## Glenroy S Dillon

**From:** Glenroy S Dillon
**Sent:** Wednesday, 24 August 2016 2:12 PM
**To:** [redacted]@htw.com.au'
**Subject:** Mackay Ring Road Project (MRRP) valuation quote

Hi [redacted]

The department has recently resumed land by gazette notice of 12 August 2016 for the MRRP. Due to the size of the documents, I am sending the information to you via Own Cloud.

Please provide a quote for valuation/compensation assessments for the properties that have been impacted.

TMR will need a quote for each property ownership, plus a total quote amount, as shown on a list that I will provide to you via Own Cloud.

Should your tender be successful then the department will send you a formal notification and the appropriate documents.

To assist the department in this process please provide brief details of your involvement in resumption matters including details of Land Court experience.

You will shortly receive an email that provides a link to Own Cloud. The password to access the information you will need for the MRRP quote is [redacted]

Please keep this password secure and treat the information provided as confidential. Your access to this information will expire on 31 August 2016.

The department will need to receive your quote before close of business 2 September 2016.

If you require any further information please contact myself.

Kind regards,

**Glen Dillon**
A/Area Manager | Strategic Property Management / Property Acquisitions & Disposals
**Portfolio Investment & Programming** | Department of Transport and Main Roads

Floor 2 | Carseldine - GOP Building D | 532 Beams Road | Carseldine Qld 4034
GPO Box 1412 | Brisbane Qld 4001
P: (07) 30666958 | F: (07) 30668228
M
E: glenroy.s.dillon@tmr.qld.gov.au
W: www.tmr.qld.gov.au

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# Queensland Government Gazette

**TRANSPORT AND MAIN ROADS**

**PUBLISHED BY AUTHORITY**

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**VOL. 372]** **FRIDAY 12 AUGUST 2016** **[NO. 82**


*Acquisition of Land Act 1967*
*Transport Infrastructure Act 1994*
*Transport Planning and Coordination Act 1994*

**TAKING OF LAND NOTICE (No. 3003) 2016**

**Short title**

1. This notice may be cited as the *Taking of Land Notice (No. 3003) 2016*

**Land to be taken [s.9(6) of the *Acquisition of Land Act 1967*]**

2. The land described in the Schedule is taken for the purpose of transport, in particular, road purposes, and vests in the Chief Executive, Department of Transport and Main Roads, as constructing authority for the State of Queensland, for an estate in fee simple.

**SCHEDULE**

**Land Taken**

An area of 3.796 hectares (including 1321 square metres being the whole of Easement B on SP190925 and 59 square metres being the whole of Easement C on RP722533) being the whole of Lot 100 on SP190925 contained in Title Reference: 50676650.

An area of about 2.214 hectares being part of Lot 2 on RP714250 contained in Title Reference: 20486045.

An area of about 4.564 hectares (including about 17 square metres being part of Easement B on RP894737) being part of Lot 7 on RP894737 contained in Title Reference: 50125576.

An area of about 3648 square metres being part of Lot 296 on Crown Plan K1244 contained in Title Reference: 20316037.

An area of about 1193 square metres being part of Lot 297 on Crown Plan K1244 contained in Title Reference: 20316037.

An area of about 2412 square metres being part of Lot 286 on Crown Plan K1244 contained in Title Reference: 21050025.

An area of about 3618 square metres being part of Lot 287 on Crown Plan K1244 contained in Title Reference: 21050025.

An area of about 2410 square metres (including about 640 square metres being part of Easement F on SP213246) being part of Lot 284 on Crown Plan K1244 contained in Title Reference: 20142101.

An area of about 2410 square metres (including about 652 square metres being part of Easement E on SP213246) being part of Lot 285 on Crown Plan K1244 contained in Title Reference: 20142101.

An area of about 2914 square metres (including about 609 square metres being part of Easement H on SP213246) being part of Lot 87 on Crown Plan K103255 contained in Title Reference: 20285085.

An area of about 3.825 hectares being part of Lot 278 on Crown Plan K1244 contained in Title Reference: 20142101.

An area of about 4.497 hectares (including about 695 square metres being the whole of Easement G on SP213246) being part of Lot 283 on Crown Plan K1244 contained in Title Reference: 20142101.

An area of about 2.412 hectares being part of Lot 22 on SP271091 contained in Title Reference: 50971544.

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An area of about 3.154 hectares (including about 251 square metres being part of Easement A on SP101552) being part of Lot 23 on SP271091 contained in Title Reference: 50971545.

An area of about 1503 square metres being part of Lot 555 on Crown Plan K124168 contained in Title Reference: 21145063.

An area of about 1.977 hectares being part of Lot 91 on Crown Plan K1247 contained in Title Reference: 20878224.

An area of about 3.946 hectares being part of Lot 249 on Crown Plan K1244 contained in Title Reference: 21077207.

An area of about 3.851 hectares being part of Lot 2 on RP713237 contained in Title Reference: 20494087.

An area of 1171 square metres being the whole of Lot 1 on RP713237 contained in Title Reference: 20494086.

An area of about 1.665 hectares being part of Lot 11 on SP239854 contained in Title Reference: 50840211.

An area of about 3.109 hectares being part of Lot 2 on RP732066 contained in Title Reference: 21087189.

An area of about 3.468 hectares being part of Lot 7 on RP903160 contained in Title Reference: 50134871.

An area of about 1.47 hectares (including 82 square metres being the whole of Easement A on RP20723) being part of Lot 1 on RP704740 contained in Title Reference: 21215119.

An area of about 4.615 hectares (including about 3383 square metres being part of Easement B on SP210129 and about 2372 square metres being part of Easement A on RP726924) being part of Lot 1 on RP736042 contained in Title Reference: 21299112.

An area of about 1442 square metres being part of Lot 1 on RP732066 contained in Title Reference: 21565208.

An area of 1134 square metres being the whole of Lot 4 on SP197309 contained in Title Reference: 50667311.

An area of about 2.425 hectares being part of Lot 183 on SP266889 contained in Title Reference: 50996624.

An area of about 2.307 hectares being part of Lot 188 on Crown Plan K1241 contained in Title Reference: 20544083.

An area of about 2.487 hectares being part of Lot 2 on RP720394 contained in Title Reference: 20739032.

An area of about 2.729 hectares being part of Lot 16 on RP855618 contained in Title Reference: 21571216.

An area of about 1.729 hectares being part of Lot 15 on RP855619 contained in Title Reference: 50008707.

An area of about 3072 square metres (including about 300 square metres being part of Easement F on SP241171) being part of Lot 1 on RP702672 contained in Title Reference: 20195120.

An area of about 4.624 hectares being part of Lot 3 on RP702672 contained in Title Reference: 20195121.

An area of about 1.479 hectares (including about 600 square metres being part of Easement G on SP241172, about 1030 square metres being part of Easement B on SP210128 and about 457 square metres being part of Easement A on RP726915) being part of Lot 2 on RP713682 contained in Title Reference: 21313192.

An area of about 6.351 hectares being part of Lot 13 on SP254859 contained in Title Reference: 50891375.

An area of about 4.358 hectares being part of Lot 12 on SP254859 contained in Title Reference: 50891374.

An area of about 3.264 hectares (including about 2879 square metres being part of Easement C on RP722533) being part of Lot 11 on SP254859 contained in Title Reference: 50891373.

An area of about 635 square metres being part of Lot 103 on SP190925 contained in Title Reference: 50676653.

An area of 3641 square metres being the whole of Lot 102 on SP190925 contained in Title Reference: 50676652.

An area of about 1.849 hectares (including about 242 square metres being part of Easement B on RP722534) being part of Lot 1 on RP736046 contained in Title Reference: 21429136.

An area of about 861 square metres being part of Lot 5 on RP728844 contained in Title Reference: 21449001.

As shown approximately on Plans R8-552, R8-554(B), R8-555, R8-556, R8-557, R8-559, R8-560, R8-561, R8-562 and R8-563 held in the office of the Chief Executive, Department of Transport and Main Roads, Brisbane.

Mackay Region
Mackay Ring Road
495/6828, 7241 and 7837 to 7862

ENDNOTES

1. Made by the Governor in Council on 11 August 2016.
2. Published in the Gazette on 12 August 2016.
3. Not required to be laid before the Legislative Assembly.
4. The administering agency is the Department of Transport and Main Roads.

