

Jim Papas Civil Engineering Designer

PTY LTD. ABN 56 010 943 905. ACN 010 943 905

Design Excellence, Exceptional Service

The Chief Executive Officer,
Mareeba Shire Council,
P.O. Box 154,
Mareeba Qld 4880

December 4, 2018
1370 Part 2

Attn: Mr. B. Millard

Dear Sir,

**RE: MAREEBA ROADHOUSE and ACCOMMODATION PARK - PROPOSED
EXTERNAL WORKS IN WILLIAMS CLOSE, MAREEBA.**
(MSC Ref. No. MCU/17/0017)

We submit the attached operational works application on behalf of Briley Consulting Pty. Ltd.

We seek your approval of these proposals and request that you issue an "Operational Works" permit to allow construction to commence.

Yours faithfully,

JIM PAPAS CIVIL ENGINEERING
DESIGNER PTY. LTD.

JIM PAPAS

Please address all
correspondence to:
**P.O. Box 2347,
Mareeba, Qld 4880**



Email: admin@jpced.com.au
Mobile: 0408 770 394

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COVER SHEET

OPERATIONAL WORKS APPLICATION FOR MAREEBA ROADHOUSE and ACCOMMODATION PARK

Job No. **1370**

Job Description: **Proposed External Works in Williams Close, Mareeba**

Client: **Roadhouse Property Unit Trust**

LIST OF CONTENTS

Part 1: This Cover Sheet.

Part 2: Covering Letter.

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Part 4: Design Report.

Part 5: Project Report

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Part 7: Design Drawings in a separate volume.

ATTACHMENTS

DA Form 1
Decision Notice Approval: Negotiated Decision Notice dated July 19, 2018.
Statement of Compliance
Operational Works Receiving Checklist.
Design Drawings consist of 3 x A3 copies of Dwgs C21 – C35 incl.

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PART 3 - DESIGN APPROVAL

3.01 PRELODGE MENT DISCUSSIONS

No pre-lodgement discussions were held.

3.02 DESIGN REQUIREMENTS

We believe that this submission complies with the requirements of this section.

All aspects of this submission have been prepared under the direction of a Registered Professional Engineer Queensland. (RPEQ)

3.03 ADJOINING LAND OWNERS

No operational works are expected to be undertaken on adjoining property.

3.04 LOCAL AUTHORITY APPROVAL

Statement of Compliance is attached.

Approved drawings endorsed by RPEQ will be provided to Council as required.

3.05 APPROVAL OF OTHER AGENCIES

The only agency whose conditions are relevant to this application is the Department of Transport and Main Roads. A separate application for approval of the works has been lodged with the Department. We will advise Council further when DTMR approval is received.

3.06 SUPPORTING INFORMATION

Design Plans: Copies attached.

Job Specification: None provided, information, which may be included in a Job Specification, is shown on the drawings.

Design Report: Copy attached.

Operational Works Application: Refer covering letter.

Prescribed Application Fee: The fee is \$1,207.00 which is 1.50% of the estimated cost of \$80,452.00 an immediate electronic fund transfer will occur on receipt of an invoice in this amount, directed to the Owner.

Evidence of Payment of Portable Long Service Leave and Occupational Health and safety fee: Not applicable.

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PART4 - DESIGN REPORT

STATEMENT OF COMPLIANCE:

Copy of the completed Statement of Compliance is attached.

APPROVAL CONDITIONS

This project is subject to the Approval Conditions as stated in the attached Negotiated Decision Notice dated July 19, 201 complete with references showing design compliance as applicable.

PRELODGEEMENT DISCUSSIONS

No pre-lodgement discussions were held.

ADJOINING LANDOWNERS.

No operational works are expected to be undertaken on adjoining property.

ALTERNATIVE DESIGN

Not applicable.

STORMWATER DRAINAGE CALCULATIONS FOR DRAINAGE FEATURES

Calculations supporting the design of the stormwater detention basin associated with this project as shown on Dwg. C24 is attached.

TRAFFIC MANAGEMENT PLAN

None provided at this time. Such a plan is properly the responsibility of the Contractor and it will be provided at the pre-start meeting.

PAVEMENT DESIGN

Prior to design California Bearing Ratio (CBR) testing has not been undertaken for the site. The CBR is to be evaluated prior to construction by in situ CBR, and 4 day soaked CBR all performed by a NATA registered materials testing authority using procedures prescribed by the Department of Main Roads and the Standards Association of Australia.

The pavement design shall be reassessed after completion of testing. For the purpose of the design the subgrade CBR is assumed to be 7.

GEOTECHNICAL REPORTS

Not applicable.

STRUCTURAL AND GEOTECHNICAL CERTIFICATION

Not applicable.

LANDSCAPE DESIGN

Generally in accordance with drawings by Suzan Quigg Landscape Design.

STAGED DEVELOPMENT

The proposed staging of the project is shown on the drawings and has been consistent throughout the application process.

MATERIALS

All materials selected for use in this project are to industry standard and in accordance with FNQROC Standard Specification. All such materials shall be installed in accordance with the manufacturer's specifications and requirements

PRICED BILL OF QUANTITIES

Attached.

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PART 5 - PROJECT REPORT

1.0 GENERAL DESCRIPTION

The site is currently a vacant site on the eastern side the Peninsula Development Road and immediately adjacent to Williams Close, Mareeba.

The entire project encompasses a number of different accommodation types for various demands and associated facilities including parking areas, swimming pool, shop, restaurant and Manager's unit.

The site is grassed with a number of densely planted trees of various species in the front portion of the site. The site generally falls to an existing outlet to the north, Williams Avenue and a drain at the south eastern corner of the site.

There are no known features on the site, which are detrimental to its development.

2.0 ROADWORKS

The road network is designed in accordance with FNQROC Design Manual, including Tableland Regional Council Specific Conditions.

All road pavements have been designed in accordance with FNQROC Design Manual, the Department of Main Roads "Pavement Design Manual" and the Australian Road Research Board (ARRB) "Special report 41 (1989) – A Structural Design Guide for Flexible Residential Street Pavements".

A design life of 20 years has been adopted for all pavements.

Prior to design California Bearing Ratio (CBR) testing has not been undertaken for the site. The CBR is to be evaluated prior to construction by in situ CBR, and 4 day soaked CBR all performed by an NATA registered materials testing authority using procedures prescribed by the Department of Main Roads and the Standards Association of Australia.

The pavement design shall be reassessed after completion of testing. For the purpose of the design the subgrade CBR is assumed to be 7.

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PART 6 - DEVELOPMENT CONDITIONS

Negotiated Decision Notice: (Copy Attached)

Development No: **MCU/17/0017**

Date of Issue: **July 19, 2018**

Condition 1: Not Applicable.

Condition 2: Timing of Effect - Not Applicable

Condition 3: General

- 3.1 Completed as required.
- 3.2 Not applicable at this time.
- 3.3 Completed.
- 3.4 Not applicable at this time.
- 3.5 Not applicable to this application.
- 3.6 Not applicable to this application.

Condition 4: Infrastructure Services and Standards

- 4.1 Completed.
- 4.2 Completed.
- 4.3 Completed.
- 4.4 Completed as required for Stage 1.
- 4.5 Not applicable to this application.
- 4.6 Not applicable to this application.
- 4.7 Completed.
- 4.8 Completed

Condition 5: Contributions/Headworks.

Not applicable to this application as these conditions require payment of a contribution at a later date.

DEPARTMENT OF MAIN ROADS CONDITIONS

The only agency whose conditions are relevant to this application is the Department of Transport and Main Roads. A separate application for approval of the works has been lodged with the Department. We will advise Council further when DTMR approval is received.

DA Form 1 – Development application details

Approved form (version 1.1 effective 22 JUNE 2018) 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 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) <i>(individual or company full name)</i>	Jim Papas Civil Engineering Designer Pty. Ltd.
Contact name <i>(only applicable for companies)</i>	Jim Papas
Postal address <i>(P.O. Box or street address)</i>	P.O. Box 2347,
Suburb	Mareeba,
State	Qld.
Postcode	4880
Country	Aust.
Contact number	0408 770 394
Email address <i>(non-mandatory)</i>	Jim@jpced.com.au
Mobile number <i>(non-mandatory)</i>	0408 770 394
Fax number <i>(non-mandatory)</i>	None
Applicant's reference number(s) <i>(if applicable)</i>	1370

2) Owner's consent	
2.1) Is written consent of the owner required for this development application?	
<input checked="" type="checkbox"/> Yes – the written consent of the owner(s) is attached to this development application	
<input type="checkbox"/> 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
		1, 3-5, 7	Williams Close	Mareeba
	Postcode	Lot No.	Plan Type and Number (e.g. RP, SP)	Local Government Area(s)
	4880	10,11 & 12	SP 168631	Mareeba Shire Council
b)	Unit No.	Street No.	Street Name and Type	Suburb
	Postcode	Lot No.	Plan Type and Number (e.g. RP, SP)	Local Government Area(s)

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

Note: Place each set of coordinates in a separate row. Only one set of coordinates is required for this part.

Coordinates of premises by longitude and latitude

Longitude(s)	Latitude(s)	Datum	Local Government Area(s) (if applicable)
		<input type="checkbox"/> WGS84 <input type="checkbox"/> GDA94 <input type="checkbox"/> Other:	

Coordinates of premises by easting and northing

Easting(s)	Northing(s)	Zone Ref.	Datum	Local Government Area(s) (if applicable)
		<input type="checkbox"/> 54 <input type="checkbox"/> 55 <input type="checkbox"/> 56	<input type="checkbox"/> WGS84 <input type="checkbox"/> GDA94 <input type="checkbox"/> Other:	

3.3) Additional premises

Additional premises are relevant to this development application and their details have been attached in a schedule to this 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:

<input type="checkbox"/> Listed on the Environmental Management Register (EMR) under the <i>Environmental Protection Act 1994</i>	
EMR site identification:	
<input type="checkbox"/> Listed on the Contaminated Land Register (CLR) under the <i>Environmental Protection Act 1994</i>	
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):* Tourist park – short term accommodation and food and drink outlet.

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

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

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 construction 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?

- | | | |
|---|--|---|
| <input checked="" type="checkbox"/> Road work | <input type="checkbox"/> Stormwater | <input checked="" type="checkbox"/> Water infrastructure |
| <input checked="" type="checkbox"/> Drainage work | <input checked="" type="checkbox"/> Earthworks | <input checked="" type="checkbox"/> Sewage infrastructure |
| <input checked="" type="checkbox"/> Landscaping | <input type="checkbox"/> Signage | <input type="checkbox"/> Clearing vegetation |
| <input type="checkbox"/> Other – please specify: <input style="width: 200px;" type="text"/> | | |

14.2) Is the operational work necessary to facilitate the creation of new lots? (e.g. subdivision)

<input type="checkbox"/> Yes – specify number of new lots: <input style="width: 100px;" type="text"/>
<input checked="" type="checkbox"/> No

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

\$ 80,452

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
- Local government is taken to have agreed to the superseded planning scheme request – relevant documents attached
- No

PART 5 – REFERRAL DETAILS

17) Do any aspects of the proposed development require referral for 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 Regulation 2017:**

- Clearing native vegetation
- Contaminated land (*unexploded ordnance*)
- Environmentally relevant activities (ERA) (*only if the ERA have not been devolved to a local government*)
- Fisheries – aquaculture
- Fisheries – declared fish habitat area
- Fisheries – marine plants
- Fisheries – waterway barrier works
- Hazardous chemical facilities
- Queensland heritage place (*on or near a Queensland heritage place*)
- Infrastructure – designated premises
- Infrastructure – state transport infrastructure
- Infrastructure – state transport corridors and future state transport corridors
- Infrastructure – state-controlled transport tunnels and future state-controlled transport tunnels
- Infrastructure – near a state-controlled road intersection
- On Brisbane core port land near a State transport corridor or future State transport corridor
- On Brisbane core port land – ERA
- On Brisbane core port land – tidal works or work in a coastal management district
- On Brisbane core port land – hazardous chemical facility
- On Brisbane core port land – taking or interfering with water
- On Brisbane core port land – referable dams
- On Brisbane core port land - fisheries
- Land within Port of Brisbane's port limits
- 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
- 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 – construction of new levees or modification of existing 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 have been devolved to local government*)
- Local heritage places

Matters requiring referral to the chief executive of the distribution entity or transmission entity: <input type="checkbox"/> Electricity infrastructure
Matters requiring referral to: <ul style="list-style-type: none"> • 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 <input type="checkbox"/> Oil and gas infrastructure
Matters requiring referral to the Brisbane City Council: <input type="checkbox"/> Brisbane core port land
Matters requiring referral to the Minister under the <i>Transport Infrastructure Act 1994</i>: <input type="checkbox"/> Brisbane core port land (inconsistent with Brisbane port LUP for transport reasons) <input type="checkbox"/> Strategic port land
Matters requiring referral to the relevant port operator: <input type="checkbox"/> Land within Port of Brisbane's port limits (below high-water mark)
Matters requiring referral to the Chief Executive of the relevant port authority: <input type="checkbox"/> Land within limits of another port (below high-water mark)
Matters requiring referral to the Gold Coast Waterways Authority: <input type="checkbox"/> Tidal works, or work in a coastal management district in Gold Coast waters
Matters requiring referral to the Queensland Fire and Emergency Service: <input type="checkbox"/> Tidal works marina (<i>more than six vessel berths</i>)

18) Has any referral agency provided a referral response for this development application?		
<input checked="" type="checkbox"/> Yes – referral response(s) received and listed below are attached to this development application <input type="checkbox"/> No		
Referral requirement	Referral agency	Date of referral response
External road works	DTMR	22/02/2018
Identify and describe any changes made to the proposed development application that was the subject of the referral response and the development application the subject of this form, or include details in a schedule to this development application (<i>if applicable</i>).		

PART 6 – INFORMATION REQUEST

19) Information request under Part 3 of the DA Rules
<input checked="" type="checkbox"/> I agree to receive an information request if determined necessary for this development application <input type="checkbox"/> I do not agree to accept an information request for this development application
<p>Note: <i>By not agreeing to accept an information request I, the applicant, acknowledge:</i></p> <ul style="list-style-type: none"> • <i>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</i> • <i>Part 3 of the DA Rules will still apply if the application is an application listed under section 11.3 of the DA Rules.</i> <p><i>Further advice about information requests is contained in the DA Forms Guide.</i></p>

PART 7 – FURTHER DETAILS

20) Are there any associated development applications or current approvals? (e.g. a preliminary approval)			
<input checked="" type="checkbox"/> Yes – provide details below or include details in a schedule to this development application <input type="checkbox"/> No			
List of approval/development application references	Reference number	Date	Assessment manager
<input checked="" type="checkbox"/> Approval <input type="checkbox"/> Development application	MCU/17/0017	July 19, 2018	MSC
<input type="checkbox"/> Approval <input type="checkbox"/> Development application			

21) Has the portable long service leave levy been paid? (only applicable to development applications involving building work or operational work)		
<input type="checkbox"/> Yes – a copy of the receipted QLeave form is attached to this development application <input checked="" type="checkbox"/> 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 <input type="checkbox"/> 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
\$		

22) Is this development application in response to a show cause notice or required as a result of an enforcement notice?
<input type="checkbox"/> Yes – show cause or enforcement notice is attached <input checked="" type="checkbox"/> No

23) Further legislative requirements			
<u>Environmentally relevant activities</u>			
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 <i>Environmental Protection Act 1994</i> ?			
<input type="checkbox"/> 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 <input checked="" type="checkbox"/> No <i>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.</i>			
Proposed ERA number:		Proposed ERA threshold:	
Proposed ERA name:			
<input type="checkbox"/> Multiple ERAs are applicable to this development application and the details have been attached in a schedule to this development application.			
<u>Hazardous chemical facilities</u>			
23.2) Is this development application for a hazardous chemical facility ?			
<input type="checkbox"/> Yes – Form 69: Notification of a facility exceeding 10% of schedule 15 threshold is attached to this development application <input checked="" type="checkbox"/> No <i>Note: See www.business.qld.gov.au for further information about hazardous chemical notifications.</i>			
<u>Clearing native vegetation</u>			

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 conservation

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

Yes

No

Note: See guidance materials at www.des.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 Natural Resources, Mines and Energy at www.dnrme.qld.gov.au for further information.

DA templates are available from <https://planning.dsdmip.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 Form 1 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 <https://planning.dsdmip.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 Natural Resources, Mines and Energy at www.dnrme.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 and Science at www.des.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.dnrme.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.des.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.des.qld.gov.au for information requirements regarding development of Queensland heritage places.

Name of the heritage place:		Place ID:	
-----------------------------	--	-----------	--

Brothels

23.14) Does this development application involve a **material change of use for a brothel**?

