentary within the design report. Internal paths have been nominated, refer Civil Design drawings for details.
(b)	Commentary is provided within the report relating to this condition. Due to the remote location of the proposed development, no active transport external to the subject site is proposed. Internal access is specified within the development for pedestrian connectivity to buildings and to bus stops.

APPENDIX B

Geotechnical Reporting

Lekker Urban.

LEKKER URBAN

PAVEMENT INVESTIGATION AND DESIGN

TWO RIVERS COMMUNITY SCHOOL
CHEWKO ROAD & 267 MCIVER ROAD
MAREEBA QLD 4880

REPORT No. GT25-011-001R Rev 1

ARPIL 2025

REVISION 1

ETS Geo Pty Ltd
ABN 16 121 817 794
PO Box 587
Redlynch QLD 4870

Telephone: 07 4047 8600
Facsimile: 07 4047 8699
Email: admin@etsgeo.com.au

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Revision	***Electronic***	***Paper***	***Issued to***
1	1	-	Joshua Affleck – Lekker Urban

Document Status							
Revision No.	***Author***	***Reviewer***	***Reason for Issue***	***Approved for Issue***			
				Name	***Signature***	***Date***	***RPEQ No***
1	R. Rackley	M. Ganza	FINAL	M. Ganza	M. Ganza	15/4/25	4449

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1.0 INTRODUCTION

ETS Geo Pty Ltd (ETS) has been commissioned by Urban Lekker to complete a pavement design for a proposed internal road and rail crossing. The rail crossing and internal road will be constructed for a proposed school in Mareeba.

2.0 SCOPE

ETS was engaged to: -

- Conduct fieldwork to collect samples and perform field testing.
- Undertake laboratory testing on nominated samples; and
- Complete a pavement design for the internal road and rail crossing.

3.0 STANDARDS & GUIDELINES

The soil classification descriptions, field and laboratory testing were completed in general accordance with the following Australian Standards, specification, and guidelines.

AS 1726-2017	Geotechnical Site Investigations.
AS 1289	Methods of Testing Soils for Engineering Purposes.
AS3798-2007	Guidelines on earthworks for commercial and residential developments.

STANDARDS AUSTRALIA / AUSTROADS – Pavement Design "A Guide to the Structural Design of Road Pavements".

4.0 FIELDWORK

Five (5) boreholes (BH1 to BH5) drilled by ETS on the 17th February 2025 across the proposed internal driveway and rail crossing. A sixth borehole (BH6) was initially proposed but could not be drilled due to restricted access. Dynamic Cone Penetrometer (DCP) testing was carried out at each borehole location including BH6. Boreholes BH1, BH3 and BH4 were drilled to a target depth of 2.5m. Boreholes BH2 and BH5 were terminated at 0.9m due to wall collapse. Groundwater was encountered in BH1, BH2 and BH5 at 1m, 0.8m and 0.8m depths respectively. The DCP testing was carried out from existing ground surface levels to 1.5m depth.

Locations of the boreholes are shown on Figure 1 in Appendix A.

5.0 LABORATORY TESTING

Laboratory testing was completed in the ETS's NATA accredited laboratory. Testing included, Moisture Content, Particle Size Distribution, Atterberg Limits and CBR (Soaked Single Point), all testing was in completed in accordance with relevant Australian Standards.

Table 1 provides a summary of the test results.

TABLE 1: Laboratory Testing Results

Location & Soil Classification	Grading	Liquid Limit (%)	Plasticity Index (%)	Linear Shrinkage (%)	CBR (%)	Moisture Content (%)
BH1 0.4m – 0.7m Clayey SAND (SC)	27% Gravel 44% Sand 29% Fines	34	18	9.0	9	20.3
BH2 0.4m – 0.7m Clayey SAND (SC)	23% Gravel 46% Sand 31% Fines	33	17	9.0	10	22.8
BH3 0.1m – 0.3m Silty SAND (SM)	15% Gravel 62% Sand 23% Fines	14	Non-Plastic	0.0	40	10.5
BH4 1.1m – 1.4m Clayey GRAVEL (GC)	40% Gravel 27% Sand 33% Fines	56	38	17.0	11	17.1
BH5 0.3m – 0.6m Clayey SAND (SC)	25% Gravel 42% Sand 33% Fines	36	20	9.5	17	22.7

The results of the laboratory testing are included in Appendix C

6.0 SITE CONDITIONS & OBSERVATIONS

6.1 Visual Assessment

The subject site is located approximately 700m north-east of the Bryde Road and Chewko Road intersection in Mareeba. At the time of the investigation, the subject site spanned across a road and rail corridor that abuts to a rural property. The ground surfaces along the road and rail corridor were covered by short thick grass with large trees present along the rail corridor. An unsealed driveway connects Chewko Road to the rural property. The terrain generally comprised of relatively level to gently sloping surfaces across the subject site. A gate prevented access into the rural property. Therefore, Boreholes BH3 to BH5 was drilled outside the gate along the proposed driveway alignment. Borehole BH6 could not be accessed due to boggy ground conditions. Areas of water ponding were noted in the vicinity of BH3 to BH6.

Photographs from the fieldwork are included in Appendix D.

6.2 Subsurface Conditions

Sub-surface profiles encountered in each test pit consisted predominately of Clayey SAND (SC). From the DCP testing, insitu CBRs of less than 3% were encountered up to a depth of 0.78m at Boreholes BH2, BH5 and BH6.

Groundwater **was** encountered in BH1, BH2 and BH5 at 1m, 0.8m and 0.8m depths (respectively) during the investigation. It should be noted that groundwater levels are affected by climatic conditions and therefore groundwater levels may vary with time.

The borehole logs and DCP results are included in Appendix B.