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# Background Information

**District:** Mackay/Whitsunday
**LGA:** Mackay Regional Council
**Job No:** 242/860/1
**Project Description:** Mackay Ring Road Project

© The State of Queensland (DTMR)

## Project Background

Mackay is the major service centre for the mining industry in the Bowen Basin and the developing Galilee Basin. The region is experiencing strong growth predominately associated with expansion of the mining industry in the Bowen Basin. In the Mackay urban centre, the Bruce Highway currently serves conflicting roles as a major urban arterial connection, as well as a vital component of the supply chain for mines in the Bowen Basin. The highway has extensive commercial and residential frontage, resulting in significant levels of interaction between local and regional traffic.

Economic growth in the region is being hampered by poor accessibility, deteriorating levels of service on the highway and poor access to the Port. Safety and urban amenity is also being compromised by the movement of large commercial vehicles, including those shipping hazardous loads, through the centre of Mackay. In May 2011, the Federal Infrastructure and Transport Minister approved funding to investigate a ring road around Mackay with connection to the Port of Mackay. The approved business case recommends construction of a dual carriageway ring road approximately 20km in length, west of the urban area of Mackay, providing connectivity between Stockroute Road in the south, Bald Hill Road in the north and east to the port. The project corridor is illustrated in green in figure ES1 below.

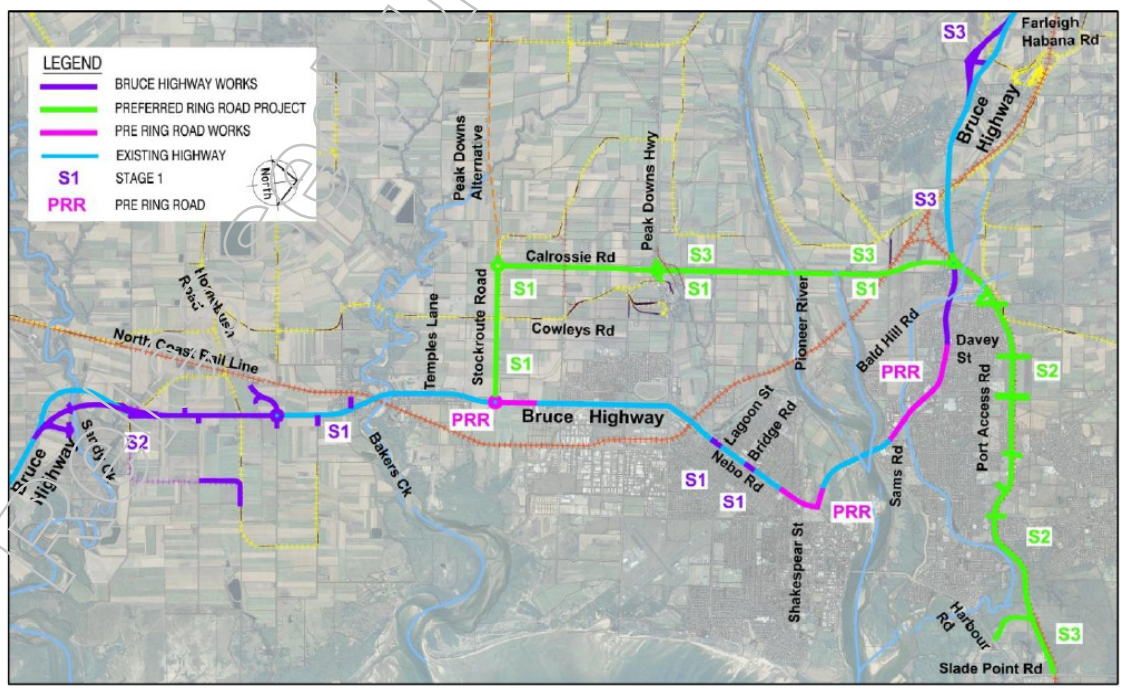


**Figure ES1: Project Location**

## Planning Process

It was determined from several studies that there was a requirement for a bypass around Mackay to ease congestion and re-route the ever growing heavy vehicle volume away from the centre of Mackay. An extensive options analysis was undertaken to determine the best location and formation of the Mackay Ring Road. The outcome of this planning process was to construct the road in 3 smaller stages listed below.

## Project Works

The first stage, which is to be delivered by 2021, involves the construction of an 11.3km section of two lane rural highway style deviation of the Bruce Highway to bypass Mackay from Stockroute Road to Bald Hill Road.

The second stage is to be delivered by 2026. It involves the construction of a 9.5km section of urban arterial style roadway. It will be a two lane section from the Bruce Highway to Harbour Road running parallel to the Erakala-Mackay Harbour rail line.

The third and final stage involves the construction of an additional two lane link to the port. The third stage is dependent upon the port development and subject to its growth and needs to warrant this stage being constructed.

## Project Benefits

The project achieves the service objectives of removing heavy vehicles from the Mackay City centre and improving the efficiency of the network. The project will also improve connectivity and travel times between key trip generators in the city. This includes the Mackay Port and key industrial area, residential and employment areas. It will improve safety and urban amenity of the national network while integrating with the overall road network to provide a whole of network approach to urban congestion management.

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| Resump. Plan No. | (Ref) | Lot | Plan No. | Tenure | Total property area | Area required | Area remaining | Property Owner on Title Search |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | **PROPOSED SOUTHERN ALIGNMENT** |
| not relevant | | | | | | | | |
| R8-559 | 4 | 2 | RP732066 | FH | 13.97 | 3.109 | 10.861 | |
| not relevant | | | | | | | | |

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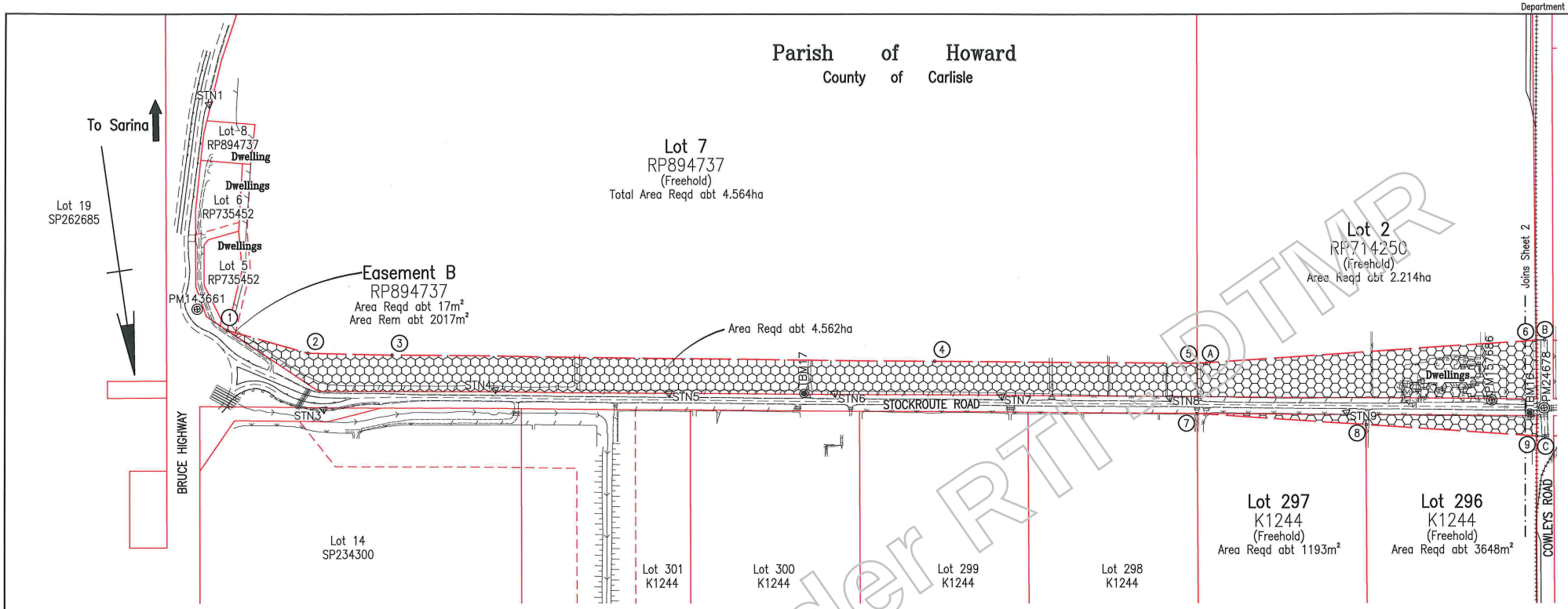
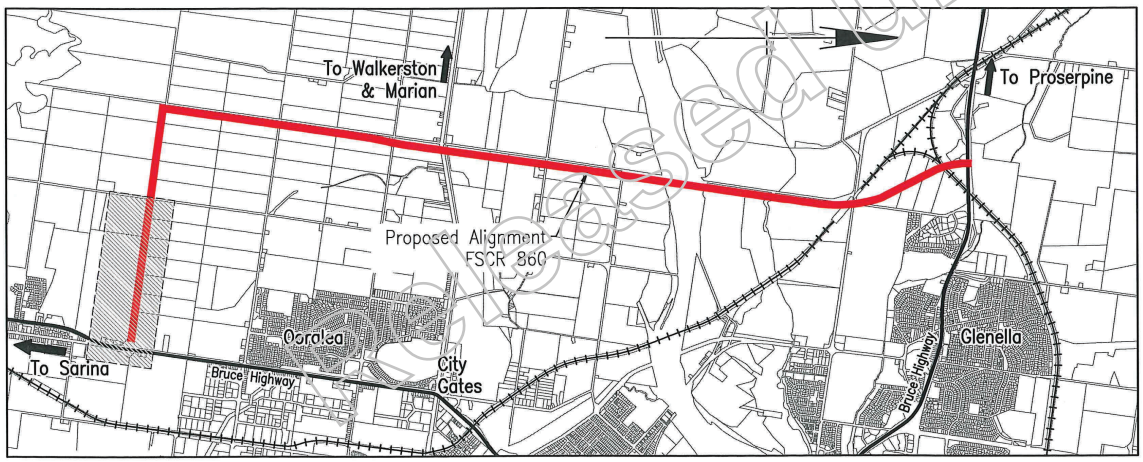
# Parish of Howard
County of Carlisle