- Yes – this development application demonstrates how the proposal meets the code for a development application for a brothel under Schedule 3 of the *Prostitution Regulation 2014*
 No

Decision under section 62 of the Transport Infrastructure Act 1994

23.15) 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

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 <i>Note: See the Planning Regulation 2017 for referral requirements</i>	<input checked="" type="checkbox"/> Yes
If building work is associated with the proposed development, Parts 4 to 6 of <i>DA Form 2 – Building work details</i> have been completed and attached to this development application	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> Not applicable
Supporting information addressing any applicable assessment benchmarks is with development application <i>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.</i>	<input checked="" type="checkbox"/> Yes
Relevant plans of the development are attached to this development application <i>Note: Relevant plans are required to be submitted for all aspects of this development application. For further information, see DA Forms Guide: Relevant plans.</i>	<input checked="" type="checkbox"/> Yes
The portable long service leave levy for QLeave has been paid, or will be paid before a development permit is issued (<i>see 21</i>)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> Not applicable

25) Applicant declaration	
<input checked="" type="checkbox"/> By making this development application, I declare that all information in this development application is true and correct <input checked="" type="checkbox"/> 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 <i>Electronic Transactions Act 2001</i> <i>Note: It is unlawful to intentionally provide false or misleading information.</i>	
<p>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 <i>Planning Act 2016</i>, <i>Planning Regulation 2017</i> and the <i>DA Rules</i> except where:</p> <ul style="list-style-type: none"> • such disclosure is in accordance with the provisions about public access to documents contained in the <i>Planning Act 2016</i> and the <i>Planning Regulation 2017</i>, and the access rules made under the <i>Planning Act 2016</i> and <i>Planning Regulation 2017</i>; or • required by other legislation (including the <i>Right to Information Act 2009</i>); or • otherwise required by law. <p>This information may be stored in relevant databases. The information collected will be retained as required by the <i>Public Records Act 2002</i>.</p>	

PART 9 – 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	
<i>Note: For completion by assessment manager if applicable</i>	
Description of the work	
QLeave project number	
Amount paid (\$)	
Date paid	
Date received form sighted by assessment manager	
Name of officer who sighted the form	



Operational Works Receipting Checklist

(To be completed by Consulting engineer making the application)

Name of Council: *MAREEBA SHIRE COUNCIL*
MAREEBA ROADHOUSE + ACCOMMODATION PARK - STAGE 2 AT
Development Name and Location:
WILLIAMS CROSS MAREEBA
Planning Permit No/Council File No: *MCU 17 0017*

<u>DESIGN SUBMISSION</u>	<u>CHECK</u>	<u>COMMENT</u>
1. Completed 'Statement of Compliance' form. (FNQROC - AP1 – Appendix A)	✓	
2. IDAS Forms A ,E & IDAS Assessment Checklist (Available from www.ipa.qld.gov.au)	✓	
3. Payment of Engineering Application Fees (Copy of receipt to be attached)	✓	<i>1.5% OF \$80,452.00 = \$1,207.</i>
4. Copy of Decision Notice for Development Application Conditions, <u>inc. explanation of how each condition is to be addressed (Statement of Compliance)</u>	✓	
5. Engineering Design drawings - Complete sets (1 x A4 set, 2 x A3 sets and 1 x electronic copy on compact disc in 'PDF' format)	✓	
6. One copy of Design and Standard Specifications (Unbound Copy Preferable)	✓	<i>NONE REQD.</i>
7. Written consent from adjoining property owners authorising any works on their property	✓	
8. Water reticulation network in electronic format (Engineer to confirm system requirements and compatibility with Cairns Water)	<i>N.A.</i>	
9. Landscape drawings - Complete set (1 x A1 set, 2 x A3 sets and 1 x electronic copy on compact disc in 'PDF' format). These must be accompanied by elements of the stormwater & street lgt. layout design, to avoid conflicts.	✓	



Operational Works Receiving Checklist

(To be completed by Consulting engineer making the application)

<u>DESIGN SUBMISSION</u>	<u>CHECK</u>	<u>COMMENT</u>
10. Overall network drawings (for staged development) for:		
• Water		<i>N.A.</i>
• Stormwater		<i>N.A.</i>
• Sewer		<i>N.A.</i>
• Pathways and roads		<i>N.A.</i>
• Street Lighting		<i>N.A.</i>
• Electrical		<i>N.A.</i>
• Gas		<i>N.A.</i>
• Public Transport		<i>N.A.</i>
• Park Reserves		<i>N.A.</i>
• Drainage Reserves		<i>N.A.</i>
11. Pavement design criteria	✓	
12. Geotechnical reports for proposed earthworks		<i>N.A.</i>
13. Structural and geotechnical certificates for retaining walls etc.		<i>N.A.</i>
14. Water supply/sewerage pump station design parameters	✓	
15. Stormwater drainage calculations	✓	
16. Erosion and Sediment Control Strategy (ESCS)	✓	
17. Declared Pest Management Plan (if applicable)		<i>N.A.</i>
18. The approval of any other Authorities & concurrence agencies likely to be affected by the works.	✓	



Operational Works Receipting Checklist

(To be completed by Consulting engineer making the application)

19. Contact details of the Consulting Engineer who is submitting the Application:

Name of Engineer	BRIAN SMYTH	
Name of Company	BRILEY CONSULTING PTY, LTD.	
Telephone Number (s)	Office: (07) 4054 3052	Mobile: 0400 543 052
Email address	br-85287@bigpond.net.au	
RPEQ No.	9326	

20. Date of submission of application 04 / 12 / 2008

(For further information on all of the above refer to the FNQROC Development Manual Section AP1)

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 MAREEBA ROADHOUSE + ACCOMMODATION PARK

Location of Development WILLIAMS GROUSE MAREEBA

Applicant THE ROADHOUSE PROPERTY UNIT TRUST

Designer BRILEY CONSULTING PTY. LTD.

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	N.A.
Geometric Road Design	✓
Pavements	✓
Structures / Bridges	N.A.
Subsurface Drainage	N.A.
Stormwater Drainage	✓
Site Re-grading	✓
Erosion Control and Stormwater Management	✓
Pest Plant Management	N.A.
Cycleway / Pathways	N.A.

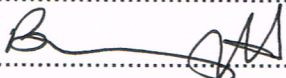
APPLICATION PROCEDURES

Landscaping	✓
Water Source and Disinfection/Treatment Infrastructure (if applicable)	N.A.
Water Reticulation, Pump Stations and water storages	N.A.
Sewer Reticulation and Pump Stations	✓
Electrical Reticulation and Street Lighting	N.A.
Public Transport	N.A.
Associated Documentation/ Specification	ON DRAWING
Priced Schedule of Quantities	N.A.
Referral Agency Conditions	✓
Supporting Information (AP1.08)	NONE
Other	NONE

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

Designer BRILEY CONSULTING PTY LTD RPEQ No 9326

Name in Full BRIAN SMYTH

Signature  Date 26/11/2018



Point #	Easting	Northing	Level	Description
1	331312.746	8122714.483	395.863	BM 1
2	331415.084	8122737.207	394.980	BM 2
3	331408.496	8122727.808	395.138	BM 3
4	331322.130	8122604.718	396.464	PSM 101534
5	331290.959	8122875.603	395.118	PSM

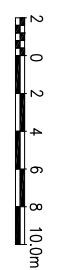
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[Symbol]	EXISTING TOP OF BANK
[Symbol]	EXISTING TOE OF BANK
[Symbol]	EXISTING EDGE OF BITUMEN
[Symbol]	EXISTING KERB & CHANNEL
[Symbol]	EXISTING UNDERGROUND DRAINAGE
[Symbol]	EXISTING WATER MAINS
[Symbol]	EXISTING RISING MAIN
[Symbol]	EXISTING ELECTRICITY
[Symbol]	EXISTING CONTOURS (AT 0.25m, INDEXED AT 1.0m)

amendments	
A	ORIGINAL ISSUE FOR OPERATIONAL WORKS
	4/12/18

JIM PAPAS
CIVIL ENGINEERING
DESIGNER PTY. LTD.
 CIVIL ENGINEERING DESIGN AND DRAFTING
 P. O. Box 2347
 Mareeba Q 4880
 Mob. 0408 770 394
 Email: admin@jped.com.au

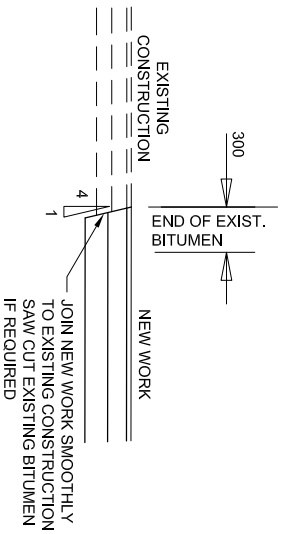


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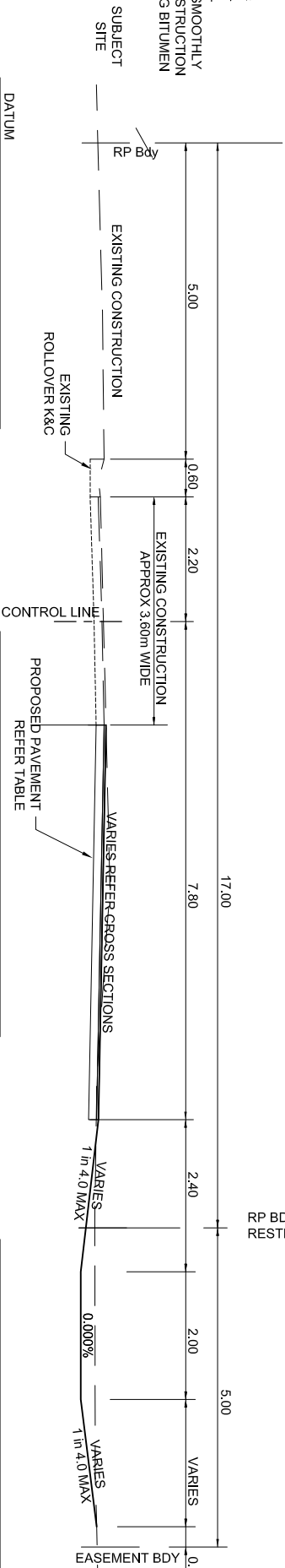
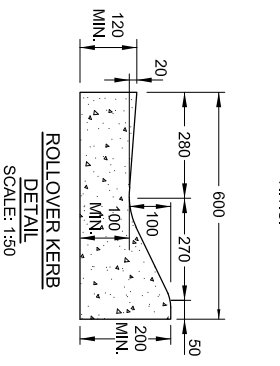


MAREEBA ROADHOUSE and ACCOMMODATION PARK
 PROPOSED ROADHOUSE and ACCOMMODATION COMPLEX
 AT WILLIAMS CLOSE, MAREEBA

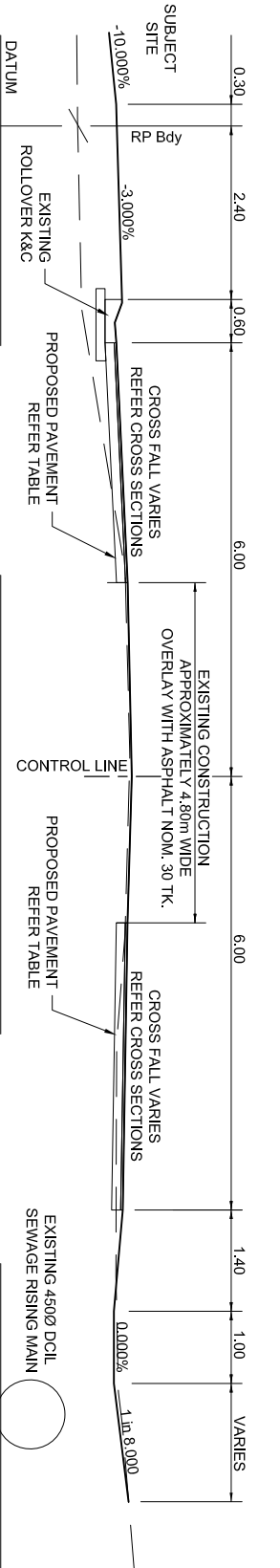
APPROVED	DATE	VER	SCALE	DWG NUMBER
B. J. SMITH RECD No. 9326	SEPT 2018	CHECKED	1:200	1370-C21
		DESIGNED		
		J.P.		



PAVEMENT JOINT DETAIL
N.T.S.

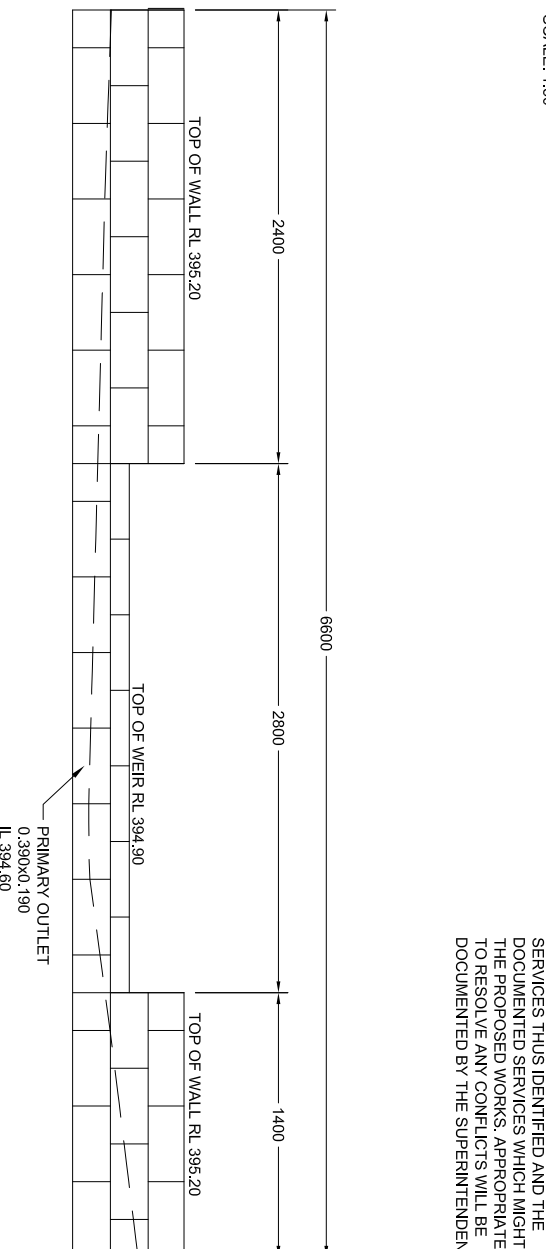


TYPICAL CROSS SECTION
CH. 68.542 TO END
SCALE: 1:50



TYPICAL CROSS SECTION
CH. 00 TO 68.542
SCALE: 1:50

TYPICAL CROSS SECTIONS
WILLIAMS CLOSE
SCALE: 1:50



ELEVATION OF OUTLET STRUCTURE
SCALE: 1:50

ROAD NAME AND CHAINAGE	ROAD RESERVE WIDTH (m)	LHS VERGE WIDTH (m)	CARRIAGEWAY WIDTH (m)	RHS VERGE WIDTH (m)	SUBBASE (MIN. DEPTH (mm))	BASE (MIN. DEPTH (mm))
WILLIAMS CLOSE	17.00		10.00 (3%) 12.00 (3%)	4.50	3.00	150
CH 00-100						
CH 100 - END						

PAVEMENT NOTES
PROVISIONAL PAVEMENT DESIGN STATED HEREIN IS BASED ON A MINIMUM CBR UNDER SERVICE CONDITIONS OF 7. PAVEMENT DESIGN IS SUBJECT TO REVISION ON BASIS OF CONFIRMATORY CBR TESTS TAKEN AT THE TIME OF CONSTRUCTION. BASED ON THE INSITU CBR TEST RESULTS, THE FINAL PAVEMENT DESIGN SHALL APPROVED BY COUNCIL PRIOR TO CONSTRUCTION.
THE COMPLETED PAVEMENT DESIGN SHALL GENERALLY COMPLY WITH AUSTRORADS OR DTMR PAVEMENT DESIGN MANUAL AS APPLICABLE.

SUBGRADE - COMPACT TO 100% SRDD. SHOULD ANY SOFT OR UNSUITABLE MATERIAL BE IDENTIFIED SEEK ADVICE OF THE SUPERINTENDENT.

SUBBASE SHALL CONSIST OF TYPE 2 SUBTYPE 2.3 PAVEMENT MATERIAL ('B' OR 'C' GRADED) COMPACTED TO 100% SRDD IN ACCORDANCE WITH SPECIFICATION.
DEPTH OF PAVEMENT AS NOTED IN TABLE.

BASE SHALL CONSIST OF TYPE 2 SUBTYPE 2.2 PAVEMENT MATERIAL ('B' OR 'C' GRADED) COMPACTED TO 100% SRDD IN ACCORDANCE WITH SPECIFICATION.
DEPTH OF PAVEMENT AS NOTED IN TABLE.

SEAL PAVEMENT AREAS WITH 30mm ASPHALT TYPE CRC 10. SUCH WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH THE SPECIFICATION.

NOTES:
SURVEY CONTROL
ORIGIN OF LEVELS:
PSM 101534 RL 396.464 AHD dep.
ORIGIN OF COORDINATES:
MGA 94 ZONE 55

CONTOUR INTERVAL. EXISTING SURFACE:
0.250m INDEXED AT 1.0m INTERVALS.

NOTES:
THE CONTRACTOR TO CONFIRM SURVEY DATUM WITH SURVEYOR PRIOR TO COMMENCEMENT OF WORK.

RP DESCRIPTION
LOTS 10, 11 & 12
ON SP 168631
LOCAL AUTHORITY
MAREEBA SHIRE COUNCIL

PRE-START MEETING

THE CONTRACTOR SHALL PRODUCE THE FOLLOWING DOCUMENTS AT THE PRESTART MEETING:

- EVIDENCE OF PAYMENT OF Q LEAVE LEVY.
- TRAFFIC MANAGEMENT PLAN
- PRICED BILL OF QUANTITIES.
- CONTRACTOR'S EROSION AND SEDIMENT CONTROL PLAN
- EVIDENCES OF INSURANCES:
 - PUBLIC LIABILITY
 - LOSS OR DAMAGE TO THE WORKS
 - WORKERS COMPENSATION
- NOTICE OF APPOINTMENT OF PRINCIPAL CONTRACTOR AS REQUIRED BY WORKPLACE, HEALTH AND SAFETY ACT.
- PROGRAMME OF WORKS
- THE CONTRACTOR SHALL BRING TO THE SUPERINTENDENT'S ATTENTION ANY DISCREPANCIES BETWEEN THE EXISTING SERVICES THUS IDENTIFIED AND THE DOCUMENTED SERVICES WHICH MIGHT AFFECT THE PROPOSED WORKS. APPROPRIATE MEASURES TO RESOLVE ANY CONFLICTS WILL BE DOCUMENTED BY THE SUPERINTENDENT.
- CAREFUL EXAMINATION OF THE CONTRACT DRAWINGS
- CONSULTATION WITH THE RELEVANT SERVICE AUTHORITIES
- COMPREHENSIVELY SCANNING THE AFFECTED AREAS WITH A CABLE DETECTOR AND MARKING ON THE GROUND THE POSITION OF ALL SERVICES
- HAND EXCAVATING TO EXPOSE ALL SERVICES WHICH MAY BE AFFECTED BY THE PROPOSED WORKS UNDER THE DIRECTION OF THE RELEVANT SERVICE AUTHORITY.
- PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, THE CONTRACTOR IS TO ESTABLISH ON SITE THE EXACT LOCATION OF ALL UNDERGROUND SERVICES IN THE PROPOSED WORKS AREA. METHODS TO ACHIEVE THIS WILL INCLUDE BUT NOT BE LIMITED TO:-
 - CAREFUL EXAMINATION OF THE CONTRACT DRAWINGS
 - CONSULTATION WITH THE RELEVANT SERVICE AUTHORITIES
 - COMPREHENSIVELY SCANNING THE AFFECTED AREAS WITH A CABLE DETECTOR AND MARKING ON THE GROUND THE POSITION OF ALL SERVICES
 - HAND EXCAVATING TO EXPOSE ALL SERVICES WHICH MAY BE AFFECTED BY THE PROPOSED WORKS UNDER THE DIRECTION OF THE RELEVANT SERVICE AUTHORITY.
- EXISTING SERVICES ARE PLOTTED FROM THE BEST INFORMATION AVAILABLE. NO RESPONSIBILITY IS TAKEN BY THE SUPERINTENDENT FOR THE ACCURACY AND COMPLETENESS OF THE INFORMATION SHOWN.
- PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, THE CONTRACTOR IS TO ESTABLISH ON SITE THE EXACT LOCATION OF ALL UNDERGROUND SERVICES IN THE PROPOSED WORKS AREA. METHODS TO ACHIEVE THIS WILL INCLUDE BUT NOT BE LIMITED TO:-
 - CAREFUL EXAMINATION OF THE CONTRACT DRAWINGS
 - CONSULTATION WITH THE RELEVANT SERVICE AUTHORITIES
 - COMPREHENSIVELY SCANNING THE AFFECTED AREAS WITH A CABLE DETECTOR AND MARKING ON THE GROUND THE POSITION OF ALL SERVICES
 - HAND EXCAVATING TO EXPOSE ALL SERVICES WHICH MAY BE AFFECTED BY THE PROPOSED WORKS UNDER THE DIRECTION OF THE RELEVANT SERVICE AUTHORITY.

amendments

A	ORIGINAL ISSUE FOR OPERATIONAL WORKS	DATE
		4/12/18

JIM PAPAS
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DESIGNER PTY. LTD.
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Email: admin@jped.com.au