7.0 PAVEMENT DESIGN

7.1 Internal Road

From correspondence with the client, it is understood that the new internal road will has traffic volume of <250 VPD (FNQROC Road Pavement Design Manual Table D3.1) The following assumptions were adopted to determine the minimum required

thicknesses for sealed granular pavement:

TABLE 2: Design Assumptions for Sealed Granular Pavement

TRAFFIC DATA			
Street Type	Access	**Minimum ESA's**	1.0×10^5
%CV	5%		
%ESA/CV	1.0		

SUBGRADE (SC)		
CBR	5% (minimum)	

From the above design assumptions, the following flexible pavement configuration is recommended:

- 30mm DG10 Dense Graded Asphalt (along driveway)
- 50mm DG10 Dense Graded Asphalt (only in areas where traffic is required to turn)
- 150mm Type 2.2 Base (minimum CBR 60%)
- 150mm Type 2.3 Subbase (minimum CBR 45%)

Where the subgrade is expected to achieve a CBR of less than 5% (BH2, BH5 and BH6), ground improvement works or a 0.4m layer of shot rock wrapped in a suitable geotextile is required for the pavement. Due to shallow groundwater, subsoil drains and cement treating the road base layer (1% cement content) is recommended. Sufficient road surface and ground surface drainage should be implemented to prevent stormwater infiltration into the pavement and subgrade.

7.2 Rail Crossing

From correspondence and drawings provided by the client, it is understood that the drainage requirements for the proposed rail crossing are to facilitate an articulated vehicle low loader (Queensland Rail Drawing No QR-C-S3395). For a concrete rail crossing, guidance was sought from Main Roads Drawing No 881. For a minimum subgrade CBR of 6%, a 0.4m thick concrete slab is required for the rail crossing. The slab must be reinforced with SL82 mesh as shown in Drawing No 881 (depicted as F82 reinforcement fabric). Where a minimum subgrade CBR of 6% cannot be achieved, ground improvement works or subgrade replacement (0.4m of shot rock wrapped is a suitable geofabric) must be undertaken. Suitable subsoil drainage should be implemented for the crossing. Further details regarding the drainage and structural requirements for the proposed crossing are presented in Drawing No QR-C-S3395 and Drawing No 881.

All structural and civil components (i.e drainage, road alignments, reinforced concrete structures etc) relevant to the project must be undertaken by a suitably qualified RPEQ engineer.

7.3 General Earthworks Recommendations

The following general procedures are suggested for any site preparation and earthworks to be performed at the site:

- Strip & remove topsoil, soil containing significant amounts of organic materials, 'uncontrolled' filling and also any deleterious soft, wet or highly compressible materials if encountered at footing or pavement formation levels;
- Undertake 'proof' rolling of the exposed surface levels across the site with a minimum 12 tonne static weight smooth drum roller or similar. Any soft or loose material that cannot be improved by compaction should be removed and replaced with approved select fill (loading around the crest should be not take place);
- Any exposed natural foundation soils should be compacted to a minimum dry density ratio of 98% using Standard compaction and moisture treated to a moisture range of -2%(dry) to +2%(wet) of optimum moisture content (OMC);

- Where the foundation levels are to be raised or subgrade materials are to be excavated (i.e. remove & replace), the foundation soils should be prepared as detailed below:

    - Approved filling should be undertaken by placing fill in uniform horizontal layers not exceeding 200mm loose thickness and compacted to achieve a dry density ratio of at least 98% using Standard compaction for cohesive soil or to at least 75% density index for sand. The moisture content of any cohesive soil fill materials should be maintained at -2% to +2% of OMC, during and after compaction;

    - Filling should be placed at least two (2) metres beyond the design profile and then trimmed to the design profile;

    - Where unsuitable materials are to be excavated it is recommended that all excavated in-situ soils are removed from the site and approved select fill is placed and compacted in the excavation. The excavation should be benched to "key in" the select fill material and optimise compaction. The benches should slope back at 1V:5H and be at least 0.5m wide, refer to Figure 1 below;

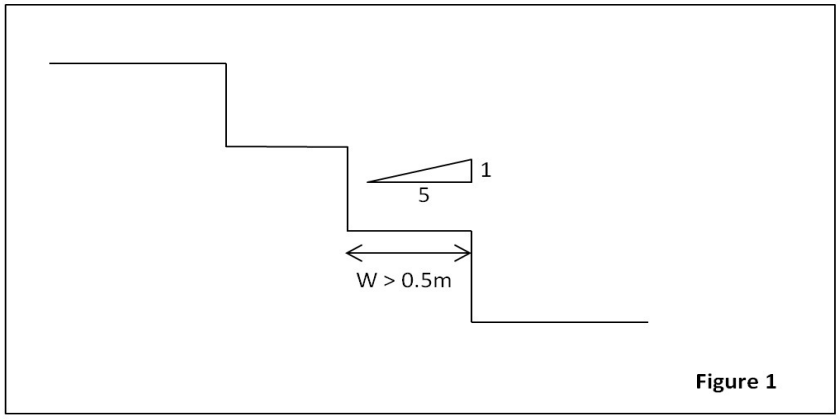


Figure 1

    - Approved filling (general fill) should be a well graded material free from organic materials, have a Plasticity Index less than or equal to 15%, and should not contain any individual particles greater than 75mm in size;

- In order for filling to be considered 'controlled' any earthworks that are undertaken beneath any of the proposed structures or pavements are to be performed under full time 'Level 1' inspection and testing as described and in accordance with AS3798:2007.