## LOCALITY PLAN




## PERMANENT MARKS AND SURVEY STATIONS

| Station | Co-Ordinates | | Description |
|---|---|---|---|
| | Easting | Northing | |
| PM26015 | 723040.066 | 7654115.430 | Brass Plaque |
| PM143661 | 723086.327 | 7654502.370 | Steel Rod |
| TBM17 | 722385.551 | 7654706.470 | Star Picket |
| PM157686 | 721576.867 | 7654833.565 | Steel Rod |
| TBM16 | 721534.532 | 7654855.523 | Ramset |
| PM24678 | 721516.756 | 7654851.988 | Brass Plaque Buried |
| STN1 | 723037.084 | 7654262.911 | Spike |
| STN3 | 722954.303 | 7654642.354 | Spike |
| STN4 | 722748.861 | 7654649.196 | Spike |
| STN5 | 722544.624 | 7654683.278 | Spike |
| STN6 | 722349.537 | 7654711.725 | Spike |
| STN7 | 722153.077 | 7654744.541 | Spike |
| STN8 | 721955.257 | 7654775.373 | Spike |
| STN9 | 721749.926 | 7654822.879 | Spike |
| STN81 | 721458.599 | 7654855.359 | Spike |

## NEW BOUNDARY POINTS

| Point | Co-Ordinates | | Remark |
|---|---|---|---|
| | Easting | Northing | |
| 1 | – | – | On Boundary Corner |
| 2 | 722962.924 | 7654573.307 | |
| 3 | 722864.350 | 7654590.136 | |
| 4 | 722226.092 | 7654691.568 | |
| 5 | – | – | On Boundary on Line 9–A |
| 6 | – | – | On Boundary on Line 5–B |
| 7 | – | – | On Boundary Corner |
| 8 | – | – | On Boundary on Line 7–C |
| 9 | – | – | On Boundary on Line 8–C |

## SETOUT POINTS

| Point | Co-Ordinates | |
|---|---|---|
| | Easting | Northing |
| A | 721905.952 | 7654740.730 |
| B | 721504.370 | 7654771.441 |
| C | 721520.315 | 7654885.810 |

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| G | | | | | | | |
| F | | | | | | | |
| E | | | | | | | |
| D | | | | | | | |
| C | | | | | | | |
| B | Boundary revised | | | | | | |
| A | Original Issue A3 | | | | | | |
| Revisions/Descriptions | | Certification | Date | Microfiled | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 4 | K1244 | 296 | Freehold | Transport, in particular, road | 3648m² | 11.776ha |
| 3 | K1244 | 297 | Freehold | Transport, in particular, road | 1193m² | 12.022ha |
| 2 | RP714250 | 2 | Freehold | Transport, in particular, road | 2.214ha | 17.901ha |
| 1 | RP894737 | 7 | Freehold | Transport, in particular, road | 4.564ha | 63.976ha |
| | | | | Includes abt 17m² of Easement B | | |
| File Ref. | Plan No. | Lot No. | Tenure And Purpose Of Requirement | | Area Reqt. | Area Rem. |
| File Reference And Resumption Details | | | | | Area Required Shown Thus | |
| Cadastral Map | 8755–4133 | | Parish of | Howard | County of | Carlisle |

| Survey Data | |
|---|---|
| Datum | GDA94 |
| Horiz. Datum | MGA94 ZONE 55 |
| Height Datum | AHD DERIVED |
| Survey Books | MR94213 |
| Mapping Transfer | |

Scales
0 25 50 75 100m

Dimensions in metres except where shown otherwise. Areas in hectares (ha) or square metres (m2).

MACKAY REGIONAL COUNCIL
MACKAY RING ROAD
Auxiliary drawings: 650500; 678175 – 678185 (Inclusive)

| Drawing | Reqmts. | TMR Review | Resumption Requirements Approved |
|---|---|---|---|
| JH | DS | Original signed by A. Blines | Original signed by P. Aprile |
| Checked | Checked | Date: 28/07/2015 | 28/7/2015 |
| DS | WW | | |

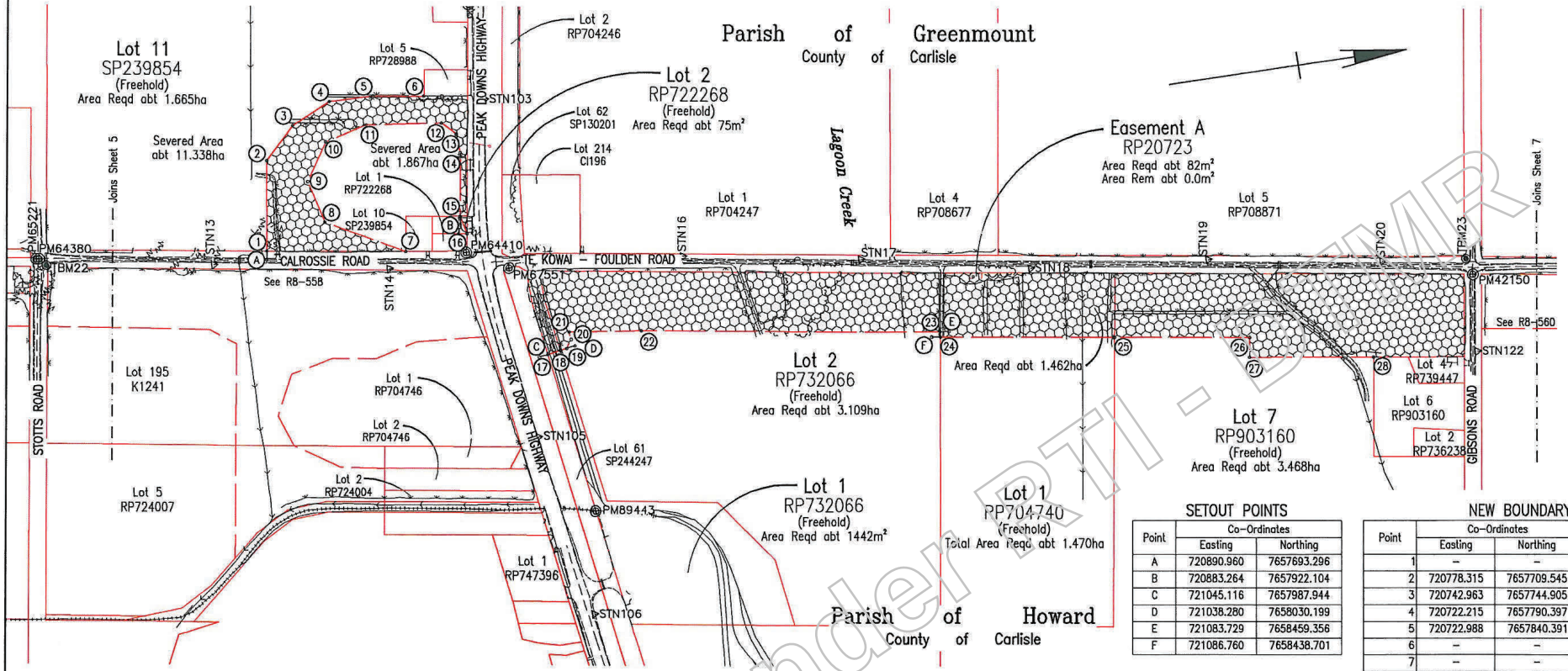
Queensland Government

| | |
|---|---|
| Job No. | 242/860/1 |
| Resumption Plan No. | R8–554 |
| Drawing No. | 678174 B |
| Series Number | 1 of 10 |
| | MRR_Resumption (02/11) |