DIAL BEFORE YOU DIG
WWW.1100.COM.AU

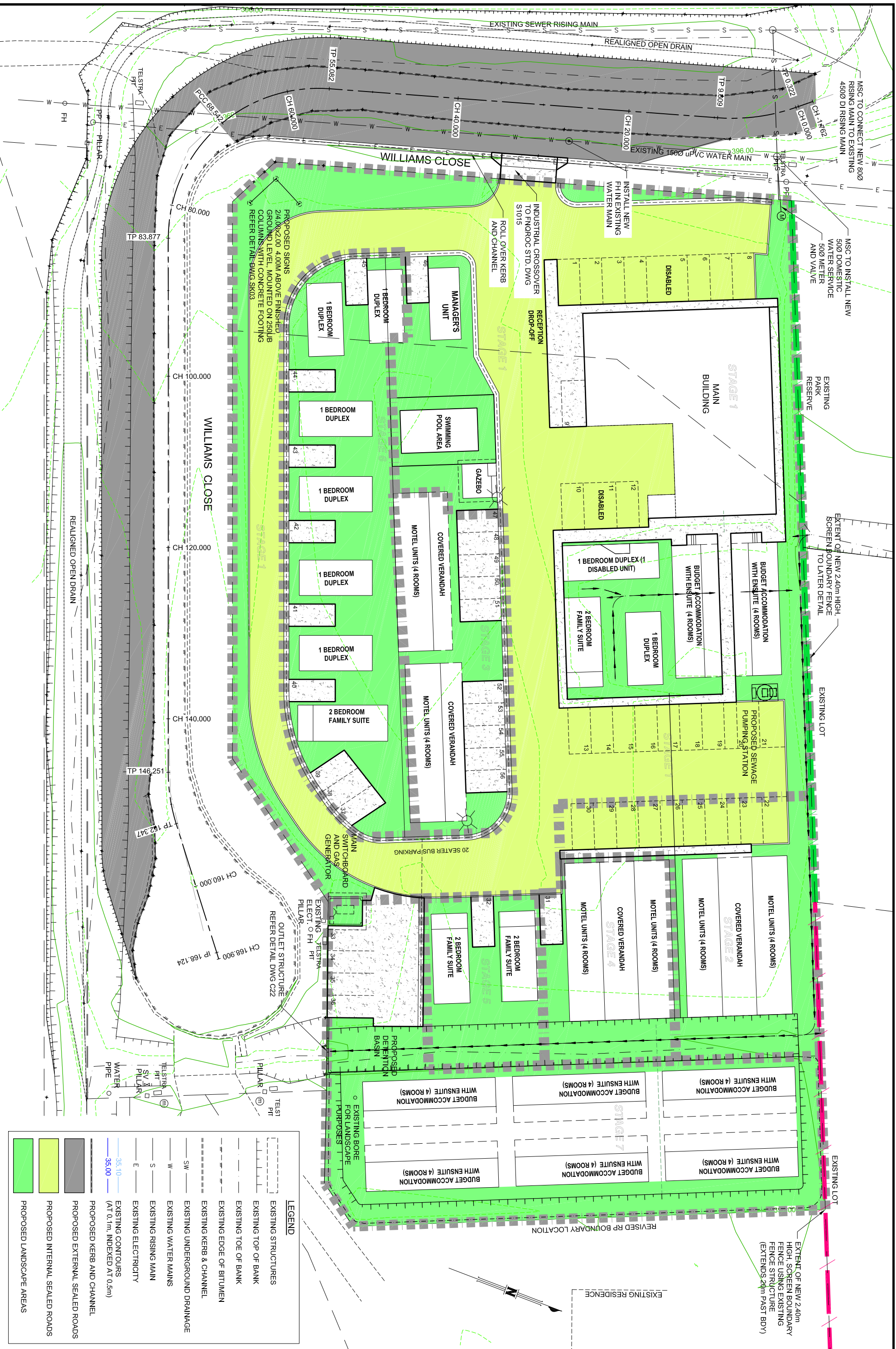
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MAREEBA ROADHOUSE and ACCOMMODATION PARK
PROPOSED ROADHOUSE and ACCOMMODATION COMPLEX
AT WILLIAMS CLOSE, MAREEBA

DRAWING TITLE: TYPICAL CROSS SECTIONS, PAVEMENT DATA AND NOTES

SCALE	HOR	VER	DRAWN	J.P.
(AT A1 SIZE)	1:200	1:200	DESIGNED	J.P.
DATE			CHECKED	J.P.
APPROVED	B. J. SMITH RECD No. 9326			
DWG NUMBER	1370-C22		AMDT	A



LEGEND

- EXISTING STRUCTURES
- EXISTING TOP OF BANK
- EXISTING TOE OF BANK
- EXISTING EDGE OF BITUMEN
- EXISTING KERB & CHANNEL
- EXISTING UNDERGROUND DRAINAGE
- EXISTING WATER MAINS
- EXISTING RISING MAIN
- EXISTING ELECTRICITY
- EXISTING CONTOURS (AT 0.1m, INDEXED AT 0.5m)
- PROPOSED KERB AND CHANNEL
- PROPOSED EXTERNAL SEALED ROADS
- PROPOSED INTERNAL SEALED ROADS
- PROPOSED LANDSCAPE AREAS

amendments

A	ORIGINAL ISSUE FOR OPERATIONAL WORKS	4/12/18
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DESIGNER
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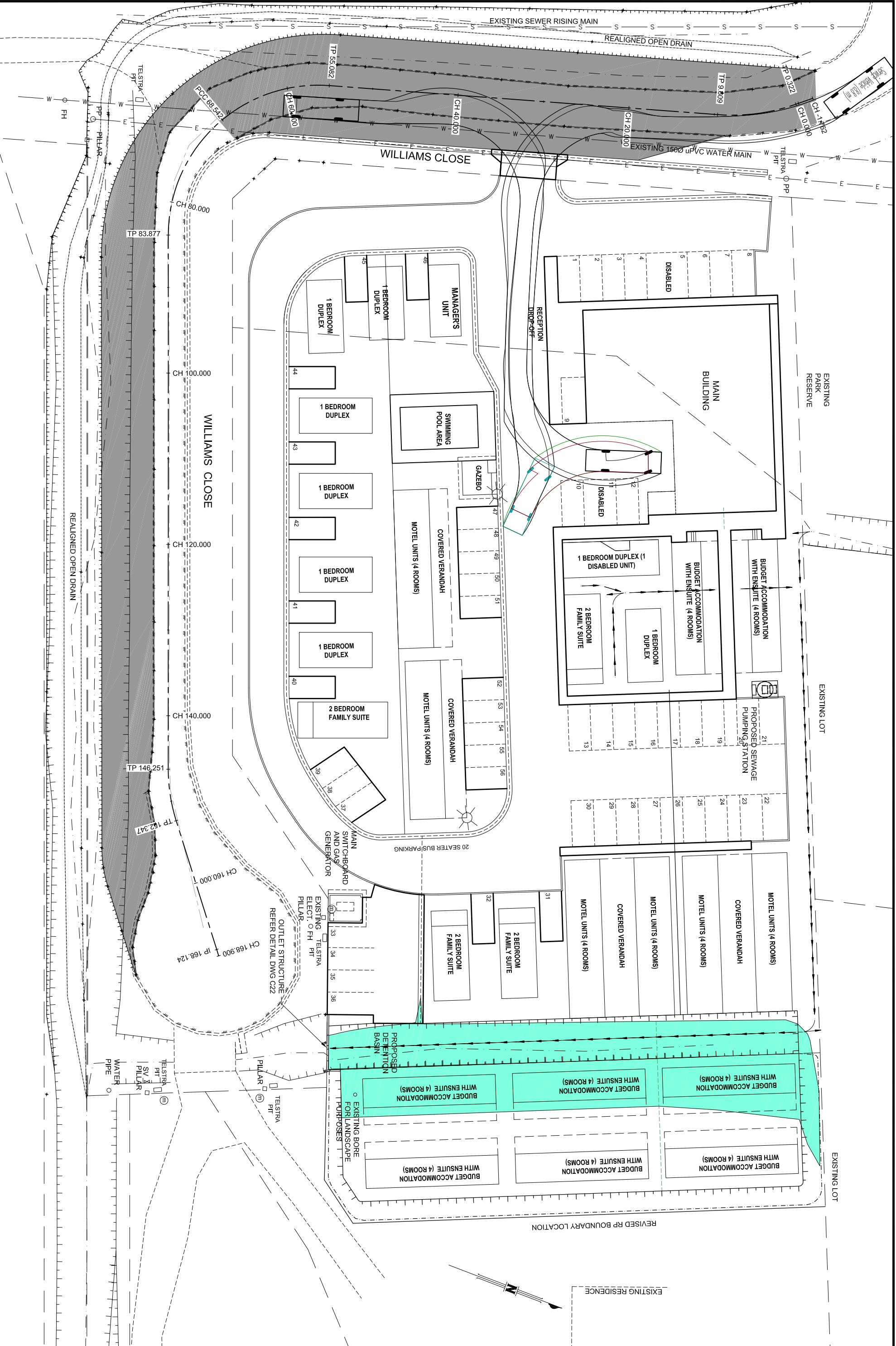
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MAREEBA ROADHOUSE and ACCOMMODATION PARK
 PROPOSED ROADHOUSE and ACCOMMODATION COMPLEX
 AT WILLIAMS CLOSE, MAREEBA

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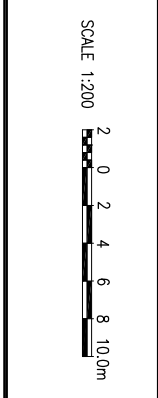
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			CHECKED		J.P.

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 B. J. SMITH RECD No. 9326
 AMDT: A



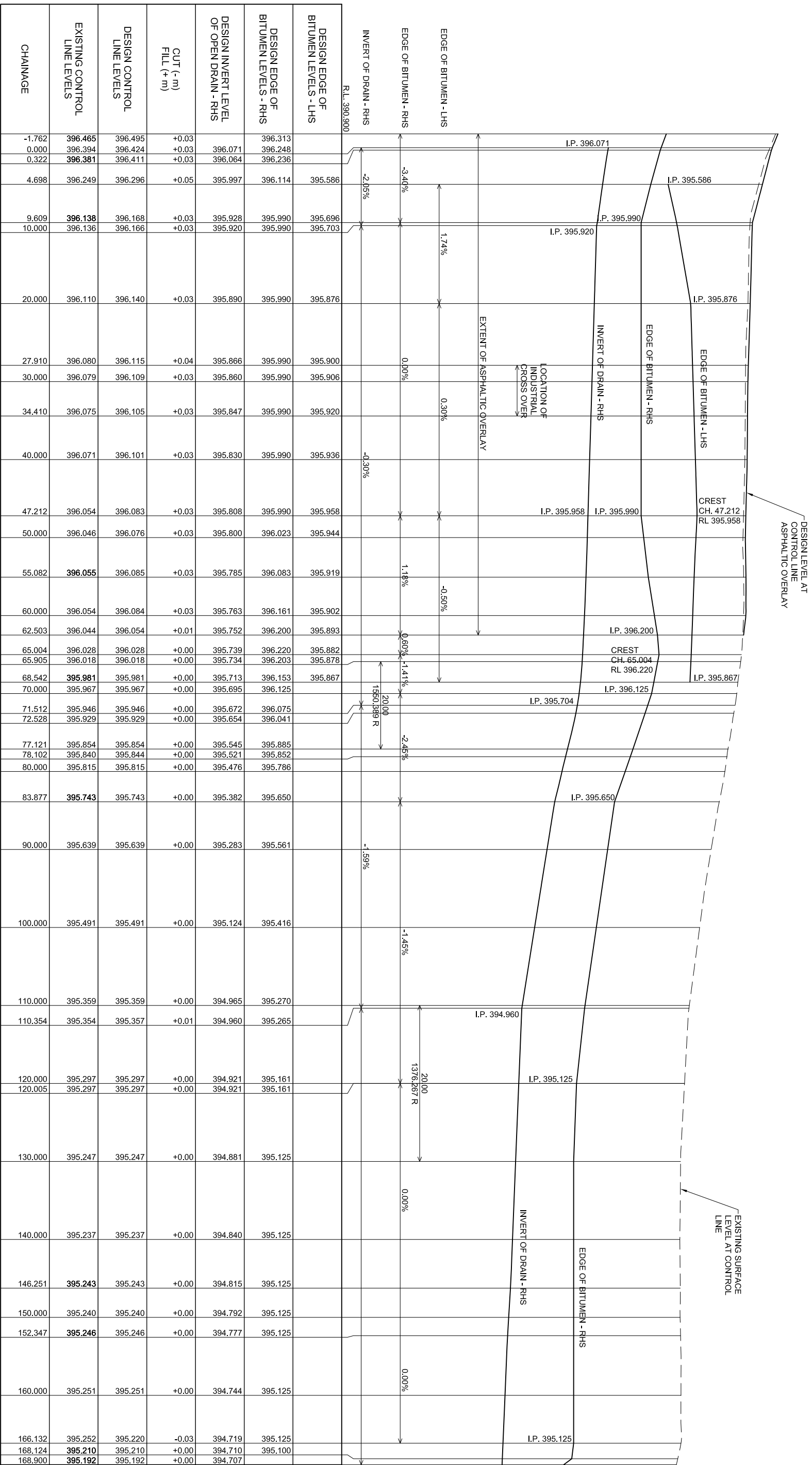
amendments	
A	ORIGINAL ISSUE FOR OPERATIONAL WORKS
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DESIGNER PTY. LTD.
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MAREEBA ROADHOUSE and ACCOMMODATION PARK
 PROPOSED ROADHOUSE and ACCOMMODATION COMPLEX
 AT WILLIAMS CLOSE, MAREEBA

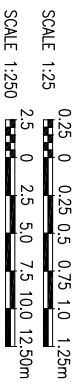
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(AT A1 SIZE)	VER	DESIGNED	J.P.
DATE		CHECKED	J.P.
APPROVED	B. J. SMITH RECD No. 9326		



CHAINAGE	EXISTING CONTROL LINE LEVELS	DESIGN CONTROL LINE LEVELS	CUT (+ m) FILL (- m)	DESIGN INVERT LEVEL OF OPEN DRAIN - RHS	DESIGN EDGE OF BITUMEN LEVELS - RHS	DESIGN EDGE OF BITUMEN LEVELS - LHS	R.L. 390.900
-1.762	396.465	396.495	+0.03	396.071	396.313		
0.000	396.394	396.424	+0.03	396.064	396.248		
0.322	396.381	396.411	+0.03	396.064	396.236		
4.698	396.249	396.296	+0.05	395.997	396.114	395.586	
9.609	396.138	396.168	+0.03	395.928	395.990	395.696	
10.000	396.136	396.166	+0.03	395.920	395.990	395.703	
20.000	396.110	396.140	+0.03	395.890	395.990	395.876	
27.910	396.080	396.115	+0.04	395.866	395.990	395.900	
30.000	396.079	396.109	+0.03	395.860	395.990	395.906	
34.410	396.075	396.105	+0.03	395.847	395.990	395.920	
40.000	396.071	396.101	+0.03	395.830	395.990	395.936	
47.212	396.054	396.083	+0.03	395.808	395.990	395.958	
50.000	396.046	396.076	+0.03	395.800	396.023	395.944	
55.082	396.055	396.085	+0.03	395.785	396.083	395.919	
60.000	396.054	396.084	+0.03	395.763	396.161	395.902	
62.503	396.044	396.054	+0.01	395.752	396.200	395.893	
65.004	396.028	396.028	+0.00	395.739	396.220	395.882	
65.905	396.018	396.018	+0.00	395.734	396.203	395.878	
68.542	395.981	395.981	+0.00	395.713	396.153	395.867	
70.000	395.967	395.967	+0.00	395.695	396.125	395.867	
71.512	395.946	395.946	+0.00	395.672	396.075	395.872	
72.528	395.929	395.929	+0.00	395.654	396.041	395.854	
77.121	395.854	395.854	+0.00	395.545	395.885	395.885	
78.102	395.840	395.844	+0.00	395.521	395.852	395.852	
80.000	395.815	395.815	+0.00	395.476	395.786	395.786	
83.877	395.743	395.743	+0.00	395.382	395.650	395.650	
90.000	395.639	395.639	+0.00	395.283	395.561	395.561	
100.000	395.491	395.491	+0.00	395.124	395.416	395.416	
110.000	395.359	395.359	+0.00	394.965	395.270	395.270	
110.354	395.354	395.357	+0.01	394.960	395.265	395.265	
120.000	395.297	395.297	+0.00	394.921	395.161	395.161	
120.005	395.297	395.297	+0.00	394.921	395.161	395.161	
130.000	395.247	395.247	+0.00	394.881	395.125	395.125	
140.000	395.237	395.237	+0.00	394.840	395.125	395.125	
146.251	395.243	395.243	+0.00	394.815	395.125	395.125	
150.000	395.240	395.240	+0.00	394.792	395.125	395.125	
152.347	395.246	395.246	+0.00	394.777	395.125	395.125	
160.000	395.251	395.251	+0.00	394.744	395.125	395.125	
166.132	395.252	395.220	-0.03	394.719	395.125	395.125	
168.124	395.210	395.210	+0.00	394.710	395.100	395.100	
168.900	395.192	395.192	+0.00	394.707	395.100	395.100	