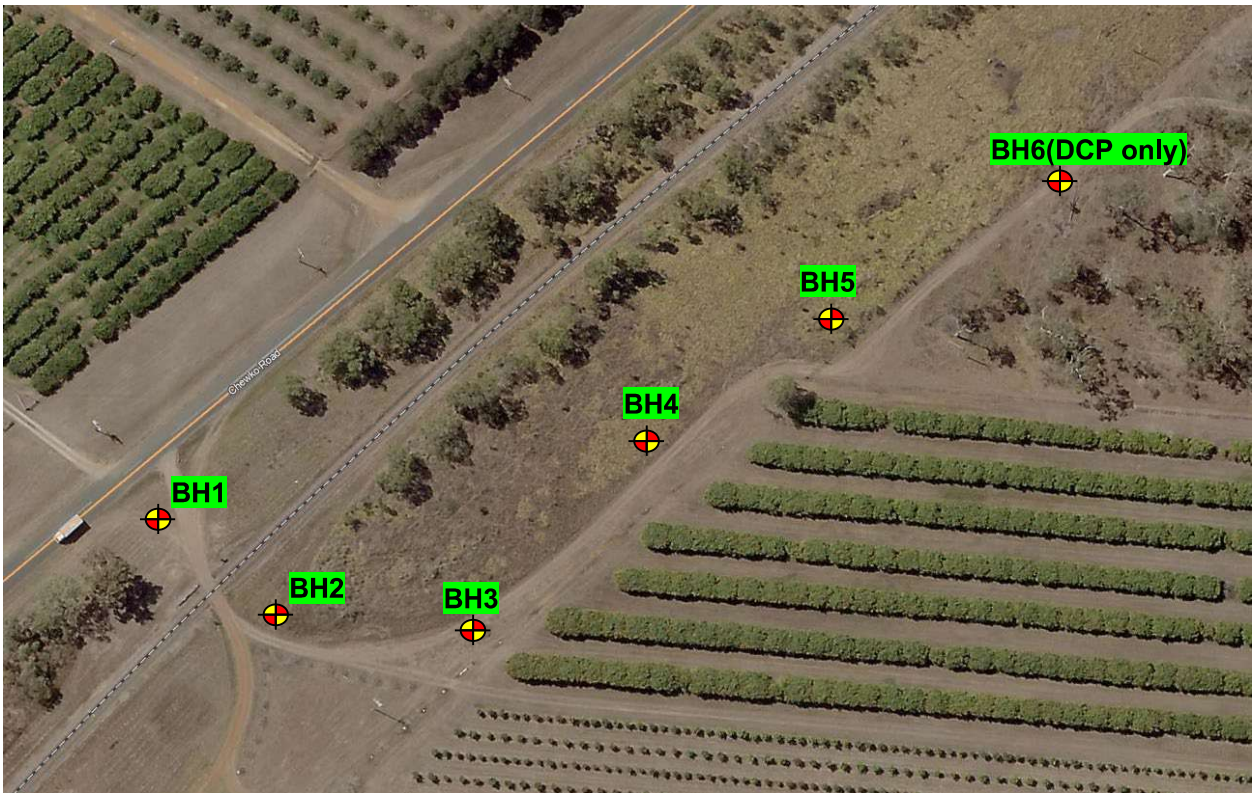
It should be noted that there may be trafficability issues for rubber wheeled earthmoving equipment if construction activities are undertaken either during, or soon after, wet weather, due to the moistening and softening of the clay soils. In order to minimise these issues, the use of tracked equipment is suggested. In addition to this, achieving a satisfactory 'proof' roll under wet weather conditions may also be difficult. Should this situation arise, additional geotechnical advice should be sought.

8.0 LIMITATIONS

We have prepared this report for the use of **LEKKER URBAN** for design purposes in accordance with generally accepted geotechnical engineering practices. No other warranty, expressed or implied, is made as to the professional advice included in this report. This report has not been prepared for use by parties other than **LEKKER URBAN** or their design consultants, i.e. Architect & Civil/Structural Engineers. It may not contain sufficient information for purposes of other parties or for other uses.

Your attention is drawn to the document - "Understand the Limitations of Your Geotechnical Report", which is included in Appendix E of this report. This document has been prepared to advise you of what your realistic expectations of this report should be, and to present you with recommendations on how to minimise the risks associated with the ground works for this project. The document is not intended to reduce the level of responsibility accepted by ETS, but rather to ensure that all parties who may rely on this report are aware of the responsibilities each assumes in so doing.

APPENDIX A – TEST LOCATION PLAN



Legend Test Locations	**DRAWING NO.**: GT25-011 Figure 1	**DRAWN BY:** RR
TEST LOCATION PLAN Two Rivers Community School Chewko Road & 267 McIver Road, Mareeba QLD	**CLIENT:** Lekker Urban	**DATE:** 15/04/2025
	PROJECT: GT25-011	**SCALE:** NTS
	APPROVED BY: MPG	

ETS GEOTECHNICAL

PO Box 587
Redlynch QLD 4870

Telephone: (07) 4047 8600
Facsimile: (07) 4047 8699

E-mail: admin@etsgeo.com.au

APPENDIX B – BOREHOLE LOGS & DCP RESULTS

CLIENT:	Lekker Urban	**SHEET:**	1 of 1
PROJECT:	Chewko Road GI	**PROJECT NO.:**	GT25-011
		DATE:	2025-02-17
TEST LOCATION:	BH1	**REVIEWER:**	RR
LOGGED BY:	GD	**ELEVATION:**	
EQUIPMENT:	DB2000	**LATITUDE:**	-17.02278
HOLE DIA.	450mm	**LONGITUDE:**	145.39076

ETS GEOTECHNICAL

Depth (m)	Method	Soil Symbol	Lithologic Description	Samples No.	Samples Symbols	% Gravel	% Sand	% Fines	Atterberg Limits LL (%)	Atterberg Limits PI (%)	Manual DCP 5 10 15	Comments / Additional Notes
			Ground Surface at (m)									
0	Auger Drilling		**TOPSOIL: Sandy SILT (ML)** low plasticity, dark brown, fine to course grained sand, trace of fine roots, moist. 0.07 m									Groundwater encountered at 1m.
			Silty SAND (SM) fine to coarse grained, brown, low plasticity silt, trace of fine to medium grained gravel, moist. 0.4 m									
1			**Clayey SAND (SC)** fine to coarse grained sand, pale orange-brown, low plasticity fines, with fine to medium grained gravel, moist to wet. 1.1 m		B							
2			**Sandy Clayey GRAVEL (GC)** fine to coarse grained, pale orange-brown, fine to coarse grained sand, low plasticity clay, wet. 2.5 m									
3			BH1 terminated at 2.5m, target depth.									