Last Modified: Sep 03, 2015 – 2:29pm

CAD FILES | G:\MKYD\RIP Projects\Const Rehab MWks\242_860_1 & 242_10G_906\2 – Development\Drawings\Autocad\Resumptions\RESUMPTION PLANS – Stand678174–RP_RevB.dwg

r_135-05215 part 1.pdf - Page Number: 7 of 46



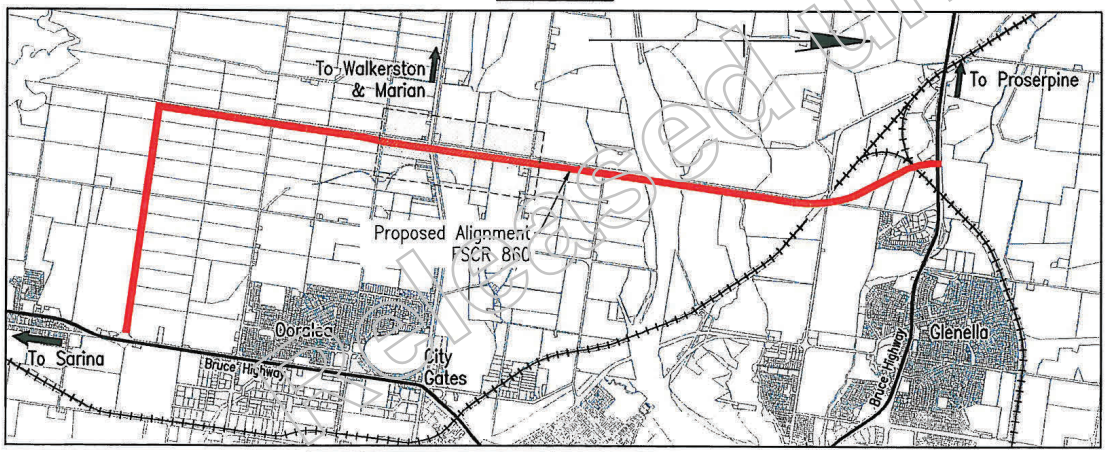

## SETOUT POINTS

| Point | Co-Ordinates | |
|---|---|---|
| | Easting | Northing |
| A | 720890.960 | 7657693.296 |
| B | 720883.264 | 7657922.104 |
| C | 721045.116 | 7657987.944 |
| D | 721038.280 | 7658030.199 |
| E | 721083.729 | 7658459.356 |
| F | 721086.760 | 7658438.701 |

## NEW BOUNDARY POINTS

| Point | Co-Ordinates | | Remark |
|---|---|---|---|
| | Easting | Northing | |
| 1 | – | – | On Boundary on Line A–2 |
| 2 | 720778.315 | 7657709.545 | |
| 3 | 720742.963 | 7657744.905 | |
| 4 | 720722.215 | 7657790.397 | |
| 5 | 720722.988 | 7657840.391 | |
| 6 | – | – | On Boundary Corner |
| 7 | – | – | On Boundary Corner |
| 8 | 720857.158 | 7657765.852 | |
| 9 | 720808.832 | 7657753.021 | |
| 10 | 720766.717 | 7657779.971 | |
| 11 | 720754.291 | 7657828.403 | |
| 12 | 720764.657 | 7657913.921 | |
| 13 | 720779.580 | 7657929.359 | |
| 14 | 720801.205 | 7657930.645 | |
| 15 | – | – | On Boundary on Line 14–B |
| 16 | – | – | On Boundary Corner |
| 17 | – | – | On Boundary on Line C–D |
| 18 | – | – | On Boundary on Line C–D |
| 19 | 721039.877 | 7658020.327 | |
| 20 | 721030.476 | 7658027.110 | |
| 21 | 721021.856 | 7658025.715 | |
| 22 | 721032.176 | 7658108.405 | |
| 23 | – | – | On Boundary on Line 22–E |
| 24 | – | – | On Boundary on Line F–26 |
| 25 | – | – | On Boundary on Line F–26 |
| 26 | 721140.104 | 7658801.870 | |
| 27 | 721162.405 | 7658798.554 | |
| 28 | – | – | On Boundary Corner |

## LOCALITY PLAN




## PERMANENT MARKS AND SURVEY STATIONS

| Station | Co-Oridinates | | Description |
|---|---|---|---|
| | Easting | Northing | |
| PM65221 | 720853.171 | 7657430.893 | Brass Plaque Buried |
| PM64380 | 720853.744 | 7657434.655 | Star Picket Buried |
| TBM22 | 720862.110 | 7657441.856 | Screw |
| TBM23 | 721087.14 | 7659060.76 | Star Picket |
| PM64410 | 720915.104 | 7657921.144 | Star Picket |
| PM67551 | 720939.611 | 7657967.475 | Star Picket |
| PM89443 | 721228.732 | 7658026.795 | Brass Plaque |
| PM42150 | 721106.05 | 7659066.12 | Star Picket Buried |
| STN13 | 720888.089 | 7657632.067 | Spike |
| STN14 | 720921.211 | 7657831.206 | Spike |
| STN103 | 720745.076 | 7657966.922 | Spike |
| STN105 | 721135.987 | 7657973.967 | Spike |
| STN106 | 721344.871 | 7658009.017 | Spike |
| STN16 | 720954.601 | 7658168.207 | Spike |
| STN17 | 720986.996 | 7658371.038 | Spike |
| STN18 | 721025.869 | 7658562.904 | Spike |
| STN19 | 721045.547 | 7658767.341 | Spike |
| STN20 | 721075.966 | 7658964.542 | Spike |
| STN122 | 721193.721 | 765905B.794 | Spike |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 6 | RP903160 | 7 | Freehold | Transport, in particular, road | 3.468ha | 25.142ha |
| 5 | RP704740 | 1 | Freehold | Transport, in particular, road Includes abt 82m² of Easement A | 1.470ha | 6.624ha |
| 4 | RP732066 | 2 | Freehold | Transport, in particular, road | 3.109ha | 10.861ha |
| 3 | RP732066 | 1 | Freehold | Transport, in particular, road | 1442m² | 2.759ha |
| 2 | RP722268 | 2 | Freehold | Transport, in particular, road | 75m² | 734m² |
| 1 | SP239854 | 11 | Freehold | Transport, in particular, road | 1.665ha | 13.205ha |
| File Ref. | Plan No. | Lot No. | Tenure And Purpose Of Requirement | | Area Reqt. | Area Rem. |

File Reference And Resumption Details — Area Required Shown Thus

Cadastral Map 8755–4133 | Parish of Howard/Greenmount | County of Carlisle

| Survey Data | |
|---|---|
| Datum | GDA94 |
| Horiz. Datum | MGA94 ZONE 55 |
| Height Datum | AHD DERIVED |
| Survey Books | MR94213 |

Working drawings

Scales: 0 25 50 75 100m

Dimensions in metres except where shown otherwise. Areas in hectares (ha) or square metres (m2).

MACKAY REGIONAL COUNCIL
MACKAY RING ROAD
Auxiliary drawings: 650500; 678174 – 678178, 678180 – 678185 (inclusive)

| Drawing | Reqmts. | TMR Review | Resumption Recommended |
|---|---|---|---|
| JH | DS | [redacted] | |
| Checked | Checked | Date | |
| DS | WW | | |

Queensland Government

| | |
|---|---|
| Job No. | 242/860/1 |
| Resumption Plan No. | R8–559 |
| Drawing No. | 678179 A |
| Series Number | 6 of 10 |
| | MRR_Resumption (02/11) |

| | | | | | |
|---|---|---|---|---|---|
| G | | | | | |
| F | | | | | |
| E | | | | | |
| D | | | | | |
| C | | | | | |
| B | | | | | |
| A | Original Issue A3 | | | | |
| | Revisions/Descriptions | Certification | Date | Microfiled | |

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Last Modified: – Jul 28, 2015 – 10:01am

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## Glenroy S Dillon

**From:** [redacted]@htw.com.au>
**Sent:** Wednesday, 31 August 2016 4:27 PM
**To:** Glenroy S Dillon
**Subject:** Re: Mackay Ring Road Project (MRRP) valuation quote
**Attachments:** quotation_document.pdf; Detailed Quotation - Compensation Assessments - Mackay Ring Road Project.pdf

**Follow Up Flag:** Follow up
**Flag Status:** Flagged

Glen,

Thanks for your enquiry.