LONGITUDINAL SECTION - WILLIAMS CLOSE

SCALE: HOR. 1:250
VER. 1:25



amendments

A	ORIGINAL ISSUE FOR OPERATIONAL WORKS	DATE
		4/12/18

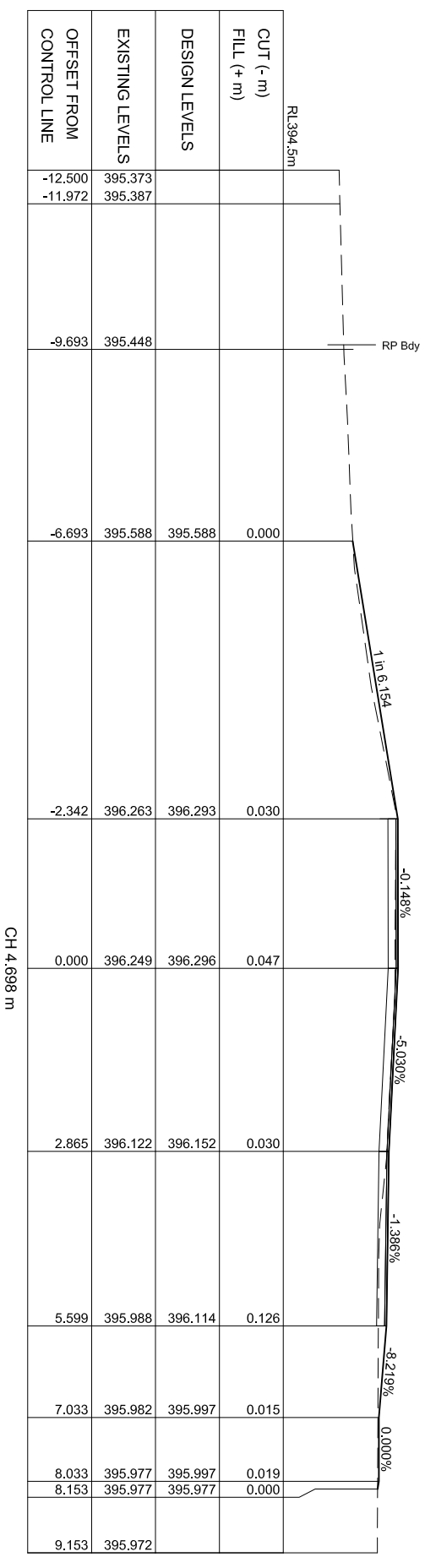
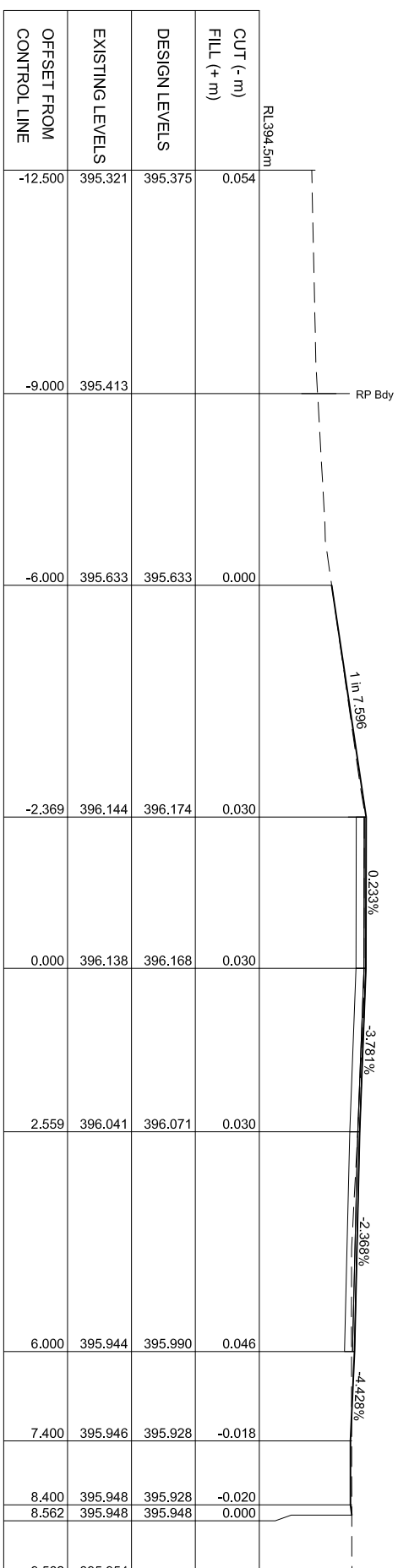
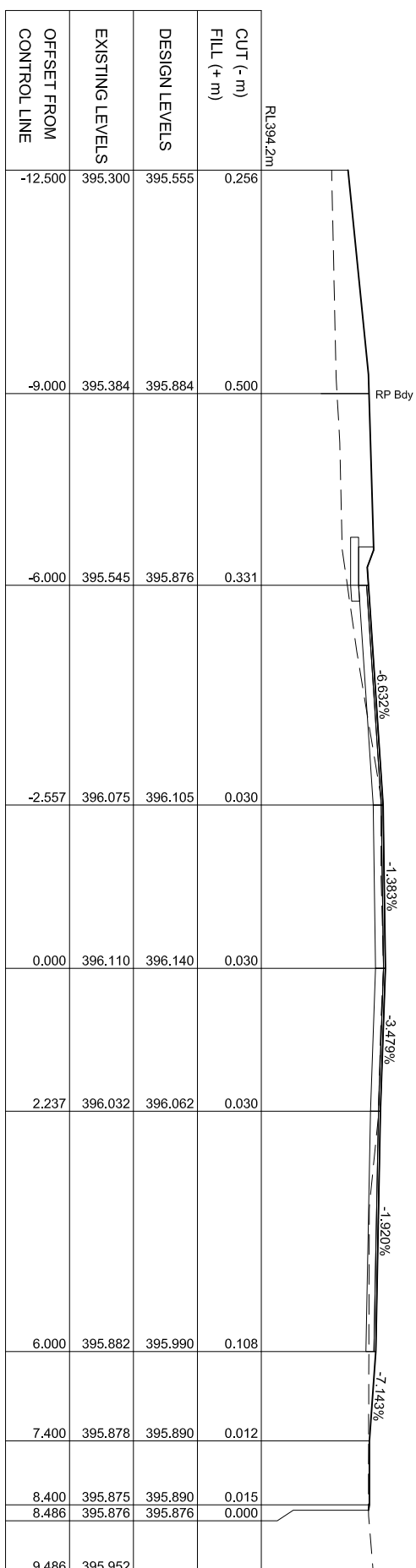
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 Mareeba Q 4880
 Email: admin@jped.com.au



MAREEBA ROADHOUSE and ACCOMMODATION PARK
 PROPOSED ROADHOUSE and ACCOMMODATION COMPLEX
 AT WILLIAMS CLOSE, MAREEBA

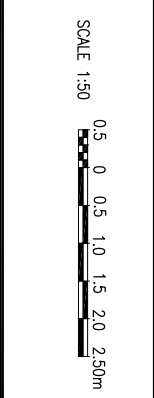
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(AT A1 SIZE)	1:250	1:25	J.P.
DATE	DESIGNED	CHECKED	J.P.
SEPTEMBER 2018			

APPROVED: B. J. SMITH RECD No. 9326
 DWG NUMBER: 1370-C25
 AMDT: A



amendments		
A	ORIGINAL ISSUE FOR OPERATIONAL WORKS	4/12/18

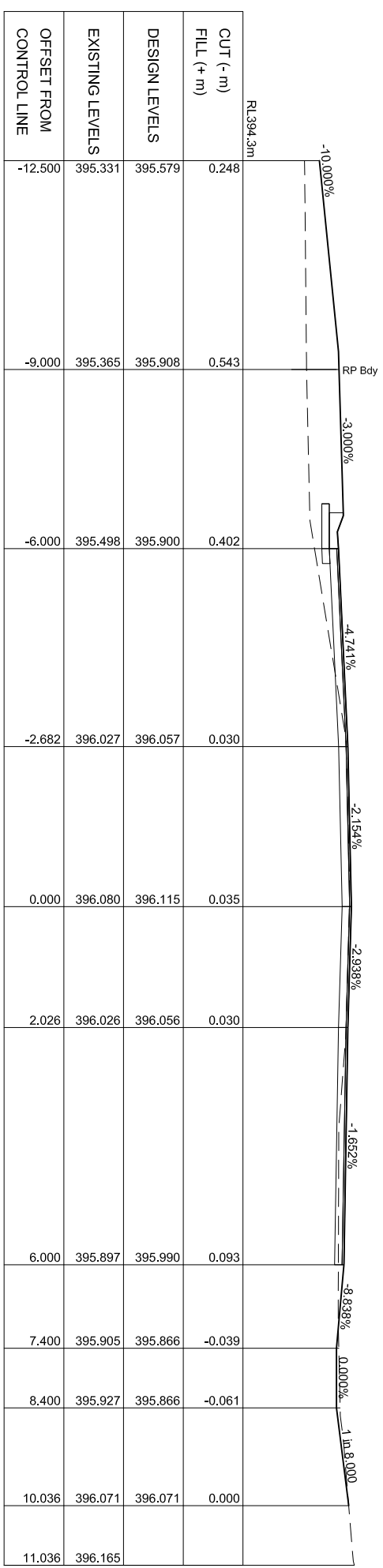
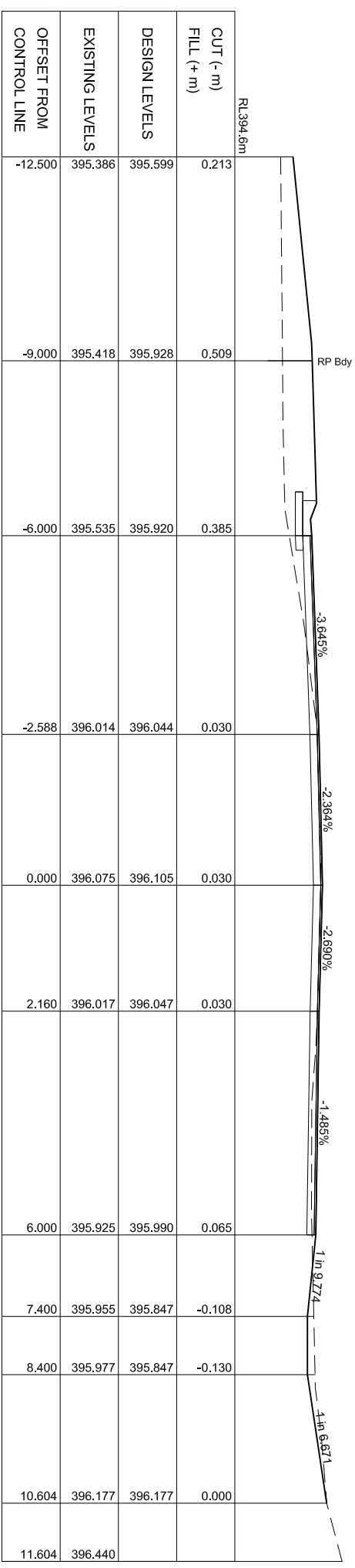
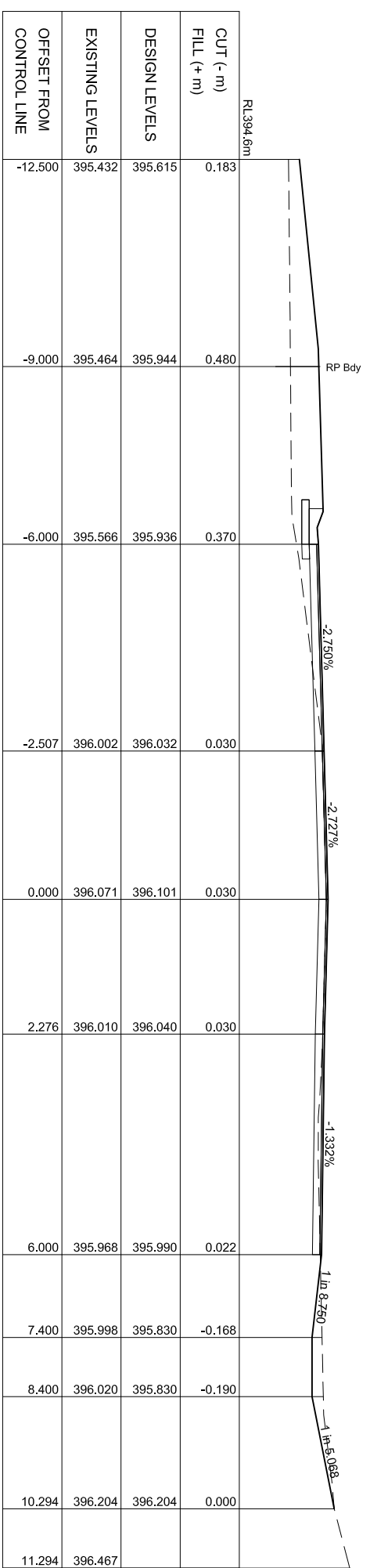
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MAREEBA ROADHOUSE and ACCOMMODATION PARK
 PROPOSED ROADHOUSE and ACCOMMODATION COMPLEX
 AT WILLIAMS CLOSE, MAREEBA

SCALE	HOR	VER	DATE	APPROVED	DWG NUMBER
(AT A1 SIZE)	1:50	1:50		B. J. SMITH RECD No. 9326	1370-C26

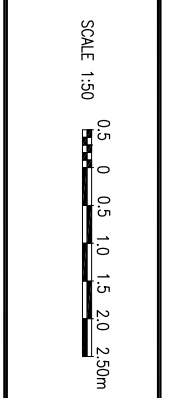
AMDT **A**



amendments

A	ORIGINAL ISSUE FOR OPERATIONAL WORKS	DATE
		4/12/18

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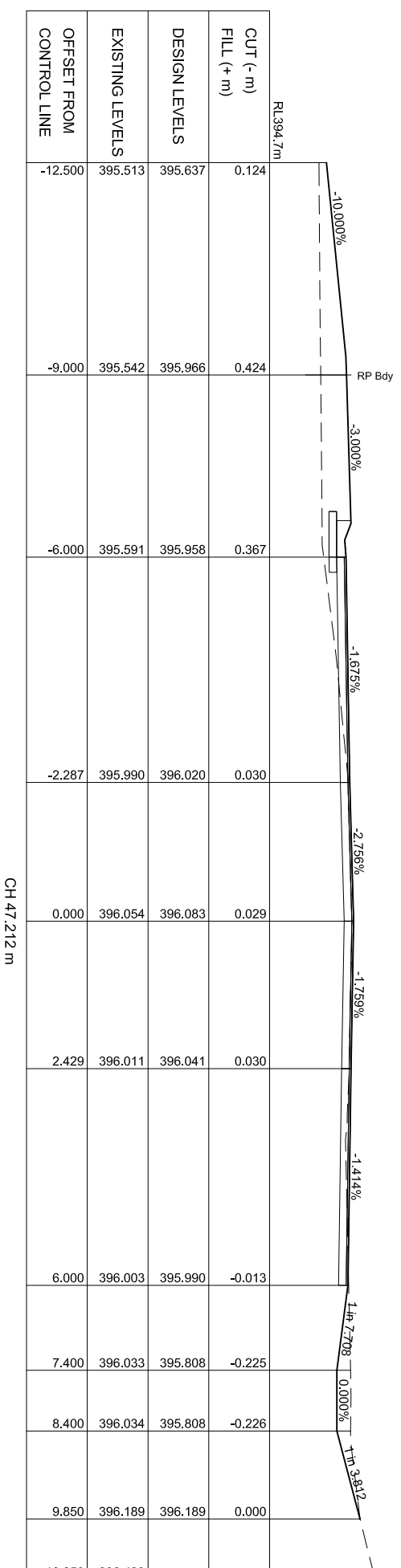
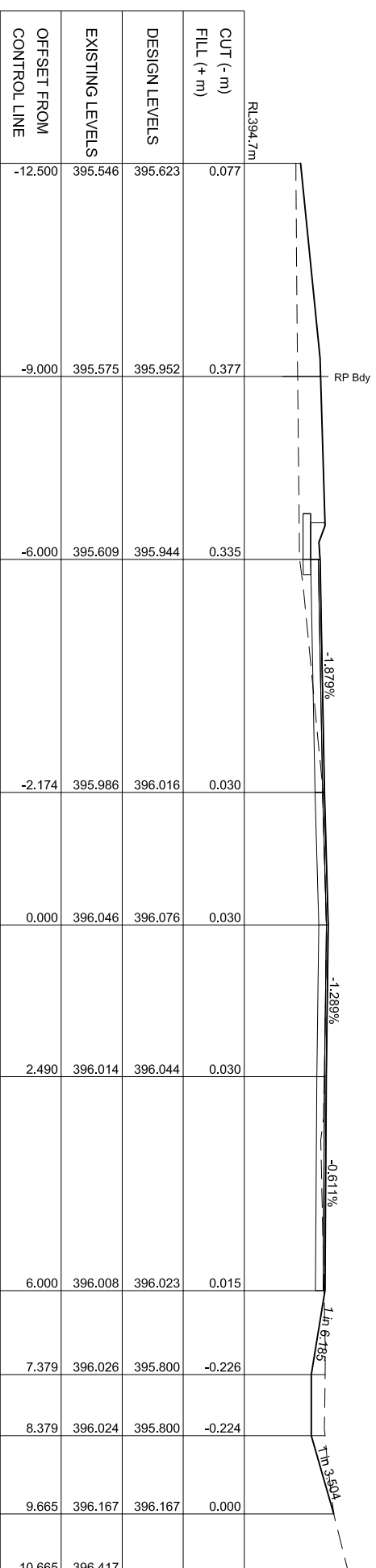
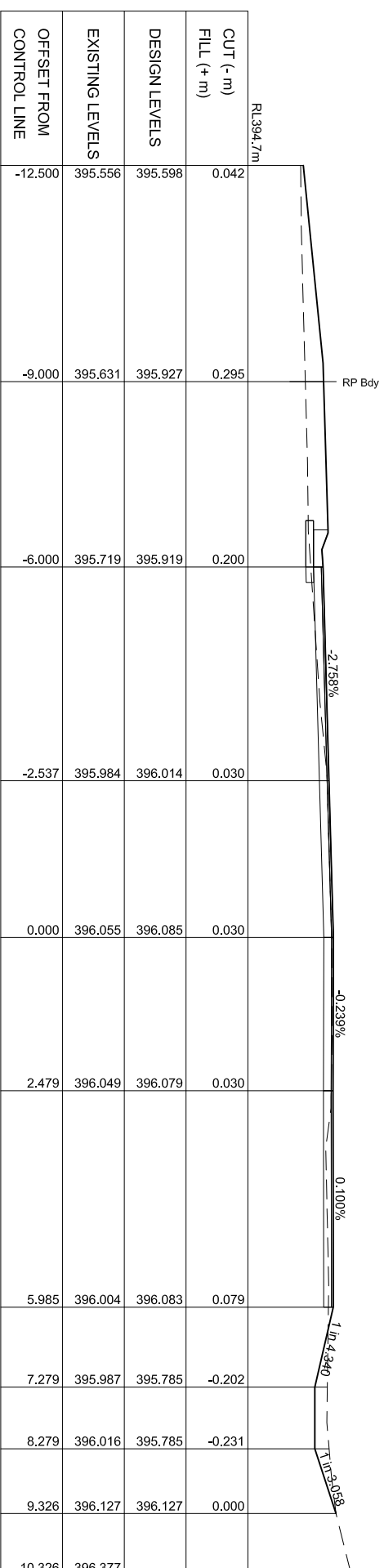


MAREEBA ROADHOUSE and ACCOMMODATION PARK
 PROPOSED ROADHOUSE and ACCOMMODATION COMPLEX
 AT WILLIAMS CLOSE, MAREEBA

DRAWING TITLE: WILLIAMS CLOSE - CROSS SECTIONS (SHEET 2 OF 8)

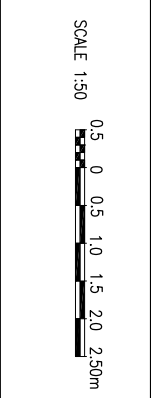
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(A1 A1 SIZE)	1:50	1:50		B. J. SMITH RECD No. 9326	1370-C27