CLIENT:	Lekker Urban	**SHEET:**	1 of 1
PROJECT:	Chewko Road GI	**PROJECT NO.:**	GT25-011
		DATE:	2025-02-17
TEST LOCATION:	BH2	**REVIEWER:**	RR
LOGGED BY:	GD	**ELEVATION:**	
EQUIPMENT:	DB2000	**LATITUDE:**	-17.02304
HOLE DIA.	450mm	**LONGITUDE:**	145.39097

ETS GEOTECHNICAL

Depth (m)	Method	Soil Symbol	Lithologic Description	Samples No.	Samples Symbols	% Gravel	% Sand	% Fines	Atterberg Limits LL (%)	Atterberg Limits PI (%)	Manual DCP 5 10 15	Comments / Additional Notes
			Ground Surface at (m)									
0	Auger Drilling		**TOPSOIL: Sandy SILT (ML)** low plasticity, dark brown, fine to course grained sand, trace of fine roots, moist. 0.1 m									Groundwater encountered at 0.8m.
			Sandy SILT (ML) low plasticity, brown, fine to course grained sand, trace of fine grained gravel, moist. 0.4 m									
			Clayey SAND (SC) fine to coarse grained sand, pale orange brown, low plasticity fines, with fine to medium grained gravel, moist to wet. 0.9 m		B							
1			BH2 terminated at 0.9m, borehole collapse due to water table.									
2												
3												

CLIENT:	Lekker Urban	**SHEET:**	1 of 1
PROJECT:	Chewko Road GI	**PROJECT NO.:**	GT25-011
		DATE:	2025-02-17
TEST LOCATION:	BH3	**REVIEWER:**	RR
LOGGED BY:	GD	**ELEVATION:**	
EQUIPMENT:	DB2000	**LATITUDE:**	-17.02310
HOLE DIA.	450mm	**LONGITUDE:**	145.3915

ETS GEOTECHNICAL

Depth (m)	Method	Soil Symbol	Lithologic Description	Samples No.	Samples Symbols	% Gravel	% Sand	% Fines	Atterberg Limits LL (%)	Atterberg Limits PI (%)	Manual DCP 5 10 15	Comments / Additional Notes
			Ground Surface at (m)									
0	Auger Drilling		**TOPSOIL: Sandy SILT (ML)** low plasticity, dark brown, fine to course grained sand, trace of fine roots, moist. 0.1 m		B							No Groundwater was encountered.
			Silty SAND (SM) fine to coarse grained, brown, low plasticity fines, with fine to coarse grained gravel, moist. 0.35 m									
			Sandy CLAY (CI) medium plasticity, dark orange-brown mottled brown, fine to coarse grained sand, with fine to coarse grained gravel, moist.		B							
			0.9 m									
1			becoming orange-brown mottled yellow-brown and grey. 1.4 m									
			CLAY (CH) high plasticity, yellow-brown mottled grey and orange-brown, trace of fine to coarse grained sand, trace of fine to medium grained gravel, moist. 2.5 m									
2			BH3 terminated at 2.5m, target depth.									
3												

CLIENT:	Lekker Urban	**SHEET:**	1 of 1
PROJECT:	Chewko Road GI	**PROJECT NO.:**	GT25-011
		DATE:	2025-02-17
TEST LOCATION:	BH4	**REVIEWER:**	RR
LOGGED BY:	GD	**ELEVATION:**	
EQUIPMENT:	DB2000	**LATITUDE:**	-17.02266
HOLE DIA.	450mm	**LONGITUDE:**	145.39196

ETS GEOTECHNICAL

Depth (m)	Method	Soil Symbol	Lithologic Description	Samples No.	Samples Symbols	% Gravel	% Sand	% Fines	Atterberg Limits LL (%)	Atterberg Limits PI (%)	Manual DCP 5 10 15	Comments / Additional Notes
			Ground Surface at (m)									
0	Auger Drilling		**TOPSOIL: Sandy SILT (ML)** low plasticity, dark brown, fine to course grained sand, trace of fine roots, moist. 0.25 m									No Groundwater was encountered.
			Sandy CLAY (CI) medium plasticity, red-brown, fine to coarse grained sand, with fine to coarse grained gravel, moist. 1 m		B							
1			**Clayey GRAVEL (GC)** fine to coarse grained gravel, brown mottled red-brown, high plasticity fines, with fine to coarse grained sand, moist. 1.5 m		B							
			CLAY (CH) high plasticity, yellow-brown mottled grey and orange-brown, trace of fine to coarse grained sand, trace of fine to medium grained gravel, moist. 2.5 m									
2			BH4 terminated at 2.5m, target depth.									
3												

CLIENT:	Lekker Urban	**SHEET:**	1 of 1
PROJECT:	Chewko Road GI	**PROJECT NO.:**	GT25-011
		DATE:	2025-02-17
TEST LOCATION:	BH5	**REVIEWER:**	RR
LOGGED BY:	GD	**ELEVATION:**	
EQUIPMENT:	DB2000	**LATITUDE:**	-17.02232
HOLE DIA.	450mm	**LONGITUDE:**	145.3924

GEOTECHNICAL

Depth (m)	Method	Soil Symbol	Lithologic Description	Samples No.	Samples Symbols	% Gravel	% Sand	% Fines	Atterberg Limits LL (%)	Atterberg Limits PI (%)	Manual DCP 5 10 15	Comments / Additional Notes
			Ground Surface at (m)									
0	Auger Drilling		**TOPSOIL: Sandy SILT (ML)** low plasticity, dark brown, fine to course grained sand, trace of fine roots, moist. 0.2 m									Groundwater encountered at 0.8m.
			Clayey SAND (SC) fine to coarse grained sand, pale brown, low plasticity fines, with fine to coarse grained gravel, moist to wet. 0.9 m		B							
1			BH5 terminated at 0.9m, borehole collapse due to water table.									
2												
3												

Material Test Report

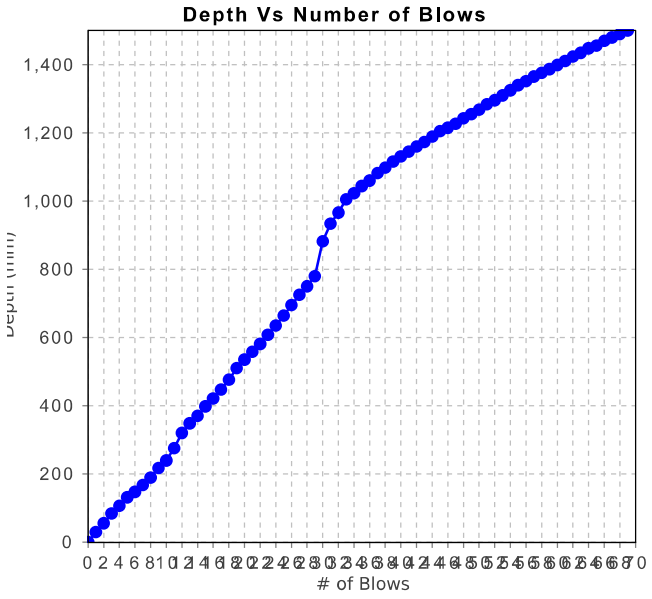
Report Number: GT25-011-1
Issue Number: 1
Date Issued: 21/02/2025
Client: Lekker Urban
PO Box 8, , Stratford QLD 4870
Contact: Joshua Affleck
Project Number: GT25-011
Project Name: Pavement Investigation - Two Rivers Community School
Project Location: Chewko Road, Mareeba.
Work Request: 1520
Sample Number: S-1520A
Date Sampled: 17/02/2025
Dates Tested: 17/02/2025 - 17/02/2025
Preparation Method: No sampling – field test only
Site Selection: Selected by Client
Sample Location: **BH1, Depth: Surface Level**
Material Source: Insitu