Our quotation not relevant (including GST) on the basis that title searches will be provided by TMR.

Please refer to the document 'Detailed Quotation' for the individual quotations. As discussed we have not quoted on leasehold land (i.e Road Licenses) and land held by the State. We have provided a single quote for aggregations of adjoining / adjacent lots held in common ownership and the individual quotations for these are detailed in the attached schedule against the last lot held.

Also we have attached our standard quotation and acceptance document containing our preferred payment terms.

My involvement in resumption matters includes:-

- assessments for your department over the past 12 months including Bruce Highway / Careys Creek overtaking lane, Mirani - Mount Ossa Road and Peak Downs Highway / Eton Range
- attendance at a without prejudice conference with your department - Bruce Highway / Hay Point turnoff Alligator Creek
- various resumption matters for Emerald Shire Council, Peak Downs Shire Council, Belyando Shire Council, Mackay Regional Council, Whitsunday Regional Council, Capelec, Ergon and Queensland Rail from 1993
- mining compensation assessment - 'Wollombi Station', Glenden

Land court attendance has involved statutory valuations objections. I have also attended several without prejudice conferences on statutory valuation matters.

Yours faithfully,

[redacted] | FAPI - Certified Practising Valuer
Director

T 07 4957 7348 | M [redacted]
E [redacted] htw.com.au

25 River Street, Mackay, QLD, 4740
PO Box 865, Mackay, QLD, 4740

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HERRON TODD WHITE | www.htw.com.au

On 24 August 2016 at 14:11, Glenroy S Dillon <Glenroy.S.Dillon@tmr.qld.gov.au> wrote:

Hi

The department has recently resumed land by gazette notice of 12 August 2016 for the MRRP. Due to the size of the documents, I am sending the information to you via Own Cloud.

Please provide a quote for valuation/compensation assessments for the properties that have been impacted.

TMR will need a quote for each property ownership, plus a total quote amount, as shown on a list that I will provide to you via Own Cloud.

Should your tender be successful then the department will send you a formal notification and the appropriate documents.

To assist the department in this process please provide brief details of your involvement in resumption matters including details of Land Court experience.

You will shortly receive an email that provides a link to Own Cloud. The password to access the information you will need for the MRRP quote is

Please keep this password secure and treat the information provided as confidential. Your access to this information will expire on 31 August 2016.

The department will need to receive your quote before close of business 2 September 2016.

If you require any further information please contact myself.

Kind regards,

Released under RTI - DTMR

**Glen Dillon**
A/Area Manager | Strategic Property Management / Property Acquisitions & Disposals
**Portfolio Investment & Programming** | Department of Transport and Main Roads

Floor 2 | Carseldine - GOP Building D | 532 Beams Road | Carseldine Qld 4034
GPO Box 1412 | Brisbane Qld 4001
P: (07) 30666958 | F: (07) 30668228
M
E: glenroy.s.dillon@tmr.qld.gov.au
W: www.tmr.qld.gov.au

**********
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**********

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31 August 2016

Glen Dillon
Department of Transport and Main Roads
GPO Box 1412
Brisbane QLD 4001

Email: Glenroy.S.Dillon@tmr.qld.gov.au

Our Ref: EQ85426

Dear Glen

**INDEPENDENT PROPERTY VALUATION**

Thank you for your enquiry and the opportunity to be of service to you.

Please find attached our instruction and authorisation form. It's important that you read and understand this material as it makes it clear about which entity in our Group is providing the service(s) you are ordering and also our terms and conditions.

For us to commence this assignment we need you to do the following:

- Check that all details we have entered on the forms are correct. If any amendments or further information is required please handwrite them in the relevant area;
- Sign and complete the payment details on the authorisation form;
- Return both forms to our office by fax, post or email;
- Make your payment by credit card, cheque or direct deposit using this quote number EQ85426 as your reference.

Once we receive this information we will begin preparing a file and contact the nominated person for access to arrange a convenient time for the inspection. Following the inspection, we will complete your written report and forward it to you. If at any stage during this process you have any concerns or further queries, please contact the author of this letter to discuss.

For your information we have also included a facts sheet which provides information on the complete range of professional property services we offer. As a valued customer it also gives you the opportunity to receive our monthly property market report on a complimentary basis.

Once again we thank you for this opportunity and look forward to being of assistance with your property decisions. Please note that this quotation is valid for 30 days.

Yours faithfully

Director

Released under RTI - DTMR

**Mackay**
Herron Todd White (Central QLD) Pty Ltd
ABN 57 608 235 507
25 River Street
Mackay QLD 4740
PO Box 865
Mackay QLD 4740
Telephone 07 4957 7348
mackay@htw.com.au
htw.com.au

# INSTRUCTION FORM – INDEPENDENT PROPERTY VALUATION

In order to proceed with the valuation please complete the required information and return this instruction form to the relevant office as detailed below.

| | |
|---|---|
| **Office:** | Herron Todd White (Central QLD) Pty Ltd |
| **Postal address:** | PO Box 865<br>Mackay QLD 4740 |
| **Fax:** | 07 4951 2621 |
| **Email:** | mackay@htw.com.au |

## . Consultancy Advice Road, Mackay QLD 4740 ()

| | |
|---|---|
| **Purpose/Approach** | Acquisition / Resumption (Market Value) |
| **Reporting Contact** | Department of Transport and Main Roads |
| **Type of property** | Rural-Sugar Cane |
| **Servicing Office** | Mackay Ph: 07 4957 7348 |
| **Access arrangements**<br>Contact Person<br>Work Phone<br>Home Phone<br>Mobile<br>Email<br>Comments | |
| **Total Fee (Incl GST)** | not relevant |

### Information required by Herron Todd White to complete the valuation include

- At this time no additional information is required

### Special instructions for Herron Todd White in respect of the valuation

### Upon completion of the valuation report please provide it by

- Email

### Turnaround comments

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# AUTHORISATION - INDEPENDENT PROPERTY VALUATION

**Authorisation**

I hereby accept the conditions of engagement for services (below) and confirm engagement of to perform the services as detailed.

Signed: Date:

**I authorise Herron Todd White (Central QLD) Pty Ltd to provide an independent valuation as detailed.**

| My details are as follows | |
|---|---|
| **Name** | Glen Dillon, Department of Transport and Main Roads |
| **Postal address** | GPO Box 1412 Brisbane QLD 4001 |
| **Contact telephone** | (07) 3066 6958 |
| **Mobile** | |
| **Email** | Glenroy.S.Dillon@tmr.qld.gov.au |

**Properties to be valued**

☐ **. Consultancy Advice Road, Mackay QLD 4740 ()**

| | |
|---|---|
| **Valuation Fee** | |
| **Total** | |
| **Total Fee (Incl GST)** | |

not relevant

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# AUTHORISATION – INDEPENDENT PROPERTY VALUATION

| | |
|---|---|
| Client | |
| Total Fee | not relevant |
| **Individual invoices will be issued on completion of each assessment. Payment is required within 30 days of issuing each invoice.** | |
| ☐ **Tax Invoice Required for Upfront Payment** (tick if you require a Tax Invoice to pay against) | |
| **Payment can be made by** | |
| ☐ Cheque payable to Herron Todd White (Central QLD) Pty Ltd (enclose and return with this form) | |
| ☐ Credit Card* | ☐ Mastercard ☐ Visa |
| Credit card number | _____/_____/_____/_____ |
| Expiry date | _____/_____ |
| CVV | _____ |
| Cardholder name | |
| Signature<br>Fee Payable | not relevant |
| ☐ Direct Deposit - please use Quote No. EQ85426 as the reference. | |
| Date deposited<br>Bank<br>BSB<br>Account name<br>Account number<br>Fee Payable<br>Fee comments | not relevant |

** An additional payment processing fee of 1.5% applies to all Visa and Mastercard credit card payments.*

Herron Todd White reserves the right to add any costs incurred in the process of collecting unpaid monies to the outstanding amount. These recovery costs may include, but are not limited to, collection agency fees or commissions, legal fees, postage, couriers, dishonor fees, bank fees.

Herron Todd White has provided this quotation on the estimate given. Herron Todd White reserves the right to amend this quotation should the estimate not reflect the current market value of the property. Herron Todd White also reserves the right to charge a fee in the event that an in-progress job is cancelled. This fee will range from 25% to 100% of the quoted amount, based on the stage of completion.