AMDT **A**



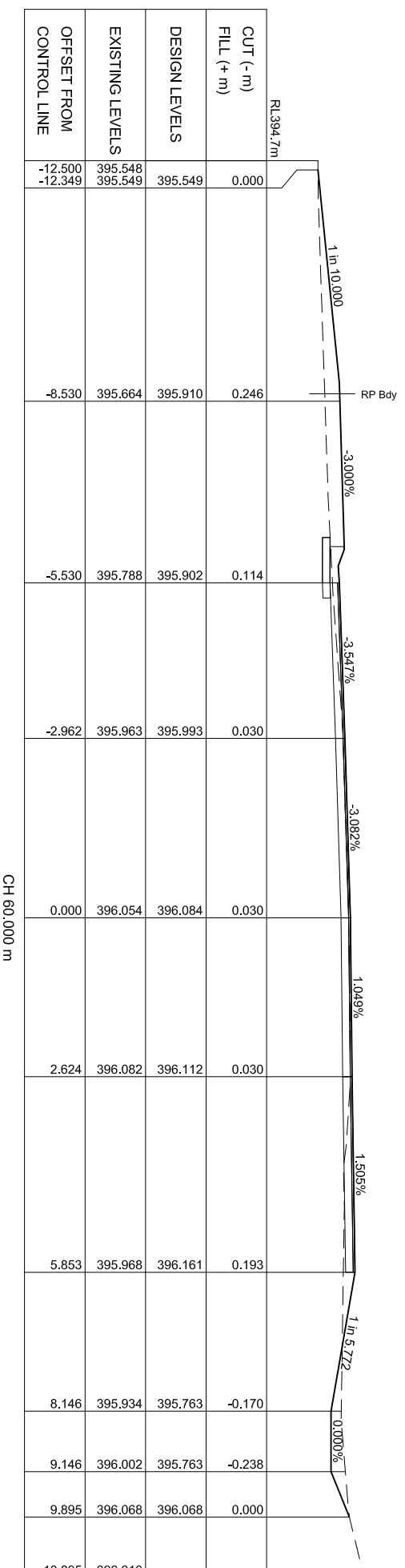
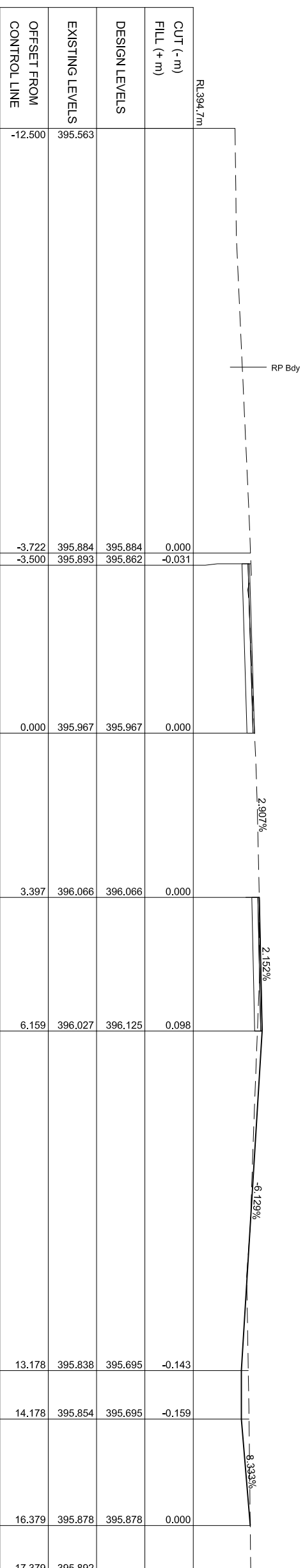
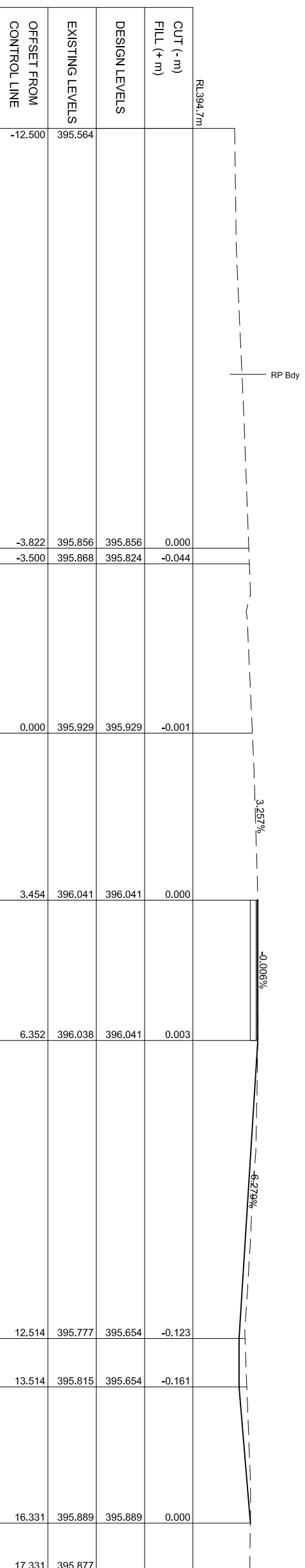
amendments	
A	ORIGINAL ISSUE FOR OPERATIONAL WORKS
	4/12/18

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MAREEBA ROADHOUSE and ACCOMMODATION PARK
 PROPOSED ROADHOUSE and ACCOMMODATION COMPLEX
 AT WILLIAMS CLOSE, MAREEBA

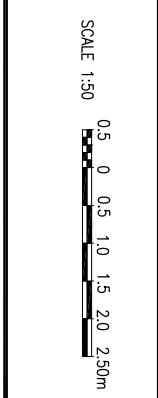
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(AT A1 SIZE)	1:50	1:50	J.P.	J.P.
DATE	APPROVED	CHECKED	DESIGNED	DRAWN
	B. J. SMITH RECD No. 9326	J.P.	J.P.	J.P.
DWG NUMBER	DRAWING TITLE: WILLIAMS CLOSE - CROSS SECTIONS (SHEET 3 OF 8)			AMDT
1370-C28				A



amendments

A	ORIGINAL ISSUE FOR OPERATIONAL WORKS	4/12/18
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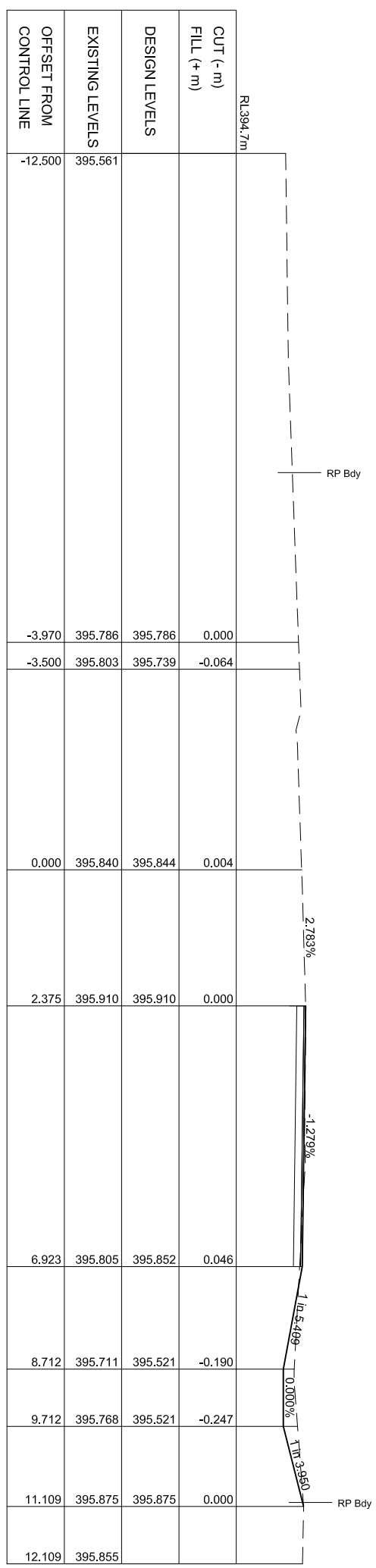
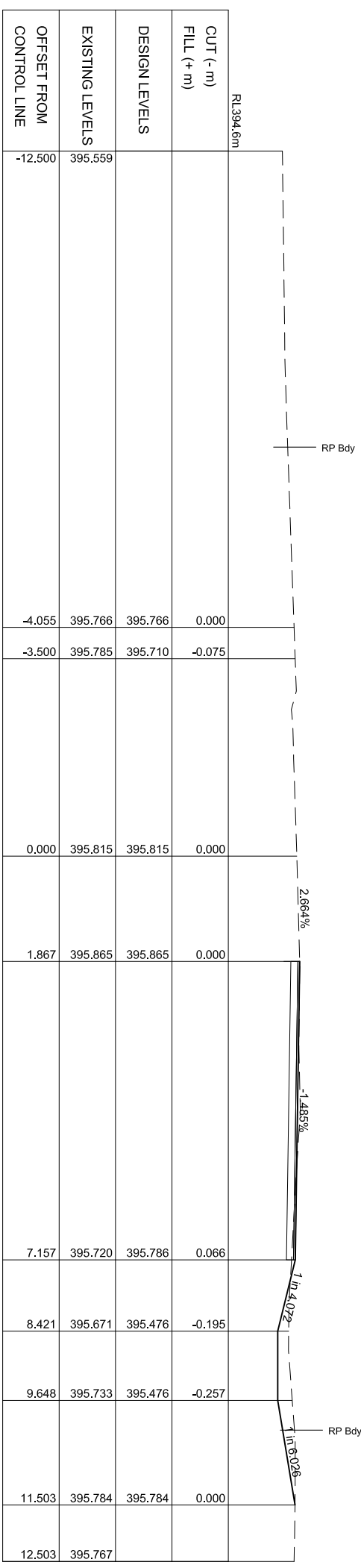
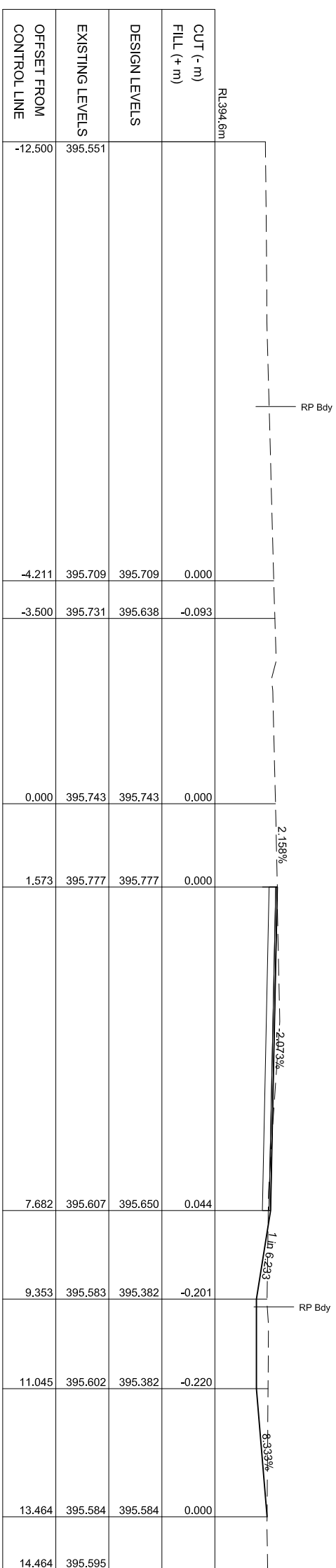
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MAREEBA ROADHOUSE and ACCOMMODATION PARK
 PROPOSED ROADHOUSE and ACCOMMODATION COMPLEX
 AT WILLIAMS CLOSE, MAREEBA

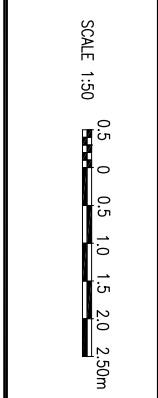
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(AT A1 SIZE)	VER 1:50	DESIGNED	J.P.
DATE		CHECKED	J.P.
APPROVED	B. J. SMITH RECD No. 9326		
DWG NUMBER	1370-C29	AMDT	A



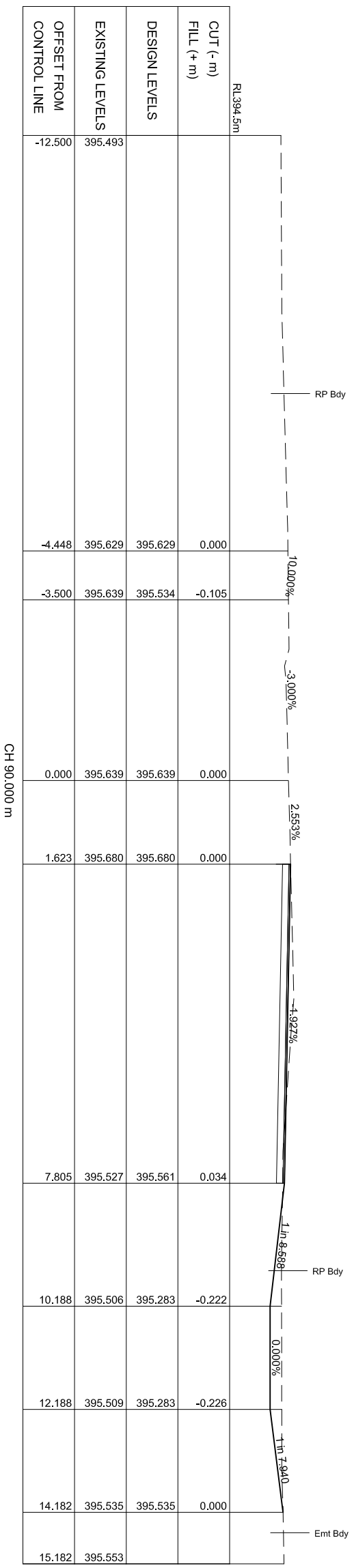
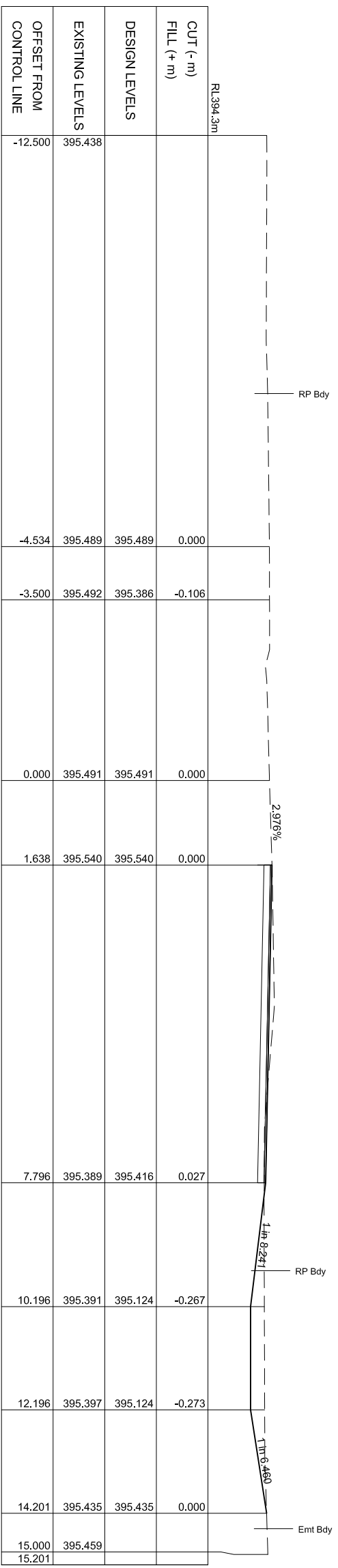
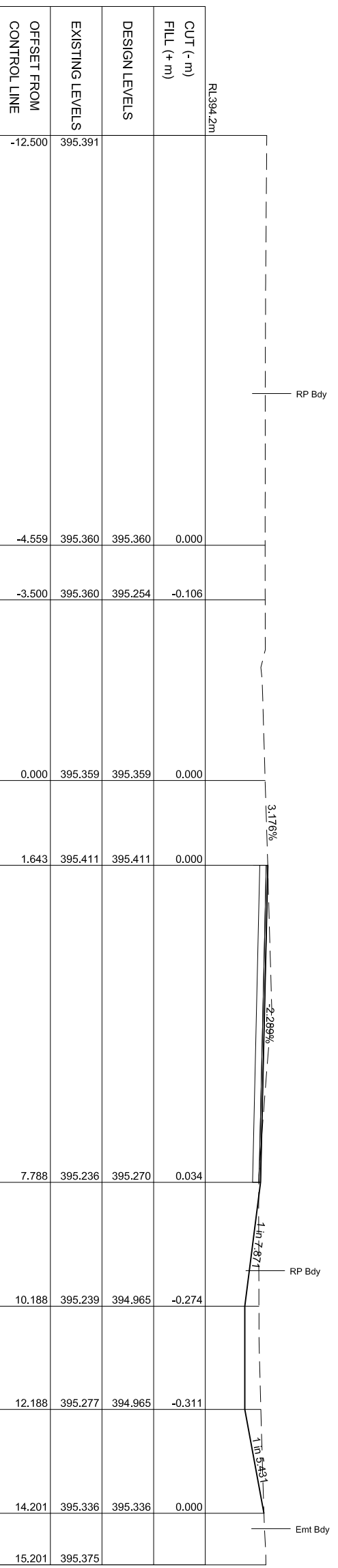
amendments	
A	ORIGINAL ISSUE FOR OPERATIONAL WORKS
	4/12/18

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MAREEBA ROADHOUSE and ACCOMMODATION PARK
 PROPOSED ROADHOUSE and ACCOMMODATION COMPLEX
 AT WILLIAMS CLOSE, MAREEBA
 DRAWING TITLE: WILLIAMS CLOSE - CROSS SECTIONS (SHEET 5 OF 8)

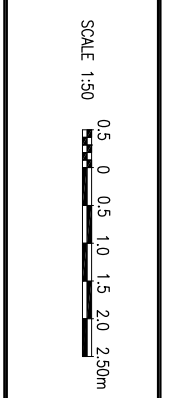
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DATE			CHECKED	J.P.
APPROVED	B. J. SMITH RECD No. 9326			
DWG NUMBER	1370-C30		AMD'T	A