ETS Geo Pty Ltd
Cairns Laboratory
130 Buchan Street Bungalow QLD 4870
Phone: 07 4047 8600
Email: admin@etsgeo.com.au

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Troy Bock
Laboratory Manager
NATA Accredited Laboratory Number: 20026

Insitu California Bearing Ratio - dynamic cone penetrometer (Q114B)			
Moisture Condition		Moist	
Starting Reference Point		2000	
Layer	Layer Thickness (mm)	Depth (mm)	Equivalent California Bearing Ratio
1	966	0 - 966	6
2	534	966 - 1500	14



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Results relate only to the items tested/sampled.

Material Test Report

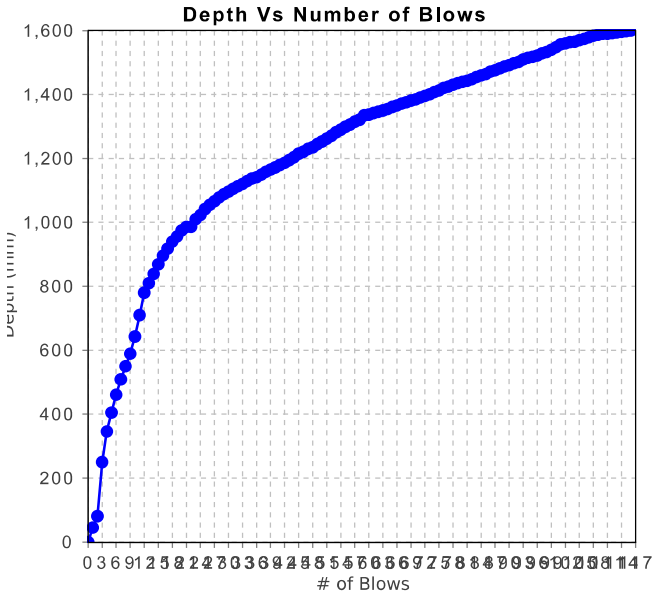
Report Number: GT25-011-1
Issue Number: 1
Date Issued: 21/02/2025
Client: Lekker Urban
PO Box 8, , Stratford QLD 4870
Contact: Joshua Affleck
Project Number: GT25-011
Project Name: Pavement Investigation - Two Rivers Community School
Project Location: Chewko Road, Mareeba.
Work Request: 1520
Sample Number: S-1520B
Date Sampled: 17/02/2025
Dates Tested: 17/02/2025 - 17/02/2025
Preparation Method: No sampling – field test only
Site Selection: Selected by Client
Sample Location: **BH2, Depth: Surface Level**
Material Source: Insitu

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Cairns Laboratory
130 Buchan Street Bungalow QLD 4870
Phone: 07 4047 8600
Email: admin@etsgeo.com.au

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Approved Signatory: Troy Bock
Laboratory Manager
NATA Accredited Laboratory Number: 20026

Insitu California Bearing Ratio - dynamic cone penetrometer (Q114B)			
Moisture Condition		moist to wet	
Starting Reference Point		2000	
Layer	Layer Thickness (mm)	Depth (mm)	Equivalent California Bearing Ratio
1	780	0 - 780	2.5
2	820	780 - 1600	30



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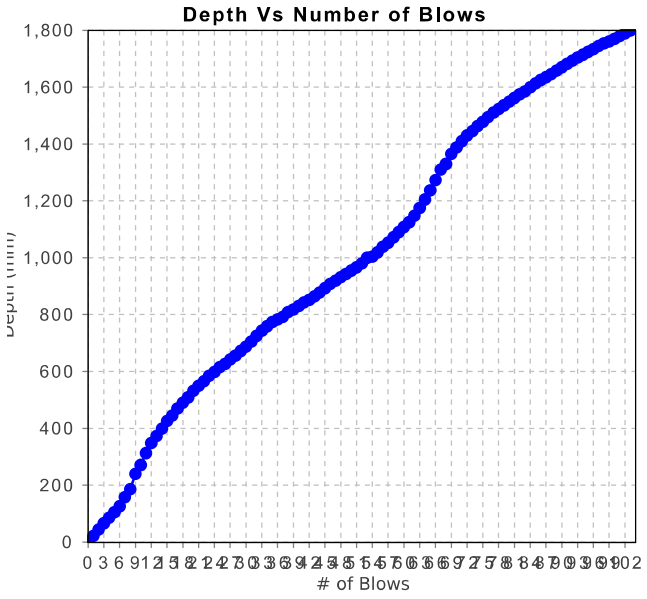
Report Number: GT25-011-1
Issue Number: 1
Date Issued: 21/02/2025
Client: Lekker Urban
PO Box 8, , Stratford QLD 4870
Contact: Joshua Affleck
Project Number: GT25-011
Project Name: Pavement Investigation - Two Rivers Community School
Project Location: Chewko Road, Mareeba.
Work Request: 1520
Sample Number: S-1520C
Date Sampled: 17/02/2025
Dates Tested: 17/02/2025 - 17/02/2025
Preparation Method: No sampling – field test only
Site Selection: Selected by Client
Sample Location: **BH3, Depth: Surface Level**
Material Source: Insitu

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Cairns Laboratory
130 Buchan Street Bungalow QLD 4870
Phone: 07 4047 8600
Email: admin@etsgeo.com.au

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Approved Signatory: Troy Bock
Laboratory Manager
NATA Accredited Laboratory Number: 20026

Insitu California Bearing Ratio - dynamic cone penetrometer (Q114B)			
Moisture Condition		Moist	
Starting Reference Point		2000	
Layer	Layer Thickness (mm)	Depth (mm)	Equivalent California Bearing Ratio
1	240	0 - 240	7
2	868	240 - 1108	12
3	322	1108 - 1430	7
4	369	1430 - 1799	18