The Client will not rely or be able to rely on the valuation until payment is made in full, or if it does so rely without our express consent, then it warrants that in doing so it does rely at it's own risk on basis that it accepts that we do not accept or assume responsibility for the valuation, and that in doing so there is a total failure of consideration in respect to that valuation service in respect to that retainer.

**Office Use Only:**

Invoice No: Processed By:

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Payment Rec  Date

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# INSTRUCTION FORM – INDEPENDENT PROPERTY VALUATION

## Conditions of engagement for valuation services

1. **Use & Reliance**
   1. The valuation will be for the use only of the party named in the valuation report to whom it is addressed and has been prepared for the use only nominated in the valuation report and no other purpose. No responsibility will be extended to any third party (including any party who may have paid the fee) who may use or rely on the whole or any part of the valuation of the property described in the valuation report.
   2. Valuation reports may only be re-assigned within 90 days from the date of the valuation and additional charges will apply. Any re-assignment requested outside of 90 days will require an updated valuation report to be prepared in all circumstances. The fee for such an updated valuation would be commensurate with the work required. Herron Todd White reserves the right to decline any request for re-assignment. Please note some lenders prohibit valuers from re-assigning valuations to the lender and in these circumstance we can only assign valuations to these lenders when we have been instructed directly by the lender.
   3. The valuation will be current as at the date of valuation only. The value assessed may change significantly and unexpectedly over a relatively short period (including as a result of general market movements or factors specific to the particular property). We do not accept liability for losses arising from such subsequent changes in value. Without limiting the generality of the above comment, we do not assume any responsibility or accept any liability where the valuation is relied upon after the expiration of 90 days from the date of the valuation, or such earlier date if you become aware of any factors that have any effect on the valuation. However, it should be recognised that the 90 day reliance period does not guarantee the value for that period; it always remains a valuation at the date of valuation only.
   4. Neither the whole nor any part of the valuation or any reference thereto may be included in any published documents, circular or statement, nor published in any part or in full in any way, without the written approval of Herron Todd White.
   5. Herron Todd White is not operating under an Australian Financial Service Licence and the valuation will not constitute as financial product advice. Herron Todd White is not a registered tax agent and the valuation will not constitute as tax advice.
   6. Herron Todd White does not assume responsibility for any documents that do not bear an original signature.
2. **Disclosure**
   1. The Instructing Party accepts its responsibility for full disclosure of relevant information and undertakes to provide all documents in its possession that may have an effect on the service to be provided.
3. **Fee**
   1. Herron Todd White has provided this quotation on the estimate given. Herron Todd White reserves the right to amend this quotation should the estimate not reflect the current market value of the property.
   2. Herron Todd White also reserves the right to charge a fee in the event that an in-progress job is cancelled. This fee will range from -
      25% of the proposed fee amount for completion of file preparation and searches;
      50% of the proposed fee amount for completion of file preparation, searches and inspection; and
      100% of the proposed fee amount for completion of file preparation, searches, inspection and draft report.
   3. In the event of a cancellation, no drafts or working papers will be provided.
   4. Our quote assumes the provision of 2 copies however additional copies can be provided at a cost of $55.00 per copy.
   5. Herron Todd White reserves the right to add any costs incurred in the process of collecting unpaid monies to the outstanding amount. These recovery costs may include, but are not limited to, collection agency fees or commissions, legal fees, postage, couriers, dishonour fees, bank fees.
   6. The fee in this quote is only valid for 30 days from the date of the quote.
   7. Herron Todd White reserves the right to charge additional fees for costs associated with the provision of a valuation for the purposes of Family Law Settlement, Rental Determination, Arbitration or any other Court or Tribunal matter. Additional fees will be charged for matters including, but not limited to court appearances, preparation of witness statements and reports.
4. **Valuation Basis, Searches & Assumptions**
   1. The basis of the valuation will be market value which is defined as "the estimated amount for which a property should exchange between a willing buyer and willing seller in an arm's length transaction after proper marketing wherein the parties had each acted knowledgeably and without compulsion".
   2. The interest to be valued will be assumed as freehold subject to no easements, encumbrances and interests unless noted otherwise in the schedule. Herron Todd White reserves the right to qualify the valuation report accordingly.
   3. Herron Todd White will not, unless noted otherwise in the instruction, undertake any search of the title details of the property or search any Federal, State or Local Government Authorities or agencies to determine the existence of any existing or proposed interests, schemes or conditions that may impact upon the valuation of the property and therefore it is the responsibility of the instructing party to undertake their own searches in this regard. Accordingly, Herron Todd White does not accept responsibility or liability for any incorrect information contained in the valuation report because of a failure to undertake the searches.
   4. Due to time delays in obtaining certain information (eg. town planning information) Herron Todd White may rely on verbal inquiries in these circumstances and qualify the valuation report accordingly.
   5. The valuation report will not purport to be a site survey or structural survey of the land or improvements thereon, nor will any such survey be carried out. Any opinion as to the condition of the improvements is not given as an expert and should not be relied upon.
   6. The valuation report will assume that no environmental conditions affect the property and unless advised otherwise in the schedule, Herron Todd White reserves the right to qualify the valuation report accordingly.
   7. If the property is subject to a Community Management Scheme, our valuation will be assessed without knowledge of any orders against the Community Management Scheme/Body Corporate. Should any be found from formal searches, we reserve the right to amend this valuation accordingly.
   8. Herron Todd White reserves the right to qualify the valuation report when instructions are subject to assumptions.
5. **Additional Terms & Conditions Relating to Specific Valuations**.
   If Herron Todd White is instructed to provide:
   1. A valuation for **Mortgage Security Purposes** then the valuation may be relied upon for first mortgage purposes only. Unless the person or entity making the loan is an authorised deposit taking institution within the meaning of the Banking Act 1959 (including but not limited to any bank, building society or credit union), the valuation will be subject to the following 'Prudent Lender' clause; "this valuation is prepared on the assumption that the Lender as referred to in the valuation report (and no other) may rely on the valuation for mortgage finance purposes and the lender has complied with its own lending guidelines as well as prudent finance industry lending practices, and has considered all prudent aspects of credit risk for any potential borrower, including the borrower's ability to service and repay any mortgage loan. Further, the valuation is prepared on the assumption that the lender is providing mortgage financing at a conservative and prudent loan to value ratio." Any mortgagee intending to rely upon the valuation must seek an express written authorisation from Herron Todd White and we will not accept any responsibility or liability for reliance upon the valuation without such an authorisation. Herron Todd White accepts no responsibility for the valuation should it be used for the purpose of securing funds through a solicitor lender who induces the lending of money on mortgage security. Herron Todd White reserves the right to qualify the valuation accordingly.
   2. A valuation for **Family Law Settlement, Rental Determination, Arbitration or Litigation** then the Instructing Party agrees to 'hold harmless' Herron Todd White and its servants and agents, and agrees that it will have no cause of action against Herron Todd White and its servants and agents, whether in contract, tort or otherwise, by reason only that the client suffered loss or damage by relying upon a valuation as an expert valuer for a Family Law Dispute, Rental Determination, Arbitration, Litigation or other dispute then the Instructing Party agrees not to sue, make demand or commence any legal proceedings whatsoever against Herron Todd White, its servants and agents in relation to the valuation. The instructing party agrees to indemnify Herron Todd White in relation to any claim brought against Herron Todd White in any way connected with the valuation by any party (including the Instructing Party).
   3. A valuation for **Insurance Purposes** then the Instructing Party accepts the valuer will not be a construction and/or structural engineering expert and therefore the value should be taken as indicative only as to what the reinstatement value of the improvements may be. A precise estimate should be provided by a construction/structural or quantity surveying expert.
   4. A **Restricted (kerbside) Valuation** then the Instructing Party accepts a restricted valuation does not involve an internal inspection of the improvements nor an inspection of external areas of the property which are not visible from the road. The Instructing Party accepts the valuer will not carried out the usual range of enquiries that a valuer is required to make by professional practice standards in determining a valuation of property, and that this is at the specific request of the Instructing Party. The Instructing Party fully understands the risks inherent in relying upon a valuation carried out in such circumstances. The Instructing Party agrees to 'hold harmless' Herron Todd White and its servants and agents, and agrees that it will have no cause of action against Herron Todd White and its servants and agents, whether in contract, tort or otherwise, by reason only that the client suffered loss or damage by relying upon a restricted valuation.
   5. A **Desktop Assessment** then the Instructing Party accepts a desktop assessment does not involve a physical inspection of the property and only provides an indication of the value of the subject property and is not a representation as to the Market Value of the subject property. The Instructing Party accepts that a desktop assessment is not, and will not, be construed to be a valuation in the same meaning as a valuation conducted in accordance with the general concepts, principles and definitions as detailed in the standards promulgated by the Australian Property Institute, which is based on an inspection of the subject property. The Instructing Party accepts that desktop assessment methodology carries with it risks which entail a degree of likely variation greater than would be expected to be produced by a valuation that came about as a result of a physical inspection. The Instructing Party agrees to 'hold harmless' Herron Todd White and its servants and agents, and agrees that it will have no cause of action against Herron Todd White and its servants and agents, whether in contract, tort or otherwise, by reason only that the client suffered loss or damage by relying upon a desktop assessment.
   6. A valuation and/or a letter for the purposes to be published in a **Prospectus / Information Memorandum** then neither the full valuation report nor any accompanying letter may be reproduced in whole or in part without prior written approval of Herron Todd White, apart from use within the agreed Prospectus / Information Memorandum. The Instructing Party agrees for Herron Todd White to disclaim within the full valuation report and any accompanying letter; (a) any liability to any party including investors in the event of an omission from, or false and misleading statements included in the Prospectus / Information Memorandum, other than in respect to our formal valuation and any accompanying letter, and (b) disclaim that the full valuation report and any accompanying letter has been prepared on the basis that the financial and other information (including market information and third party information) is accurate, reliable and complete and confirm that we have not tested the information in that respect, and (c) disclaim that the full valuation report and any accompanying letter will be strictly limited to the matters contained within those documents, and will not to be read as extending, by implication or otherwise, to any other matter in the Prospectus / Information Memorandum. Without limitation to the above, no liability will be accepted for any loss, harm, cost or damage (including special consequential or economic harm or loss) suffered as a consequence of fluctuations in the real estate market subsequent to the date of valuation, and (d) any accompanying letter that is provided will state that it must be read in conjunction with our formal valuation report and is subject to the assumptions, limitations and disclaimers contained therein, and we will refer the reader to the Instructing Party.
6. **Warranties & Indemnities**
   1. For its part and in consideration of payment of the agreed fee, Herron Todd White will make best endeavours to provide, subject to the above, the valuation services it has been commissioned to undertake by the Instructing Party in accordance with recognised principles and practices of valuation.
   2. To the extent that it is able under the Competition and Consumer Protection Act, Herron Todd White limits its liability for breach of condition or warranty under this agreement and its liability for breach of a duty of care to the re-supply of the services or an amount equivalent to the cost of having the services supplied again.
   3. Our liability is limited by a scheme approved under Professional Standards Legislation. The scheme does not apply within Tasmania.
   4. The entity providing the service set out in this quote is solely the entity named on this quote (with its associated ACN/ABN). No other entity forming part of or associated with the Herron Todd White Group is liable. From time to time, the associated invoice for services may be issued by another Herron Todd White entity other than the service-providing entity named on this annexure. If this occurs, no professional liability is extended to the entity named on the invoice.