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A	ORIGINAL ISSUE FOR OPERATIONAL WORKS	DATE
		4/12/18

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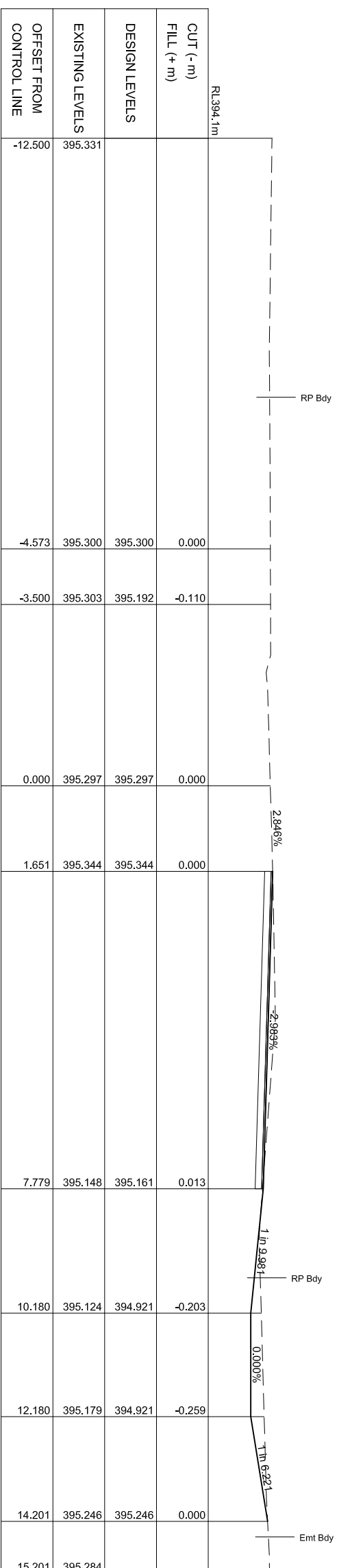
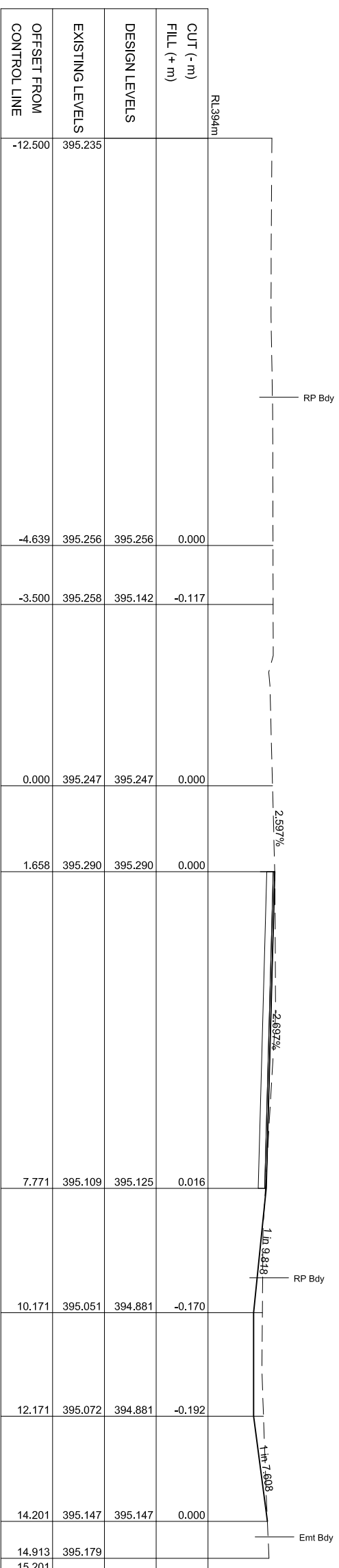
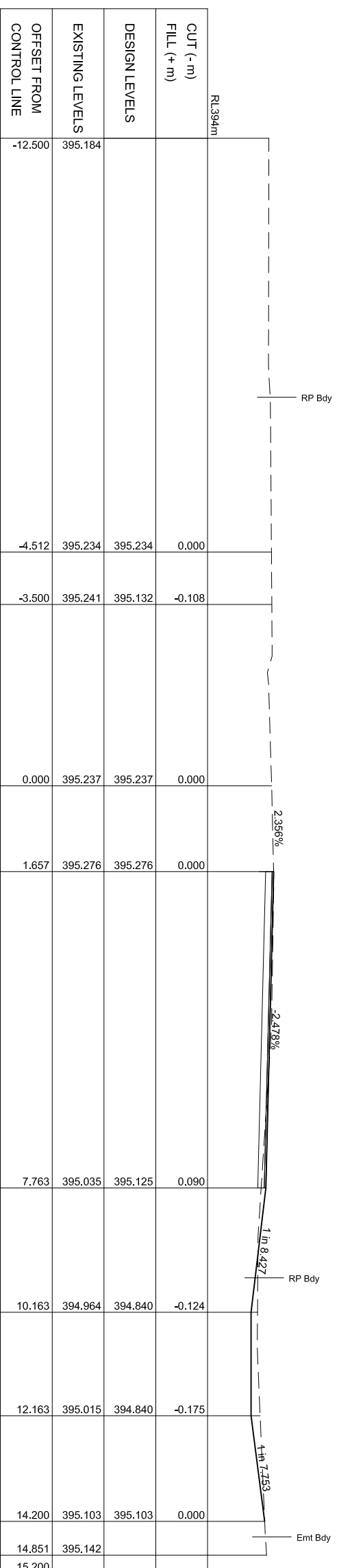
MAREEBA ROADHOUSE and ACCOMMODATION PARK
 PROPOSED ROADHOUSE and ACCOMMODATION COMPLEX
 AT WILLIAMS CLOSE, MAREEBA

DRAWING TITLE: WILLIAMS CLOSE - CROSS SECTIONS (SHEET 6 OF 8)

SCALE	HOR	VER	DATE	DESIGNED	CHECKED	DWG NUMBER
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APPROVED: B. J. SMITH RECD No. 9326

AMDT: A



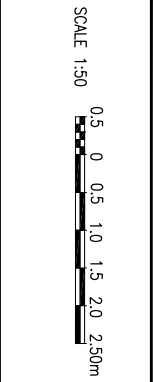
amendments

A	ORIGINAL ISSUE FOR OPERATIONAL WORKS	DATE
		4/12/18

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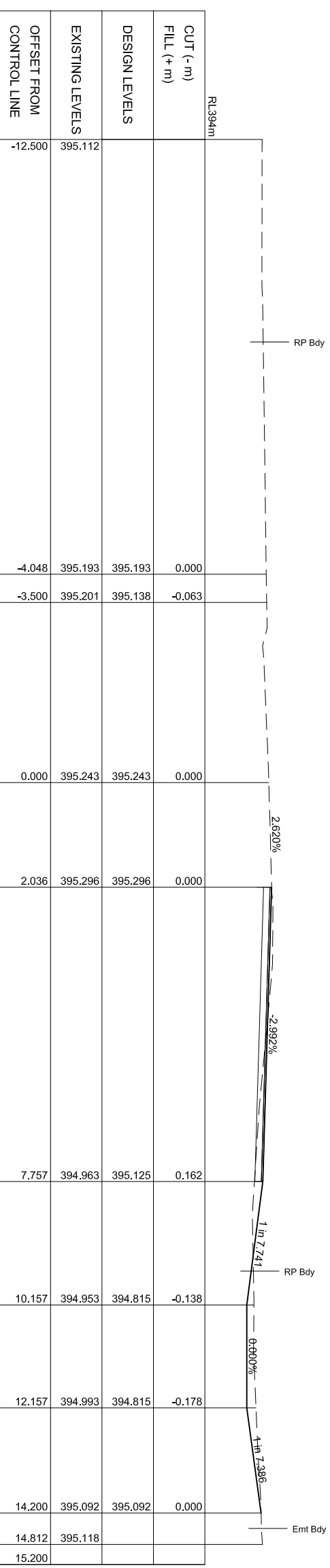
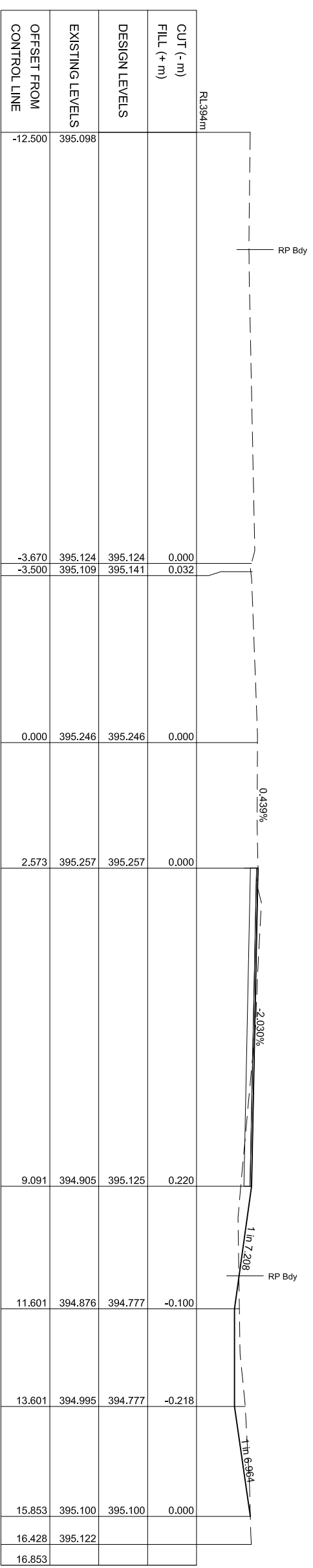
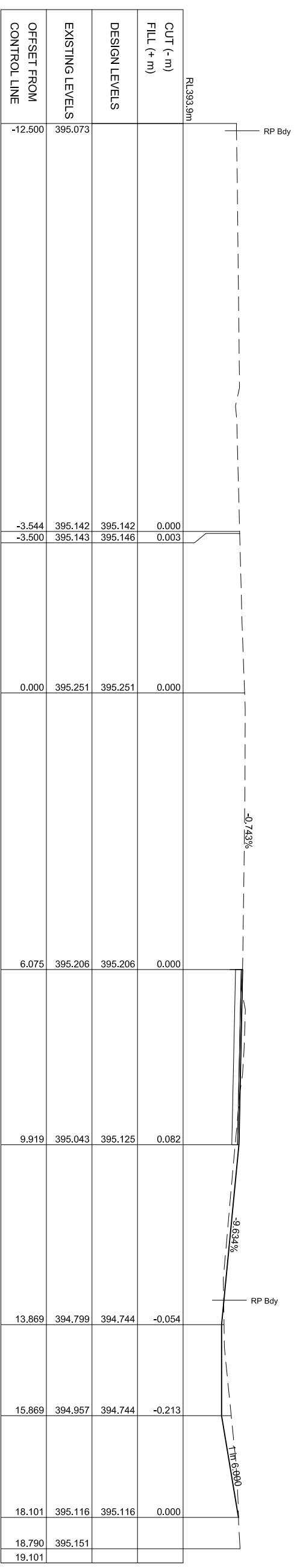


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MAREEBA ROADHOUSE and ACCOMMODATION PARK
 PROPOSED ROADHOUSE and ACCOMMODATION COMPLEX
 AT WILLIAMS CLOSE, MAREEBA
 DRAWING TITLE: WILLIAMS CLOSE - CROSS SECTIONS (SHEET 7 OF 8)

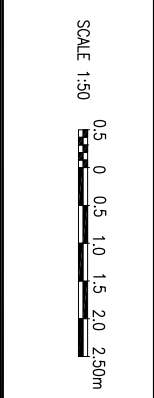
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DATE						
APPROVED			B. J. SMITH	REQ No. 9326		



amendments

A	ORIGINAL ISSUE FOR OPERATIONAL WORKS	DATE
		4/12/18

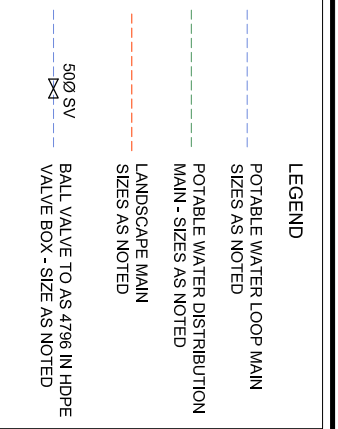
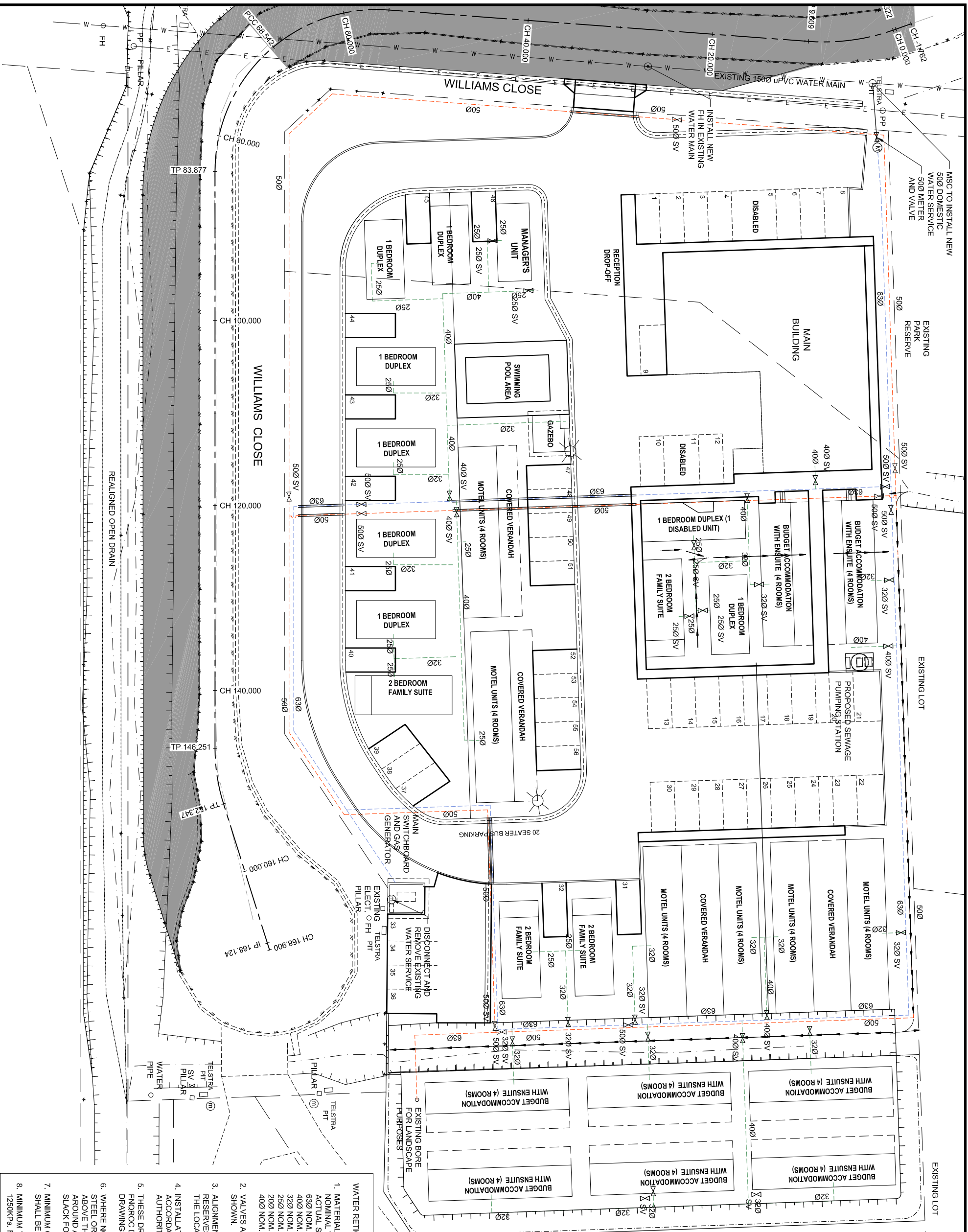
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MAREEBA ROADHOUSE and ACCOMMODATION PARK
 PROPOSED ROADHOUSE and ACCOMMODATION COMPLEX
 AT WILLIAMS CLOSE, MAREEBA
 DRAWING TITLE: WILLIAMS CLOSE - CROSS SECTIONS (SHEET 8 OF 8)

SCALE	HOR	VER	DATE	APPROVED	DESIGNED	CHECKED
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DWG NUMBER: 1370-C33 AMDT: A



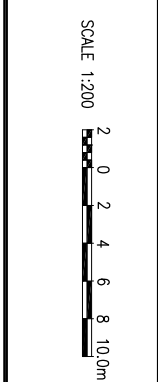
WATER RETICULATION NOTES

1. MATERIALS NOMINAL WATER MAIN SIZES SHOWN IN THIS DRAWING ARE:
ACTUAL SIZES AND CLASSES SHALL BE:
630 NOM. DIA. POLY PIPE TO AS 4130 PE 80 SDR 11
400 NOM. DIA. POLY PIPE TO AS 4130 PE 80 SDR 11
320 NOM. DIA. POLY PIPE TO AS 4130 PE 80 SDR 11
250 NOM. DIA. POLY PIPE TO AS 4130 PE 80 SDR 11
200 NOM. DIA. POLY PIPE TO AS 4130 PE 80 SDR 11
400 NOM. DIA. POLY PIPE TO AS 4130 PE 80 SDR 9
2. VALVES AND HYDRANTS SHALL BE LOCATED GENERALLY WHERE SHOWN.
3. ALIGNMENT OF WATER RETICULATION MAINS WITHIN ROAD RESERVES TO BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE LOCAL AUTHORITY. (2.00m IN MAREEBA)
4. INSTALLATION OF VALVES AND FIRE HYDRANTS TO BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE LOCAL AUTHORITY.
5. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH FNROC DEVELOPMENT MANUAL INCLUDING STANDARD DRAWINGS.
6. WHERE NON-METALLIC PIPE IS LAID A CONTINUOUS STAINLESS STEEL OR COPPER WIRE 1.6mm DIA. SHALL BE LAID IMMEDIATELY ABOVE THE SAND FILL. THE WIRE SHALL BE WRAPPED ONCE AROUND ALL HYDRANTS AND SLUICE VALVES WITH SUFFICIENT SLACK FOR TESTING.
7. MINIMUM COVER TO ALL WATER MAINS UNDER SEALED ROADS SHALL BE 600mm AND 450mm GENERALLY.
8. MINIMUM TEST PRESSURE FOR ALL WATER MAINS SHALL BE 1250KPa. FOR A PERIOD OF NOT LESS THAN 15 MINUTES.

amendments

A	ORIGINAL ISSUE FOR OPERATIONAL WORKS	4/12/18
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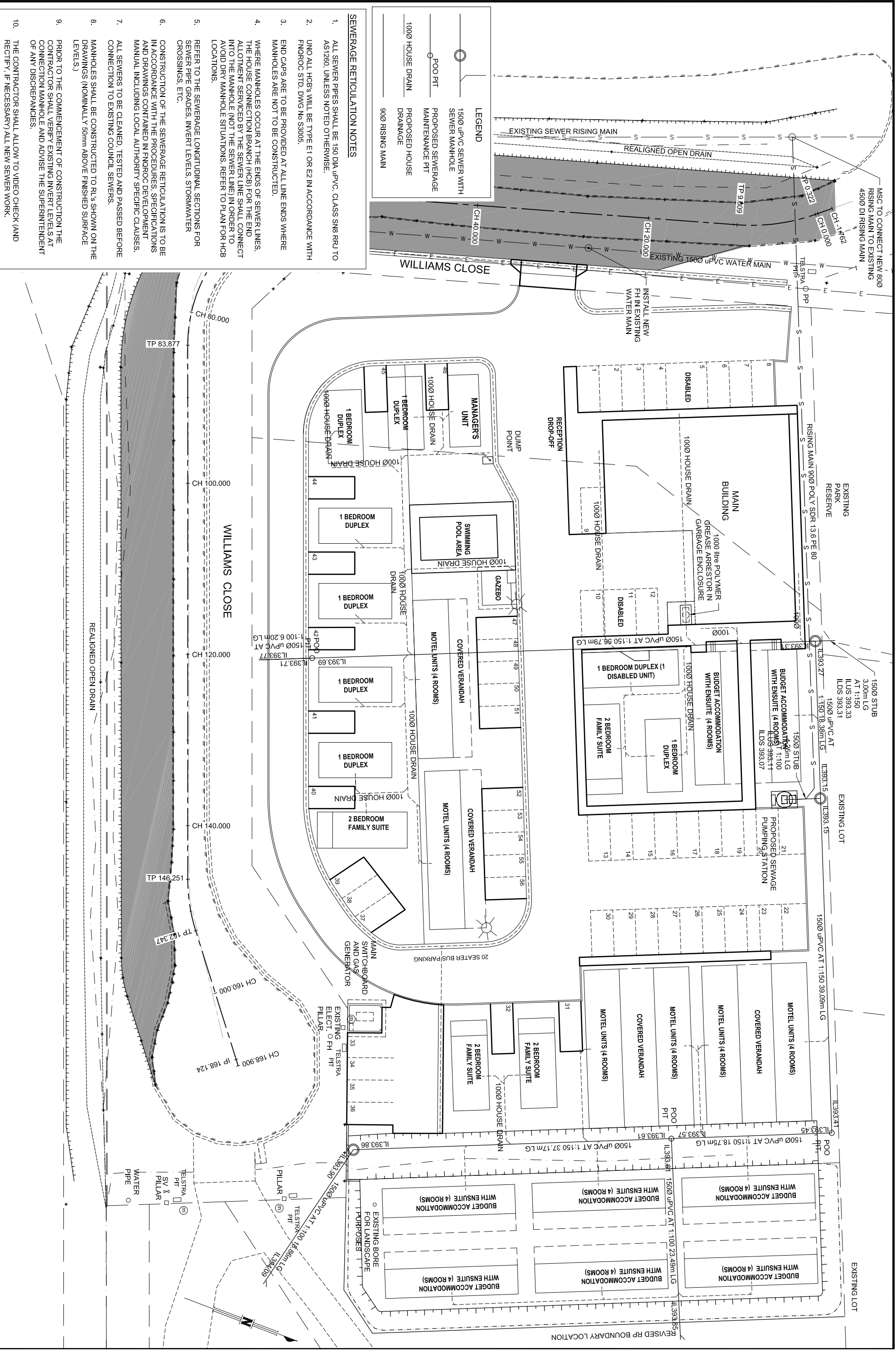
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MAREEBA ROADHOUSE and ACCOMMODATION PARK
 PROPOSED ROADHOUSE and ACCOMMODATION COMPLEX
 AT WILLIAMS CLOSE, MAREEBA