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Material Test Report

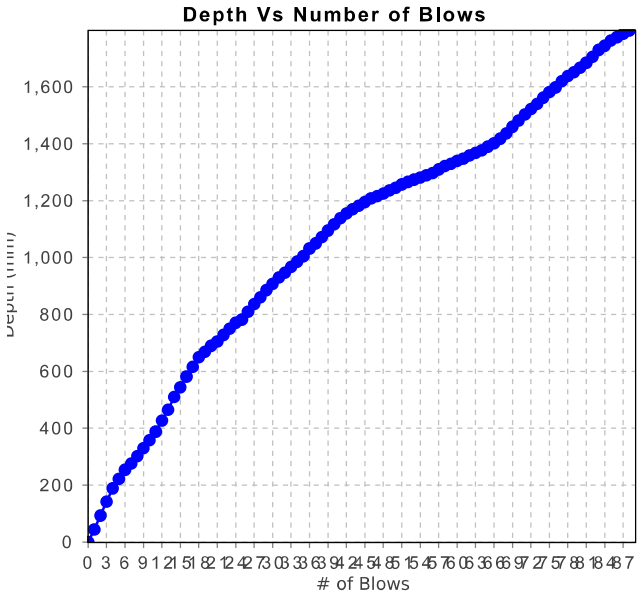
Report Number: GT25-011-1
Issue Number: 1
Date Issued: 21/02/2025
Client: Lekker Urban
PO Box 8, , Stratford QLD 4870
Contact: Joshua Affleck
Project Number: GT25-011
Project Name: Pavement Investigation - Two Rivers Community School
Project Location: Chewko Road, Mareeba.
Work Request: 1520
Sample Number: S-1520D
Date Sampled: 17/02/2025
Dates Tested: 17/02/2025 - 17/02/2025
Preparation Method: No sampling – field test only
Site Selection: Selected by Client
Sample Location: **BH4, Depth: Surface Level**
Material Source: Insitu

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Laboratory Manager
NATA Accredited Laboratory Number: 20026

Insitu California Bearing Ratio - dynamic cone penetrometer (Q114B)			
Moisture Condition		Moist	
Starting Reference Point		2000	
Layer	Layer Thickness (mm)	Depth (mm)	Equivalent California Bearing Ratio
1	650	0 - 650	5.0
2	1148	650 - 1798	12



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Material Test Report

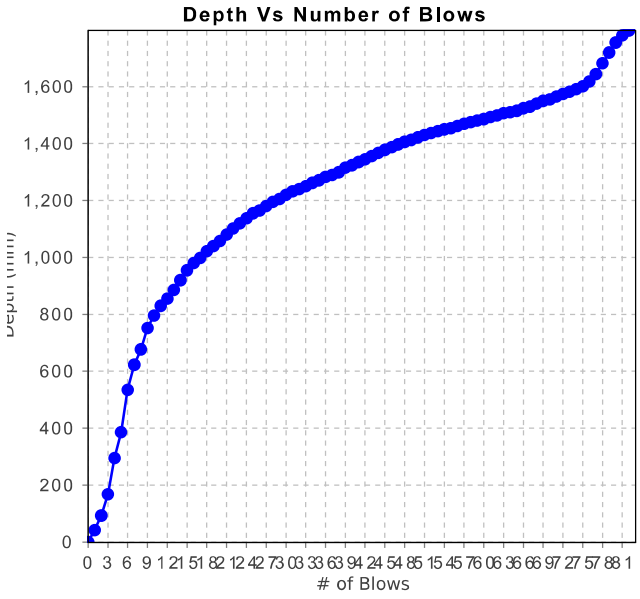
Report Number: GT25-011-1
Issue Number: 1
Date Issued: 21/02/2025
Client: Lekker Urban
PO Box 8, , Stratford QLD 4870
Contact: Joshua Affleck
Project Number: GT25-011
Project Name: Pavement Investigation - Two Rivers Community School
Project Location: Chewko Road, Mareeba.
Work Request: 1520
Sample Number: S-1520E
Date Sampled: 17/02/2025
Dates Tested: 17/02/2025 - 17/02/2025
Preparation Method: No sampling – field test only
Site Selection: Selected by Client
Sample Location: **BH5, Depth: Surface Level**
Material Source: Insitu

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130 Buchan Street Bungalow QLD 4870
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Laboratory Manager
NATA Accredited Laboratory Number: 20026

Insitu California Bearing Ratio - dynamic cone penetrometer (Q114B)			
Moisture Condition		moist to wet	
Starting Reference Point		2000	
Layer	Layer Thickness (mm)	Depth (mm)	Equivalent California Bearing Ratio
1	752	0 - 752	2.0
2	849	752 - 1601	16
3	196	1601 - 1797	7



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Material Test Report

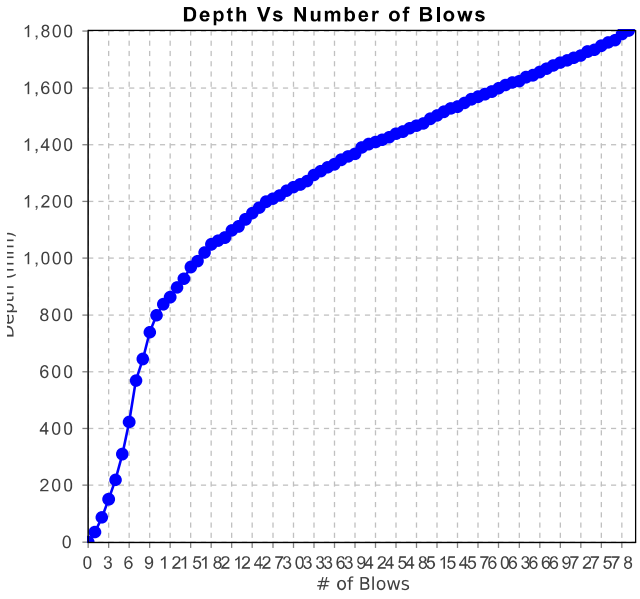
Report Number: GT25-011-1
Issue Number: 1
Date Issued: 21/02/2025
Client: Lekker Urban
PO Box 8, , Stratford QLD 4870
Contact: Joshua Affleck
Project Number: GT25-011
Project Name: Pavement Investigation - Two Rivers Community School
Project Location: Chewko Road, Mareeba.
Work Request: 1520
Sample Number: S-1520F
Date Sampled: 17/02/2025
Dates Tested: 17/02/2025 - 17/02/2025
Preparation Method: No sampling – field test only
Site Selection: Selected by Client
Sample Location: **BH6, Depth: Surface Level**
Material Source: Insitu