Property Under Order RTI - DTMR

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HERRON TODD WHITE

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## PROVIDING PEACE OF MIND

Herron Todd White is Australia's leading property valuation and advisory group. For more than 45 years, we've helped our customers make the most of their property assets by providing sound valuations and insightful analytical advice.

***Professional***

Our people are qualified valuers, quantity surveyors and other allied property professionals.

***Independent***

We provide professional property services for an agreed fee. The advice we provide is totally independent, impartial and current.

***Experienced***

We operate in the property market everyday so we have the knowledge to give you the advantage in your property decisions.

## WHAT WE CAN DO FOR YOU

Herron Todd White offers a range of professional property services, including:

***Independent property valuations;***

***Commercial, Rural, Residential***

To provide peace of mind in many situations, including:

- Pre-purchase advisory (residential and commercial buyers and investors)
- Pre-sale advisory (property sellers)
- Settlement (marital or partnership)
- Mortgage security
- Transfer duty or capital gains tax
- Insurance replacement assessments

***Tax depreciation schedules***

- For investors to maximise the financial returns from investment properties
- Cost of schedule usually recouped in the first year of tax savings
- Full inspection to identify all depreciable items
- User friendly report
- All investment properties qualify regardless of age.

*Offices*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
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| Brisbane | Alice Springs | Cairns | Gold Coast | Leeton | Orange | NSW Southern Highlands | Wagga Wagga |
| Melbourne | Bairnsdale | Coffs Harbour | Goondiwindi | Lismore | Port Augusta | Sunshine Coast | Warrnambool |
| Canberra | Ballarat | Deniliquin | Gosford | Mackay | Port Elliot | Tamworth | Whitsundays |
| Perth | Bathurst | Dubbo | Griffith | Mildura | Port Macquarie | Toowoomba | Wollongong |
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## KEEP IN TOUCH WITH YOUR LOCAL PROPERTY MARKET!

To receive our complimentary newsletters and reports on current property issues and the local property market, please complete and return this form by fax *1300 880 274*, email *htwa@htw.com.au* or post *Herron Todd White, PO Box 61, Chermside South QLD 4032*. Alternatively, you can visit our website and subscribe as *www.htw.com.au/Newsletter/*

| Name | Email address |
|---|---|
| | |

| Contact telephone | Occupation | Company |
|---|---|---|
| | | |

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not relevant

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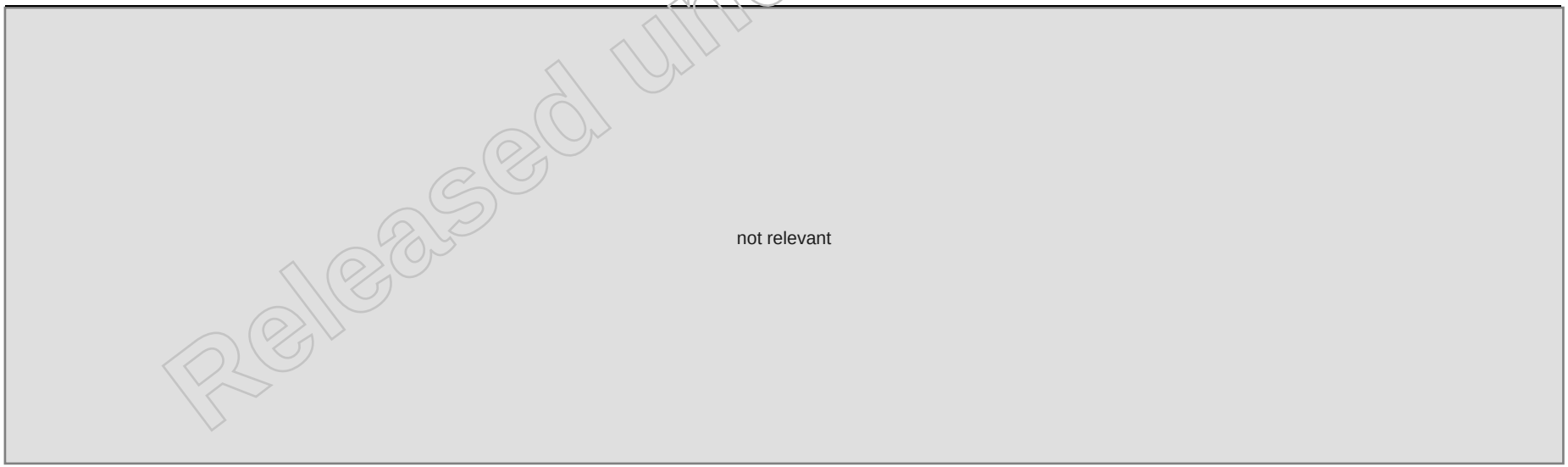


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## Glenroy S Dillon

**From:** Glenroy S Dillon
**Sent:** Tuesday, 6 September 2016 3:46 PM
**To:** [redacted]@htw.com.au'
**Cc:** Mark P Jones
**Subject:** Letter of Instruction
**Attachments:** img-906153852-0001.pdf

**Follow Up Flag:** Follow up
**Flag Status:** Flagged

Hi [redacted]

I have not yet attached the documents referred to in the letter.

As soon as they are available I will send them to you.

Kind regards,

**Glen Dillon**
Principal Property Officer | Strategic Property Management / Property Acquisitions & Disposals
**Portfolio Investment & Programming** | Department of Transport and Main Roads

Floor 2 | Carseldine - GOP Building D | 532 Beams Road | Carseldine Qld 4034
GPO Box 1412 | Brisbane Qld 4001
P: (07) 30666958 | F: (07) 30668228
M
E: glenroy.s.dillon@tmr.qld.gov.au
W: www.tmr.qld.gov.au

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# Queensland Government Gazette

**TRANSPORT AND MAIN ROADS**

**PUBLISHED BY AUTHORITY**

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**VOL. 372]** **FRIDAY 12 AUGUST 2016** **[NO. 82**


Released under RTI - DTMR

*Acquisition of Land Act 1967*
*Transport Infrastructure Act 1994*
*Transport Planning and Coordination Act 1994*

**TAKING OF LAND NOTICE (No. 3003) 2016**

**Short title**

1. This notice may be cited as the *Taking of Land Notice (No. 3003) 2016*

**Land to be taken [s.9(6) of the *Acquisition of Land Act 1967*]**

2. The land described in the Schedule is taken for the purpose of transport, in particular, road purposes, and vests in the Chief Executive, Department of Transport and Main Roads, as constructing authority for the State of Queensland, for an estate in fee simple.