DRAWING TITLE: WATER SUPPLY - POTABLE AND LANDSCAPE WATER RETICULATION

SCALE	HOR 1:200	DRAWN	J.P.
(AT A1 SIZE)	VER	DESIGNED	J.P.
DATE		CHECKED	J.P.
APPROVED	B. J. SMITH RECD No. 9326		
DWG NUMBER	1370-C34	AMD	A



LEGEND

- 1500 uPVC SEWER WITH SEWER MANHOLE
- PROPOSED SEWERAGE MAINTENANCE PIT
- 1000 HOUSE DRAIN
- 900 RISING MAIN
- POOL PIT
- 1500 uPVC WATER MAIN

SEWERAGE RETICULATION NOTES

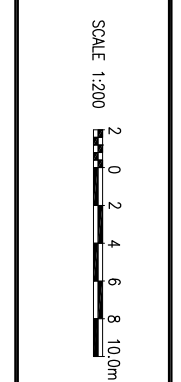
1. ALL SEWER PIPES SHALL BE 150 DIA uPVC, CLASS SN8 RRU TO AS1280 UNLESS NOTED OTHERWISE.
2. UNO ALL HCBs WILL BE TYPE E1 OR E2 IN ACCORDANCE WITH FNOROC STD. DWG No. S3005.
3. END CAPS ARE TO BE PROVIDED AT ALL LINE ENDS WHERE MANHOLES ARE NOT TO BE CONSTRUCTED.
4. WHERE MANHOLES OCCUR AT THE ENDS OF SEWER LINES, THE HOUSE CONNECTION BRANCH (HCB) FOR THE END ALLOTMENT SERVICED BY THE SEWER LINE SHALL CONNECT INTO THE MANHOLE (NOT THE SEWER LINE) IN ORDER TO AVOID DRY MANHOLE SITUATIONS. REFER TO PLAN FOR HCB LOCATIONS.
5. REFER TO THE SEWERAGE LONGITUDINAL SECTIONS FOR SEWER PIPE GRADES, INVERT LEVELS, STORMWATER CROSSINGS ETC.
6. CONSTRUCTION OF THE SEWERAGE RETICULATION IS TO BE IN ACCORDANCE WITH THE PROCEDURES, SPECIFICATIONS AND DRAWINGS CONTAINED IN FNOROC DEVELOPMENT MANUAL INCLUDING LOCAL AUTHORITY SPECIFIC CLAUSES.
7. ALL SEWERS TO BE CLEANED, TESTED AND PASSED BEFORE CONNECTION TO EXISTING COUNCIL SEWERS.
8. MANHOLES SHALL BE CONSTRUCTED TO RL'S SHOWN ON THE DRAWINGS (NOMINALLY 50mm ABOVE FINISHED SURFACE LEVELS).
9. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION THE CONTRACTOR SHALL VERIFY EXISTING INVERT LEVELS AT CONNECTION MANHOLE AND ADVISE THE SUPERINTENDENT OF ANY DISCREPANCIES.
10. THE CONTRACTOR SHALL ALLOW TO VIDEO CHECK (AND RECTIFY, IF NECESSARY) ALL NEW SEWER WORK.

amendments

A	ORIGINAL ISSUE FOR OPERATIONAL WORKS	DATE
		4/12/18

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 AT WILLIAMS CLOSE, MAREEBA

DRAWING TITLE: SEWERAGE RETICULATION

SCALE	HOR	VER	DATE	APPROVED	DWG NUMBER
1:200				B. J. SMITH RECD No. 9326	1370-C35

DATE	DESIGNED	CHECKED	J.P.

Jim Papas Civil Engineering Designer

PTY LTD. ABN 56 010 943 905. ACN 010 943 905

Design Excellence, Exceptional Service

PUMP STATION DESIGN

JOB No.1370

Date: 18.01.18

PROJECT: Mareeba Road House and Accommodation Park

PUMP STATION CATCHMENT

No. of Lots	N.A.		
No. of EDC's	34	(See separate calculations)	
Population per EDC	2.8	(FNQROC Manual)	
Equivalent Population (EP)	94	(See separate calculations)	
Average Dry Weather Flow (ADWF)	270	litres/person/day (FNQROC Manual)	
Total ADWF	25380	litres per day	
PEAK WET WEATHER FLOW			
PWWF(litres/sec) =	5xADWF over 20 hours		
	1.76	litres/sec.	(Duty Point 2)
OR			
PWWF(litres/sec) =	C1xADWF over 20 hours		
where $C1=15(EP)^n$	7.29		n = -0.159
PWWF =	2.57	litres/sec.	(Duty Point 1)
PEAK DRY WEATHER			
PDWF(litres/sec) =	C2xADWF over 20 hours		
where $C2=4.7(EP)^n$	2.92		n = -0.105
PDWF =	1.03	litres/sec	

DESIGN INFLOW = PUMP RATE = HIGHEST VALUE = 2.57 l/sec

Jim Papas Civil Engineering Designer

PUMP STATION DESIGN

STORAGE REQUIRED			
No. of Starts per Hour =	10		
(FNQROC Table 7.14 requires less than 10)			
Pump Rate =	= 0.9 x Pump Rate / No. of Starts per Hr		
2.57	0.231	m ³	
OPERATING RANGE			
Operating Range	= Storage Volume x 1000 / p x r ² mm		
Operating Range (in mm) =	205	where r =	0.6
EMERGENCY STORAGE Not required as there is a standby generator on site			
PUMP STATION DETAILS:			
From FNQROC Std. Dwg. S3024			
A (Top RL)	395.550	Well Dia =	1.200
B (Bottom RL)	392.400	TWL =	392.750
C (Subgrade RL)	393.200	BWL =	392.550
D (Inlet RL)	393.050	Operating Range (in mm)	205
E (Outlet RL)	394.170	(Desirable 1.0 – 2.8m)	
Overflow RL	TBA		
Alarm Level	393.450	(700mm above TWL)	

DESIGN OF RISING MAIN

Flow rate (Duty Point 1) = 2.50l/sec
 RL bottom of Pump station (Point B) = 392.40m
 RL at High Point or Outlet of Rising Main = 396.20m
 Length of Rising Main = 85m
 Colebrook White k = 0.01mm
 Velocity = 2.50m/sec
 (Velocity Parameters: Min.= 0.75m/sec, Desirable = 1.5m/sec, Max = 2.5m/sec)

DIAMETER OF RISING MAIN = 90mm

Rising Main Materials:- Polyethene AS/NZS 4130 PN 12.5 PE 100 SDR 13.6 Coloured - Lilac

Total Head Loss = Static head + Friction Losses
3.800+0.39m = 4.19m
Flow velocity 0.56m/sec

Jim Papas Civil Engineering Designer

PUMP SELECTION

No. of Pumps = 2

PUMP DUTY = 2.57ℓ/sec against 4.20m head.

PUMP SPECIFIED: Flygt F150S Cutter pump

JIM PAPAS

Job No. **DISCHARGE FROM CATCHMENT**
1370 Mareeba Roadhouse and Accommodation Park

ESTABLISH CO-EFFICIENT OF RUNOFF 'C' FOR EXISTING CATCHMENT

From QUDM Table 4.5.1

Description - Rural Residential $f_i = 0.20$

From FNQROC IFD Chart 15 Mareeba

$I_{10} = 64.83\text{mm/hr}$

From QUDM Table 4.5.4

Where I_{10} range = 65-69mm/hr

Poor cover, low permeability $C_{10} = 0.70$

Therefore 'C' for UNDEVELOPED CATCHMENT is

C2	0.70	x	0.85	=	0.60
C5	0.70	x	0.95	=	0.67
C10	0.70	x	1.00	=	0.70
C20	0.70	x	1.05	=	0.74
C50	0.70	x	1.15	=	0.81
C100	0.70	x	1.20	=	0.84

ESTABLISH CO-EFFICIENT OF RUNOFF 'C' FOR DEVELOPED CATCHMENT

From QUDM Table 4.5.1

Description - Urban Residential - High Density $f_i = 0.70$

From FNQROC IFD Chart 15 Mareeba

$I_{10} = 64.83\text{mm/hr}$

From QUDM Table 4.5.3

Where I_{10} range = 65-69mm/hr

$C_{10} = 0.80$

Therefore 'C' for FULLY DEVELOPED CATCHMENT is

C2	0.80	x	0.85	=	0.68
C5	0.80	x	0.95	=	0.76
C10	0.80	x	1.00	=	0.80
C20	0.80	x	1.05	=	0.84
C50	0.80	x	1.15	=	0.92
C100	0.80	x	1.20	=	0.96

ESTABLISH TIME OF CONCENTRATION

EXISTING SITE

Overland Flow using Friend's Equation 4.5

From QUDM Refer Fig. 4.6 $t_c = (107 * n * L^{0.333}) / S^{0.2}$

Overland Sheet Flow Distance L in m = 50
Land Slope S in % 1
Horton Surface Roughness factor n 0.035

Inlet Time is: **14 minutes**

FULLY DEVELOPED SITE

From QUDM using Standard Inlet Times Refer Table 4.6.2

Land Usage is: Urban
Land Slope: Up to 3%

Standard Inlet Time is: **15 minutes**

DISCHARGE FROM EXISTING SITE

Using the rational method

In all

Cases: A (in Ha) = 0.7637 $t_c = 15\text{min.}$ f = 360

ARI	C	I in mm/hr	=	Discharge Q in litres/sec
2	0.60	90.76	=	115
5	0.67	113.95	=	161
10	0.70	127.43	=	189
20	0.74	145.75	=	227
50	0.81	169.84	=	290
100	0.84	188.28	=	336

DISCHARGE FROM FULLY DEVELOPED SITE

Using the rational method

In all

Cases: A (in Ha) = 0.7637 t_c = 14min. f = 360

ARI	C	I in mm/hr	=	Discharge Q in litres/sec
2	0.68	93.30	=	135
5	0.76	117.28	=	189
10	0.80	131.24	=	223
20	0.84	150.19	=	268
50	0.92	175.12	=	342
100	0.96	194.22	=	396

DISCHARGE FROM AND PERFORMANCE OF DETENTION BASIN

ARI	Peak discharge from existing catchment in litres/sec	Peak discharge from fully developed catchment in litres/sec	Actual peak discharge from fully developed catchment at detention basin outlet in litres/sec	Top water level at peak discharge (m AHD)
2	115	135	113	394.92
5	161	189	140	395.00
10	189	223	165	395.02
20	227	268	204	395.04
50	290	342	272	395.07
100	336	396	322	395.09

1370 Detention Basin Q2

Mareeba 2-Year Duration=15 min, Inten=90.3 mm/hr

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Page 1

Summary for Pond 2: Detention Basin

Inflow Area = 0.7637 ha, 0.00% Impervious, Inflow Depth = 21 mm for 2-Year event
 Inflow = 0.13412 m³/s @ 0.25 hrs, Volume= 0.163 MI
 Outflow = 0.11323 m³/s @ 0.32 hrs, Volume= 0.163 MI, Atten= 16%, Lag= 3.9 min
 Primary = 0.11323 m³/s @ 0.32 hrs, Volume= 0.163 MI

Routing by Stor-Ind method, Time Span= 0.00-1.00 hrs, dt= 0.01 hrs
 Peak Elev= 394.920 m @ 0.32 hrs Surf.Area= 0.0 m² Storage= 15.6 m³

Plug-Flow detention time= 1.7 min calculated for 0.163 MI (100% of inflow)
 Center-of-Mass det. time= 1.7 min (20.2 - 18.5)

Volume	Invert	Avail.Storage	Storage Description
#1	394.640 m	221.5 m ³	Custom Stage Data Listed below

Elevation (meters)	Inc.Store (cubic-meters)	Cum.Store (cubic-meters)
394.640	0.0	0.0
394.700	0.1	0.1
394.800	2.4	2.5
394.900	8.6	11.1
395.000	22.5	33.6
395.100	62.3	95.9
395.200	125.6	221.5

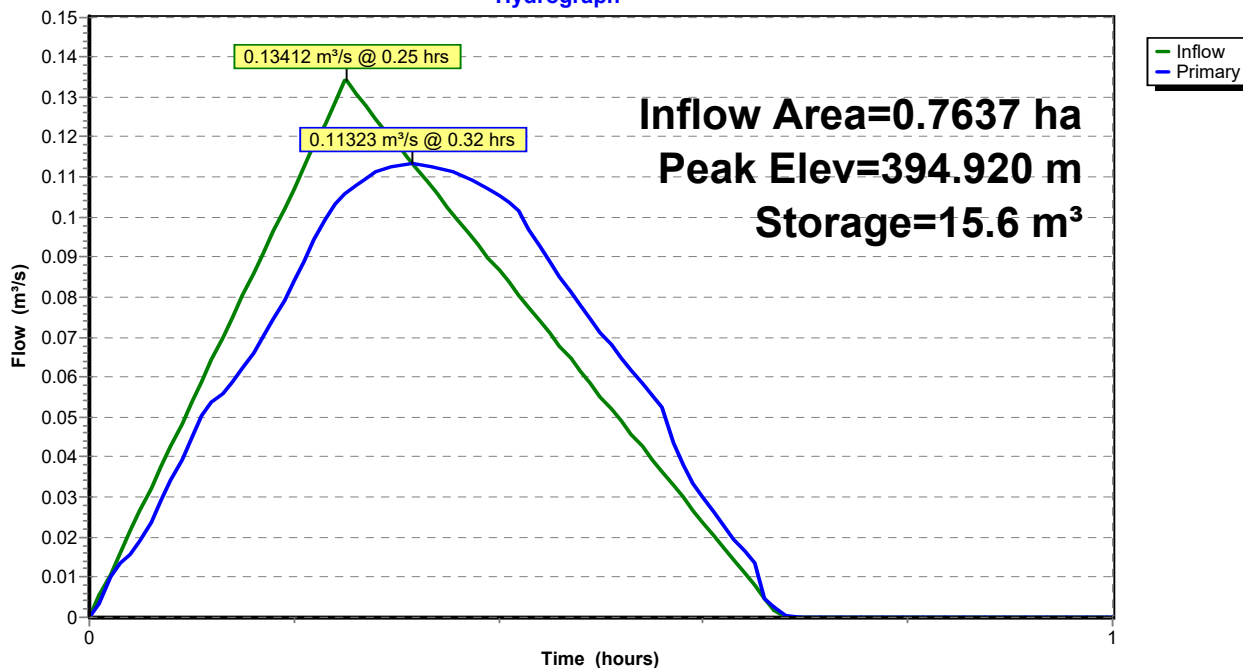
Device	Routing	Invert	Outlet Devices
#1	Primary	394.640 m	500 mm W x 210 mm H Box Culvert L= 0.30 m RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 394.640 m / 394.620 m S= 0.0667 m/m Cc= 0.900 n= 0.013
#2	Primary	395.000 m	3.20 m long Sharp-Crested Rectangular Weir 2 End Contraction(s) 395.20 m Crest Height

Primary OutFlow Max=0.11320 m³/s @ 0.32 hrs HW=394.920 m (Free Discharge)

↑ **1=Culvert** (Barrel Controls 0.11320 m³/s @ 1.08 m/s)
 ↓ **2=Sharp-Crested Rectangular Weir** (Controls 0.00000 m³/s)

Pond 2: Detention Basin

Hydrograph



1370 Detention Basin Q5

Mareeba 5-Year Duration=15 min, Inten=113.3 mm/hr

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Summary for Pond 2: Detention Basin

Inflow Area = 0.7637 ha, 0.00% Impervious, Inflow Depth = 30 mm for 5-Year event
 Inflow = 0.18759 m³/s @ 0.25 hrs, Volume= 0.228 MI
 Outflow = 0.14018 m³/s @ 0.36 hrs, Volume= 0.228 MI, Atten= 25%, Lag= 6.4 min
 Primary = 0.14018 m³/s @ 0.36 hrs, Volume= 0.228 MI

Routing by Stor-Ind method, Time Span= 0.00-1.00 hrs, dt= 0.01 hrs
 Peak Elev= 395.000 m @ 0.36 hrs Surf.Area= 0.0 m² Storage= 33.9 m³

Plug-Flow detention time= 2.8 min calculated for 0.226 MI (99% of inflow)
 Center-of-Mass det. time= 2.8 min (21.3 - 18.5)

Volume	Invert	Avail.Storage	Storage Description
#1	394.640 m	221.5 m ³	Custom Stage Data Listed below

Elevation (meters)	Inc.Store (cubic-meters)	Cum.Store (cubic-meters)
394.640	0.0	0.0
394.700	0.1	0.1
394.800	2.4	2.5
394.900	8.6	11.1
395.000	22.5	33.6
395.100	62.3	95.9
395.200	125.6	221.5

Device	Routing	Invert	Outlet Devices
#1	Primary	394.640 m	500 mm W x 210 mm H Box Culvert L= 0.30 m RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 394.640 m / 394.620 m S= 0.0667 m/m Cc= 0.900 n= 0.013
#2	Primary	395.000 m	3.20 m long Sharp-Crested Rectangular Weir 2 End Contraction(s) 395.20 m Crest Height