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Cairns Laboratory
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Phone: 07 4047 8600
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Laboratory Manager
NATA Accredited Laboratory Number: 20026

Insitu California Bearing Ratio - dynamic cone penetrometer (Q114B)			
Moisture Condition		moist to wet	
Starting Reference Point		2000	
Layer	Layer Thickness (mm)	Depth (mm)	Equivalent California Bearing Ratio
1	739	0 - 739	2.0
2	1063	739 - 1802	14



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APPENDIX C – LABORATORY RESULTS

Material Test Report

Report Number:	**GT25-011-2**
Issue Number:	1
Date Issued:	11/03/2025
Client:	Lekker Urban
	PO Box 8, , Stratford QLD 4870
Contact:	Joshua Affleck
Project Number:	GT25-011
Project Name:	Pavement Investigation - Two Rivers Community School
Project Location:	Chewko Road, Mareeba.
Work Request:	1521
Date Sampled:	17/02/2025
Dates Tested:	20/02/2025 - 04/03/2025
Sampling Method:	AS 1289.1.2.1 6.5.3 - Power auger drilling
Preparation Method:	In accordance with the test method
Site Selection:	Selected by Client
Location:	Pavement Investigation
Material Source:	Insitu

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Cairns Laboratory
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Approved Signatory: Troy Bock
Laboratory Manager
NATA Accredited Laboratory Number: 20026

Sample Details							
Sample Number	S-1521A	S-1521B	S-1521C	S-1521D	S-1521E		
Date Sampled	17/02/2025	17/02/2025	17/02/2025	17/02/2025	17/02/2025		
Sample Location	BH1	BH2	BH3	BH4	BH5		
Sample Depth	0.4 - 0.7m	0.4 - 0.7m	0.1 - 0.3m	1.1 - 1.4m	0.3 - 0.6m		
Material	Clayey SAND with gravel - SC	Clayey SAND with gravel - SC	Silty/Clayey SAND with gravel - SM/SC	Clayey GRAVEL with sand - GC	Clayey SAND with gravel - SC		
Particle Size Distribution (AS1289 3.6.1)						Min	Max
Passing 19.0mm (%)	100	100	100	100	100		
Passing 9.5mm (%)	98	98	97	98	95		
Passing 4.75mm (%)	86	88	91	79	86		
Passing 2.36mm (%)	73	77	85	60	75		
Passing 0.425mm (%)	54	56	63	44	57		
Passing 0.075mm (%)	29	31	23	33	33		
Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)						Min	Max
Sample History	Oven Dried	Oven Dried	Oven Dried	Oven Dried	Oven Dried		
Preparation Method	Dry Sieve	Dry Sieve	Dry Sieve	Dry Sieve	Dry Sieve		
Liquid Limit (%)	34	33	14	56	36		
Plastic Limit (%)	16	16	Not Obtainable	18	16		
Plasticity Index (%)	18	17	Non Plastic	38	20		
Linear Shrinkage (AS 1289 3.4.1)						Min	Max
Sample History	Oven Dried	Oven Dried	Oven Dried	Oven Dried	Oven Dried		
Preparation Method	Dry Sieve	Dry Sieve	Dry Sieve	Dry Sieve	Dry Sieve		
Moisture Condition Determined By	AS 1289.3.1.2	AS 1289.3.1.2	AS 1289.3.1.2	AS 1289.3.1.2	AS 1289.3.1.2		
Linear Shrinkage (%)	9.0	9.0	0.0	17.0	9.5		
Cracking Crumbling Curling	None	Cracking	None	Cracking & Curling	Cracking		
Moisture Content (AS 1289 2.1.1)						Min	Max
Moisture Content (%)	20.3	22.8	10.5	17.1	22.7		
Min (%)	**	**	**	**	**		
Max (%)	**	**	**	**	**		

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Material Test Report

Report Number: GT25-011-2
Issue Number: 1
Date Issued: 11/03/2025
Client: Lekker Urban
PO Box 8, , Stratford QLD 4870
Contact: Joshua Affleck
Project Number: GT25-011
Project Name: Pavement Investigation - Two Rivers Community School
Project Location: Chewko Road, Mareeba.
Work Request: 1521
Date Sampled: 17/02/2025
Dates Tested: 20/02/2025 - 10/03/2025
Sampling Method: AS 1289.1.2.1 6.5.3 - Power auger drilling
Preparation Method: In accordance with the test method
Site Selection: Selected by Client
Location: Pavement Investigation
Material Source: Insitu

ETS Geo Pty Ltd
Cairns Laboratory
130 Buchan Street Bungalow QLD 4870
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Approved Signatory: Troy Bock
Laboratory Manager
NATA Accredited Laboratory Number: 20026

Sample Details						
Sample Number	S-1521A	S-1521B	S-1521C	S-1521D	S-1521E	
Date Sampled	17/02/2025	17/02/2025	17/02/2025	17/02/2025	17/02/2025	
Sample Location	BH1	BH2	BH3	BH4	BH5	
Sample Depth	0.4 - 0.7m	0.4 - 0.7m	0.1 - 0.3m	1.1 - 1.4m	0.3 - 0.6m	
Material	Clayey SAND with gravel - SC	Clayey SAND with gravel - SC	Silty/Clayey SAND with gravel - SM/SC	Clayey GRAVEL with sand - GC	Clayey SAND with gravel - SC	
California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)						Min Max
Material Retained on 19mm (%)	**	**	**	**	**	
Oversize Material Included	Excluded	Excluded	Excluded	Excluded	Excluded	
Additive Type	**	**	**	**	**	
Additive (%)	**	**	**	**	**	
Mass Surcharge (kg)	4.5	4.5	4.5	4.5	4.5	
Soaking Period (days)	4	4	4	4	4	
Method of Compactive Effort	Standard	Standard	Standard	Standard	Standard	
MDD and MC Test Methods	AS 1289 5.1.1 & 2.1.1	AS 1289 5.1.1 & 2.1.1	AS 1289 5.1.1 & 2.1.1	AS 1289 5.1.1 & 2.1.1	AS 1289 5.1.1 & 2.1.1	
Maximum Dry Density (t/m^3)	1.94	1.91	2.04	1.88	1.92	
Optimum Moisture Content (%)	13.0	13.5	8.0	15.0	13.0	
Target Laboratory Density Ratio (%)	98	98	98	98	98	
Target Laboratory Moisture Ratio (%)	100	100	100	100	100	
Achieved Dry Density (t/m^3)	1.905	1.876	1.999	1.844	1.882	
Moisture Content at Placement (%)	12.9	13.1	8.0	14.8	12.8	
Moisture Content Top 30mm (%)	14.8	14.4	9.3	16.6	15.1	
Laboratory Density Ratio (%)	98.0	98.5	98.0	98.0	98.0	
Laboratory Moisture Ratio (%)	98.5	98.5	100.0	100.0	98.0	
California Bearing Ratio (%)	9	10	40	11	17	
CBR taken at	2.5 mm	2.5 mm	5 mm	2.5 mm	2.5 mm	

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APPENDIX D – PHOTOGRAPHS



PHOTOGRAPH 1: View of existing Rail Crossing



PHOTOGRAPH 2: View of existing Rail Line



PHOTOGRAPH 3: View towards Chewko Road



PHOTOGRAPH 4: View of Water Ponding



PHOTOGRAPH 5: View towards BH5 from BH6



PHOTOGRAPH 6: View of BH1 location



PHOTOGRAPH 7: View inside of BH1



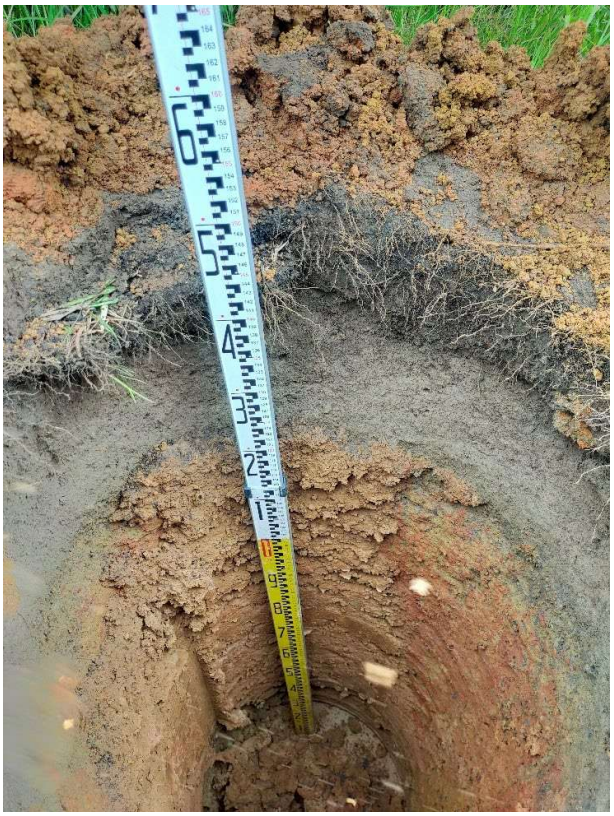
PHOTOGRAPH 8: View of BH2 Location



PHOTOGRAPH 9: View inside of BH2 location



PHOTOGRAPH 10: View of BH3 location



PHOTOGRAPH 11: View inside of BH3



PHOTOGRAPH 12: View of BH4 location



PHOTOGRAPH 13: View inside of BH4



PHOTOGRAPH 14: View of BH5 location



PHOTOGRAPH 15: View inside of BH5

APPENDIX E – UNDERSTANDING THE LIMITATIONS OF YOUR GEOTECHNICAL REPORT

HEAD OFFICE – CAIRNS
ETS GEO PTY LTD
ABN: 16 121 817 794
☎ 07 4047 8600
admin@etsgeo.com.au
PO Box 587
REDLYNCH QLD 4870

130 Buchan Street
Cairns QLD 4870

UNDERSTAND THE LIMITATIONS OF YOUR GEOTECHNICAL REPORT

This report is based on project details as provided to ETS Geo Pty Ltd at the time of commission. It therefore applies only to the site investigated, and to the specific set of project requirements as understood by ETS Geo Pty Ltd.

If there are changes to the project, you need to advise us in order that the effect of the changes on the report recommendations can be adequately assessed. ETS Geo Pty Ltd cannot take responsibility for problems that may occur due to project changes if we are not consulted.

It is important to remember that the subsurface conditions described in the report represent the state of the site at the time of investigation. Natural processes and the activities of man can result in changes to site conditions. For example, ground water levels can change, or fill can be placed on a site after the investigation is completed. If there is a possibility that conditions may have changed with time, ETS Geo Pty Ltd should be consulted to assess the impact on the recommendations of the report.

The site investigation only identifies the actual subsurface conditions at the location and time when the samples were taken. Geologists and engineers then extrapolate between the investigation points to provide an assumed three-dimensional picture of the site conditions. The report assumes that the site conditions as identified at the investigation locations are representative of the actual conditions throughout an area. This may not be the case and actual conditions may differ from those inferred to exist. This will not be known until construction has commenced. Your geotechnical report and the recommendations contained within it can therefore only be regarded as preliminary.

In the event that conditions encountered during construction differ from those described in the report, ETS Geo Pty Ltd should be consulted immediately. Although little can be done to change the actual site conditions which exist, steps can be taken to ameliorate the impact of unexpected conditions. For this reason, the services of ETS Geo Pty Ltd should be retained throughout the development stage of the project.

Problems can occur when other design professionals misinterpret a report. To help avoid this, ETS Geo Pty Ltd should be retained for liaison with other design professionals to explain the implications of the report.

This report should be retained as a complete document and should not be copied in part, divided, or altered in any way.

It is recommended that the services or ETS Geo Pty Ltd are retained during the construction phase to confirm that conditions encountered are consistent with design assumptions. For example, this may involve assessment of bearing capacity for footings, stability of natural slopes or excavations or advice on temporary construction conditions.

This document has been produced to help all parties involved recognise their individual responsibilities.