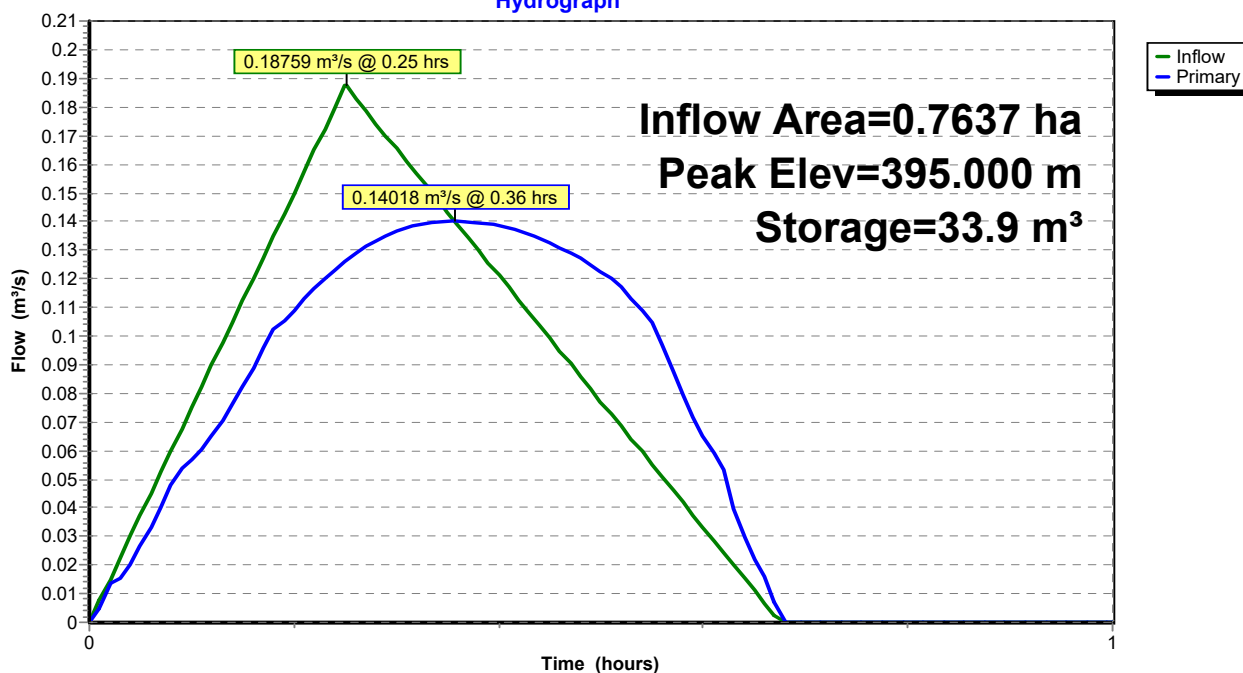
Primary OutFlow Max=0.14006 m³/s @ 0.36 hrs HW=395.000 m (Free Discharge)

↑ **1=Culvert** (Inlet Controls 0.14001 m³/s @ 1.33 m/s)

↑ **2=Sharp-Crested Rectangular Weir** (Weir Controls 0.00005 m³/s @ 0.04 m/s)

Pond 2: Detention Basin

Hydrograph



1370 Detention Basin Q10

Mareeba 10-Year Duration=15 min, Inten=126.7 mm/hr

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Page 1

Summary for Pond 2: Detention Basin

Inflow Area = 0.7637 ha, 0.00% Impervious, Inflow Depth = 35 mm for 10-Year event
 Inflow = 0.22320 m³/s @ 0.25 hrs, Volume= 0.271 MI
 Outflow = 0.16510 m³/s @ 0.36 hrs, Volume= 0.271 MI, Atten= 26%, Lag= 6.6 min
 Primary = 0.16510 m³/s @ 0.36 hrs, Volume= 0.271 MI

Routing by Stor-Ind method, Time Span= 0.00-1.00 hrs, dt= 0.01 hrs
 Peak Elev= 395.022 m @ 0.36 hrs Surf.Area= 0.0 m² Storage= 47.4 m³

Plug-Flow detention time= 3.5 min calculated for 0.268 MI (99% of inflow)
 Center-of-Mass det. time= 3.5 min (22.0 - 18.5)

Volume	Invert	Avail.Storage	Storage Description
#1	394.640 m	221.5 m ³	Custom Stage Data Listed below

Elevation (meters)	Inc.Store (cubic-meters)	Cum.Store (cubic-meters)
394.640	0.0	0.0
394.700	0.1	0.1
394.800	2.4	2.5
394.900	8.6	11.1
395.000	22.5	33.6
395.100	62.3	95.9
395.200	125.6	221.5

Device	Routing	Invert	Outlet Devices
#1	Primary	394.640 m	500 mm W x 210 mm H Box Culvert L= 0.30 m RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 394.640 m / 394.620 m S= 0.0667 m/m Cc= 0.900 n= 0.013
#2	Primary	395.000 m	3.20 m long Sharp-Crested Rectangular Weir 2 End Contraction(s) 395.20 m Crest Height

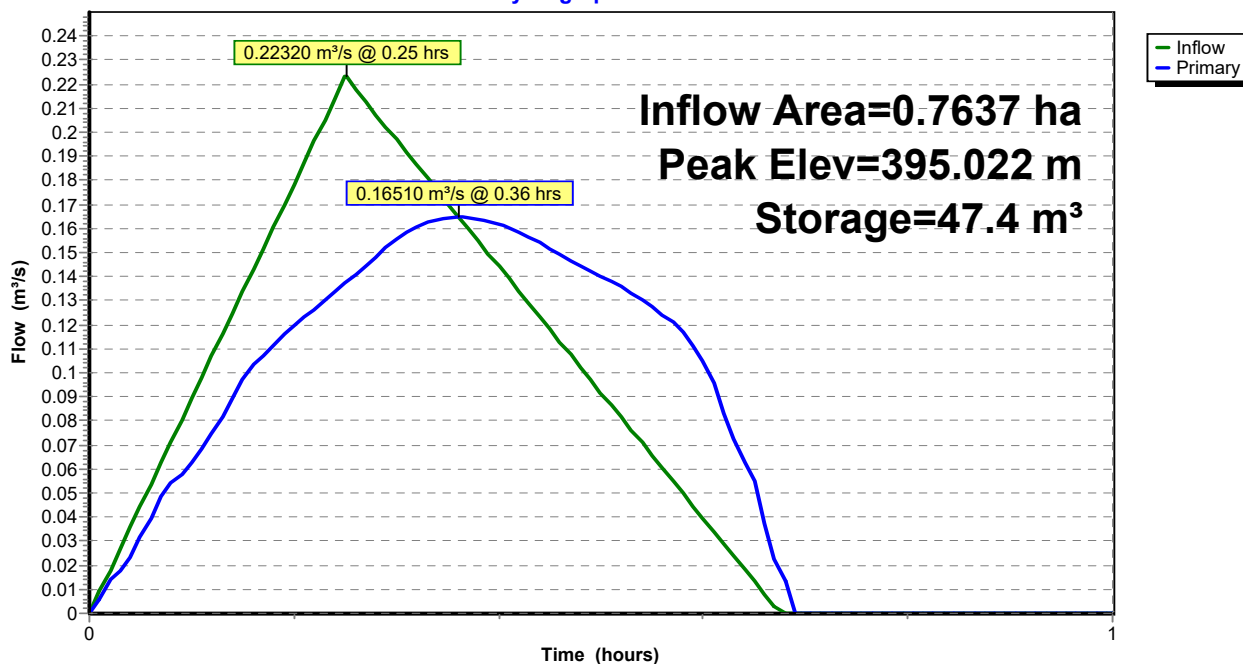
Primary OutFlow Max=0.16500 m³/s @ 0.36 hrs HW=395.022 m (Free Discharge)

↑ **1=Culvert** (Inlet Controls 0.14600 m³/s @ 1.39 m/s)

↑ **2=Sharp-Crested Rectangular Weir** (Weir Controls 0.01900 m³/s @ 0.27 m/s)

Pond 2: Detention Basin

Hydrograph



1370 Detention Basin Q20

Mareeba 20-Year Duration=15 min, Inten=144.9 mm/hr

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Page 1

Summary for Pond 2: Detention Basin

Inflow Area = 0.7637 ha, 0.00% Impervious, Inflow Depth = 43 mm for 20-Year event
 Inflow = 0.26756 m³/s @ 0.25 hrs, Volume= 0.325 MI
 Outflow = 0.20429 m³/s @ 0.35 hrs, Volume= 0.325 MI, Atten= 24%, Lag= 6.0 min
 Primary = 0.20429 m³/s @ 0.35 hrs, Volume= 0.325 MI

Routing by Stor-Ind method, Time Span= 0.00-1.00 hrs, dt= 0.01 hrs
 Peak Elev= 395.044 m @ 0.35 hrs Surf.Area= 0.0 m² Storage= 60.8 m³

Plug-Flow detention time= 4.0 min calculated for 0.322 MI (99% of inflow)
 Center-of-Mass det. time= 4.0 min (22.5 - 18.5)

Volume	Invert	Avail.Storage	Storage Description
#1	394.640 m	221.5 m ³	Custom Stage Data Listed below

Elevation (meters)	Inc.Store (cubic-meters)	Cum.Store (cubic-meters)
394.640	0.0	0.0
394.700	0.1	0.1
394.800	2.4	2.5
394.900	8.6	11.1
395.000	22.5	33.6
395.100	62.3	95.9
395.200	125.6	221.5

Device	Routing	Invert	Outlet Devices
#1	Primary	394.640 m	500 mm W x 210 mm H Box Culvert L= 0.30 m RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 394.640 m / 394.620 m S= 0.0667 m/m Cc= 0.900 n= 0.013
#2	Primary	395.000 m	3.20 m long Sharp-Crested Rectangular Weir 2 End Contraction(s) 395.20 m Crest Height

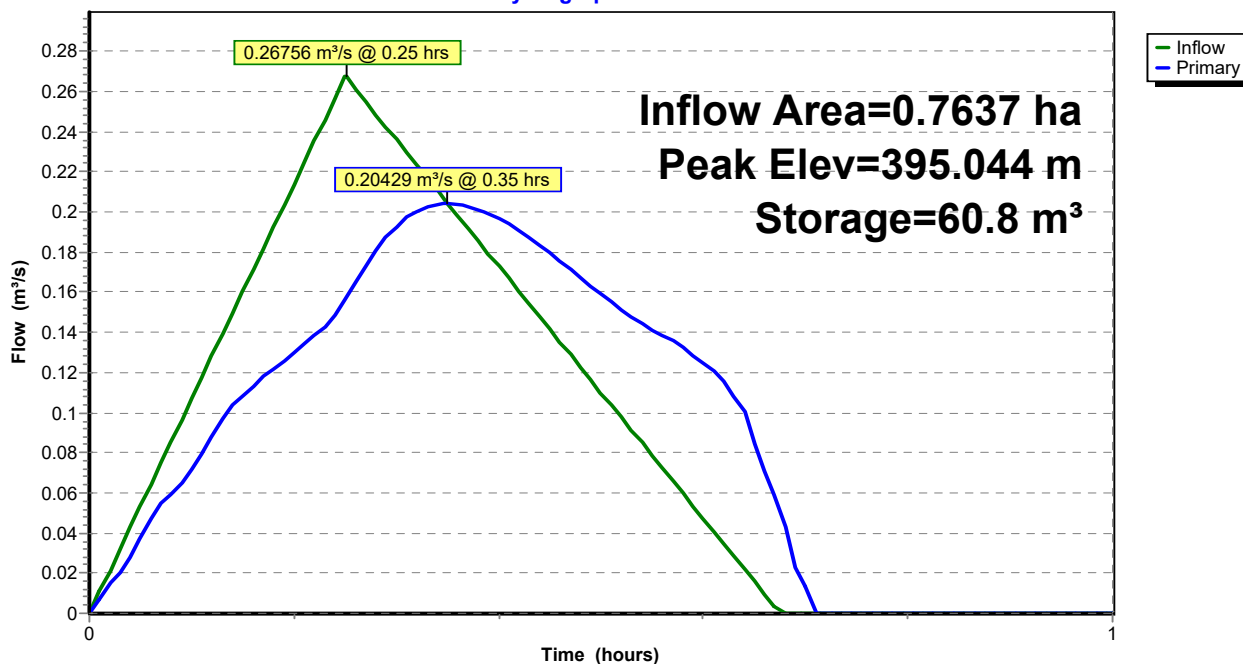
Primary OutFlow Max=0.20424 m³/s @ 0.35 hrs HW=395.044 m (Free Discharge)

↑ **1=Culvert** (Inlet Controls 0.15169 m³/s @ 1.44 m/s)

↑ **2=Sharp-Crested Rectangular Weir** (Weir Controls 0.05255 m³/s @ 0.38 m/s)

Pond 2: Detention Basin

Hydrograph



1370 Detention Basin Q50

Mareeba 50-Year Duration=15 min, Inten=168.8 mm/hr

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Page 1

Summary for Pond 2: Detention Basin

Inflow Area = 0.7637 ha, 100.00% Impervious, Inflow Depth = 54 mm for 50-Year event
 Inflow = 0.34041 m³/s @ 0.25 hrs, Volume= 0.413 MI
 Outflow = 0.27196 m³/s @ 0.34 hrs, Volume= 0.413 MI, Atten= 20%, Lag= 5.1 min
 Primary = 0.27196 m³/s @ 0.34 hrs, Volume= 0.413 MI

Routing by Stor-Ind method, Time Span= 0.00-1.00 hrs, dt= 0.01 hrs
 Peak Elev= 395.073 m @ 0.34 hrs Surf.Area= 0.0 m² Storage= 78.9 m³

Plug-Flow detention time= 4.3 min calculated for 0.409 MI (99% of inflow)
 Center-of-Mass det. time= 4.3 min (22.8 - 18.5)

Volume	Invert	Avail.Storage	Storage Description
#1	394.640 m	221.5 m ³	Custom Stage Data Listed below

Elevation (meters)	Inc.Store (cubic-meters)	Cum.Store (cubic-meters)
394.640	0.0	0.0
394.700	0.1	0.1
394.800	2.4	2.5
394.900	8.6	11.1
395.000	22.5	33.6
395.100	62.3	95.9
395.200	125.6	221.5

Device	Routing	Invert	Outlet Devices
#1	Primary	394.640 m	500 mm W x 210 mm H Box Culvert L= 0.30 m RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 394.640 m / 394.620 m S= 0.0667 m/m Cc= 0.900 n= 0.013
#2	Primary	395.000 m	3.20 m long Sharp-Crested Rectangular Weir 2 End Contraction(s) 395.20 m Crest Height

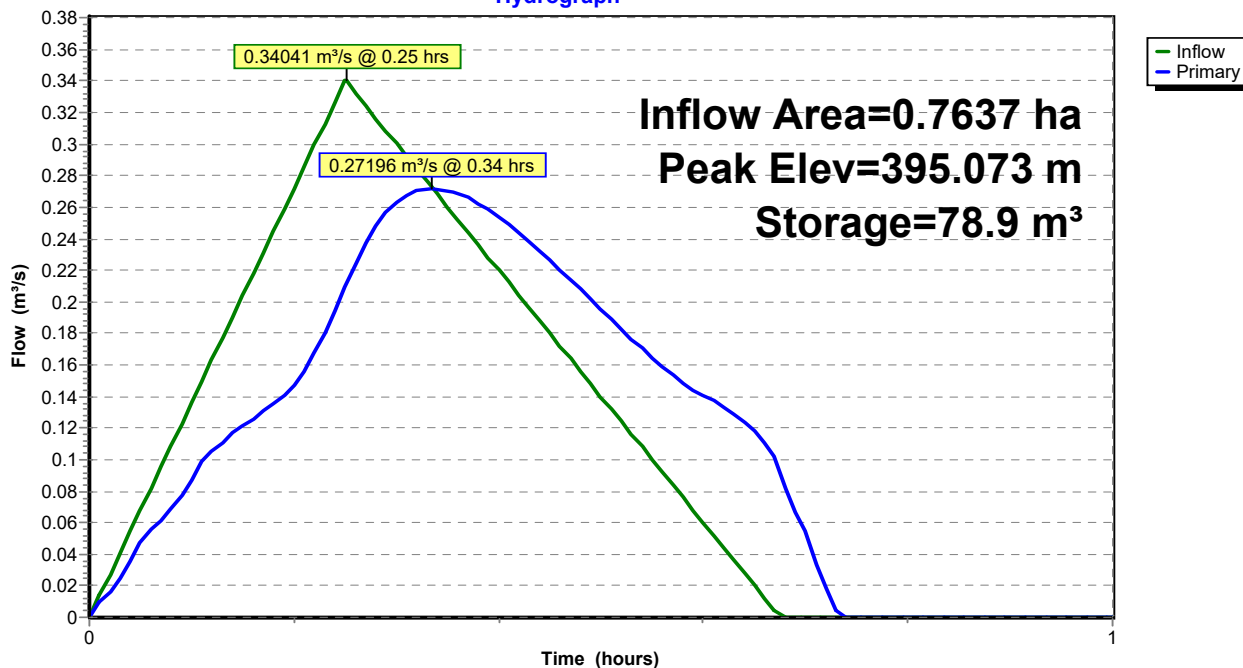
Primary OutFlow Max=0.27178 m³/s @ 0.34 hrs HW=395.073 m (Free Discharge)

↑ **1=Culvert** (Inlet Controls 0.15904 m³/s @ 1.51 m/s)

↑ **2=Sharp-Crested Rectangular Weir** (Weir Controls 0.11274 m³/s @ 0.49 m/s)

Pond 2: Detention Basin

Hydrograph



1370 Detention Basin Q100

Mareeba 100-Year Duration=15 min, Inten=187.1 mm/hr

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Page 1

Summary for Pond 2: Detention Basin

Inflow Area = 0.7637 ha, 100.00% Impervious, Inflow Depth = 63 mm for 100-Year event
 Inflow = 0.39324 m³/s @ 0.25 hrs, Volume= 0.478 MI
 Outflow = 0.32167 m³/s @ 0.33 hrs, Volume= 0.478 MI, Atten= 18%, Lag= 4.6 min
 Primary = 0.32167 m³/s @ 0.33 hrs, Volume= 0.478 MI

Routing by Stor-Ind method, Time Span= 0.00-1.00 hrs, dt= 0.01 hrs
 Peak Elev= 395.091 m @ 0.33 hrs Surf.Area= 0.0 m² Storage= 90.4 m³

Plug-Flow detention time= 4.3 min calculated for 0.473 MI (99% of inflow)
 Center-of-Mass det. time= 4.4 min (22.9 - 18.5)

Volume	Invert	Avail.Storage	Storage Description
#1	394.640 m	221.5 m ³	Custom Stage Data Listed below

Elevation (meters)	Inc.Store (cubic-meters)	Cum.Store (cubic-meters)
394.640	0.0	0.0
394.700	0.1	0.1
394.800	2.4	2.5
394.900	8.6	11.1
395.000	22.5	33.6
395.100	62.3	95.9
395.200	125.6	221.5

Device	Routing	Invert	Outlet Devices
#1	Primary	394.640 m	500 mm W x 210 mm H Box Culvert L= 0.30 m RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 394.640 m / 394.620 m S= 0.0667 m/m Cc= 0.900 n= 0.013
#2	Primary	395.000 m	3.20 m long Sharp-Crested Rectangular Weir 2 End Contraction(s) 395.20 m Crest Height

Primary OutFlow Max=0.32148 m³/s @ 0.33 hrs HW=395.091 m (Free Discharge)

↑ **1=Culvert** (Inlet Controls 0.16352 m³/s @ 1.56 m/s)

↑ **2=Sharp-Crested Rectangular Weir** (Weir Controls 0.15796 m³/s @ 0.55 m/s)

Pond 2: Detention Basin

Hydrograph