**SCHEDULE**

**Land Taken**

An area of 3.796 hectares (including 1321 square metres being the whole of Easement B on SP190925 and 59 square metres being the whole of Easement C on RP722533) being the whole of Lot 100 on SP190925 contained in Title Reference: 50676650.

An area of about 2.214 hectares being part of Lot 2 on RP714250 contained in Title Reference: 20486045.

An area of about 4.564 hectares (including about 17 square metres being part of Easement B on RP894737) being part of Lot 7 on RP894737 contained in Title Reference: 50125576.

An area of about 3648 square metres being part of Lot 296 on Crown Plan K1244 contained in Title Reference: 20316037.

An area of about 1193 square metres being part of Lot 297 on Crown Plan K1244 contained in Title Reference: 20316037.

An area of about 2412 square metres being part of Lot 286 on Crown Plan K1244 contained in Title Reference: 21050025.

An area of about 3618 square metres being part of Lot 287 on Crown Plan K1244 contained in Title Reference: 21050025.

An area of about 2410 square metres (including about 640 square metres being part of Easement F on SP213246) being part of Lot 284 on Crown Plan K1244 contained in Title Reference: 20142101.

An area of about 2410 square metres (including about 652 square metres being part of Easement E on SP213246) being part of Lot 285 on Crown Plan K1244 contained in Title Reference: 20142101.

An area of about 2914 square metres (including about 609 square metres being part of Easement H on SP213246) being part of Lot 87 on Crown Plan K103255 contained in Title Reference: 20285085.

An area of about 3.825 hectares being part of Lot 278 on Crown Plan K1244 contained in Title Reference: 20142101.

An area of about 4.497 hectares (including about 695 square metres being the whole of Easement G on SP213246) being part of Lot 283 on Crown Plan K1244 contained in Title Reference: 20142101.

An area of about 2.412 hectares being part of Lot 22 on SP271091 contained in Title Reference: 50971544.

An area of about 3.154 hectares (including about 251 square metres being part of Easement A on SP101552) being part of Lot 23 on SP271091 contained in Title Reference: 50971545.

An area of about 1503 square metres being part of Lot 555 on Crown Plan K124168 contained in Title Reference: 21145063.

An area of about 1.977 hectares being part of Lot 91 on Crown Plan K1247 contained in Title Reference: 20878224.

An area of about 3.946 hectares being part of Lot 249 on Crown Plan K1244 contained in Title Reference: 21077207.

An area of about 3.851 hectares being part of Lot 2 on RP713237 contained in Title Reference: 20494087.

An area of 1171 square metres being the whole of Lot 1 on RP713237 contained in Title Reference: 20494086.

An area of about 1.665 hectares being part of Lot 11 on SP239854 contained in Title Reference: 50840211.

An area of about 3.109 hectares being part of Lot 2 on RP732066 contained in Title Reference: 21087189.

An area of about 3.468 hectares being part of Lot 7 on RP903160 contained in Title Reference: 50134871.

An area of about 1.47 hectares (including 82 square metres being the whole of Easement A on RP20723) being part of Lot 1 on RP704740 contained in Title Reference: 21215119.

An area of about 4.615 hectares (including about 3383 square metres being part of Easement B on SP210129 and about 2372 square metres being part of Easement A on RP726924) being part of Lot 1 on RP736042 contained in Title Reference: 21299112.

An area of about 1442 square metres being part of Lot 1 on RP732066 contained in Title Reference: 21565208.

An area of 1134 square metres being the whole of Lot 4 on SP197309 contained in Title Reference: 50667311.

An area of about 2.425 hectares being part of Lot 183 on SP266889 contained in Title Reference: 50996624.

An area of about 2.307 hectares being part of Lot 188 on Crown Plan K1241 contained in Title Reference: 20544083.

An area of about 2.487 hectares being part of Lot 2 on RP720394 contained in Title Reference: 20739032.

An area of about 2.729 hectares being part of Lot 16 on RP855618 contained in Title Reference: 21571216.

An area of about 1.729 hectares being part of Lot 15 on RP855619 contained in Title Reference: 50008707.

An area of about 3072 square metres (including about 300 square metres being part of Easement F on SP241171) being part of Lot 1 on RP702672 contained in Title Reference: 20195120.

An area of about 4.624 hectares being part of Lot 3 on RP702672 contained in Title Reference: 20195121.

An area of about 1.479 hectares (including about 600 square metres being part of Easement G on SP241172, about 1030 square metres being part of Easement B on SP210128 and about 457 square metres being part of Easement A on RP726915) being part of Lot 2 on RP713682 contained in Title Reference: 21313192.

An area of about 6.351 hectares being part of Lot 13 on SP254859 contained in Title Reference: 50891375.

An area of about 4.358 hectares being part of Lot 12 on SP254859 contained in Title Reference: 50891374.

An area of about 3.264 hectares (including about 2879 square metres being part of Easement C on RP722533) being part of Lot 11 on SP254859 contained in Title Reference: 50891373.

An area of about 635 square metres being part of Lot 103 on SP190925 contained in Title Reference: 50676653.

An area of 3641 square metres being the whole of Lot 102 on SP190925 contained in Title Reference: 50676652.

An area of about 1.849 hectares (including about 242 square metres being part of Easement B on RP722534) being part of Lot 1 on RP736046 contained in Title Reference: 21429136.

An area of about 861 square metres being part of Lot 5 on RP728844 contained in Title Reference: 21449001.

As shown approximately on Plans R8-552, R8-554(B), R8-555, R8-556, R8-557, R8-559, R8-560, R8-561, R8-562 and R8-563 held in the office of the Chief Executive, Department of Transport and Main Roads, Brisbane.

Mackay Region
Mackay Ring Road
495/6828, 7241 and 7837 to 7862

ENDNOTES

1. Made by the Governor in Council on 11 August 2016.
2. Published in the Gazette on 12 August 2016.
3. Not required to be laid before the Legislative Assembly.
4. The administering agency is the Department of Transport and Main Roads.

Released under RTI - DTMR

QUEENSLAND GOVERNMENT

Department of
Transport and Main Roads

Our ref 495/07241; 07837 - 7863
Your ref
Enquiries Glen Dillon

6 September 2016

Herron Todd White (Mackay)
PO Box 529
Townsville Qld 4810

Sent by email: [redacted]@htw.com.au

**Attention:** [redacted]

Dear Sir

**Mackay Region**
**Mackay Ring Road**

This department has requirements for projected works from the properties as shown shaded on departmental plans R8-552, R8-554(B), R8-555 – R8-557, R8-559 – R8-563 and R8-565. It is understood that these plans have been forwarded to you previously.

Also attached is a copy of the schedule setting out details of the resumptions, as well as copies of relevant title searches and survey plans for these properties. The subject land was taken by Taking of Land Notice (No. 3003) 2016 which gazetted on 12 August 2016. (A copy of this Taking of Land Notice is attached).

To assist this department with negotiations please provide reports and detailed assessments on the land described in the schedule. Please identify major inclusions such as bores, generators and pumps (make, capacity, serial number).

**Please note our office requires that you forward your reports and invoice via email to the address noted in the footer of this letter. Please DO NOT send any documentation via post.**

These assessments should reach this office at your earliest convenience.

If your assessment is that compensation is nominal, do not quote a figure, and advise the department that compensation is nominal.

Released under RTI - DTMR

Department of Transport and Main Roads
Property Acquisitions and Disposals
GPO Box 1412,
Brisbane Qld 4001
ABN 39 407 690 291

Telephone 07 3066 6958
Facsimile 07 3066 8228
Website www.tmr.qld.gov.au
Email glenroy.s.dillon@tmr.qld.gov.au

Please contact the Property Officer in charge of this case prior to arranging inspections of the properties. A list of property owners and relevant contact details is also attached for your information.

This engagement is based on the terms and conditions of the Pre-qualified Professional Panel Arrangement PB012.

The following documents constitute the entire contract between the customer and supplier. Any verbal agreements or other negotiations are specifically excluded unless reflected in the documentation:

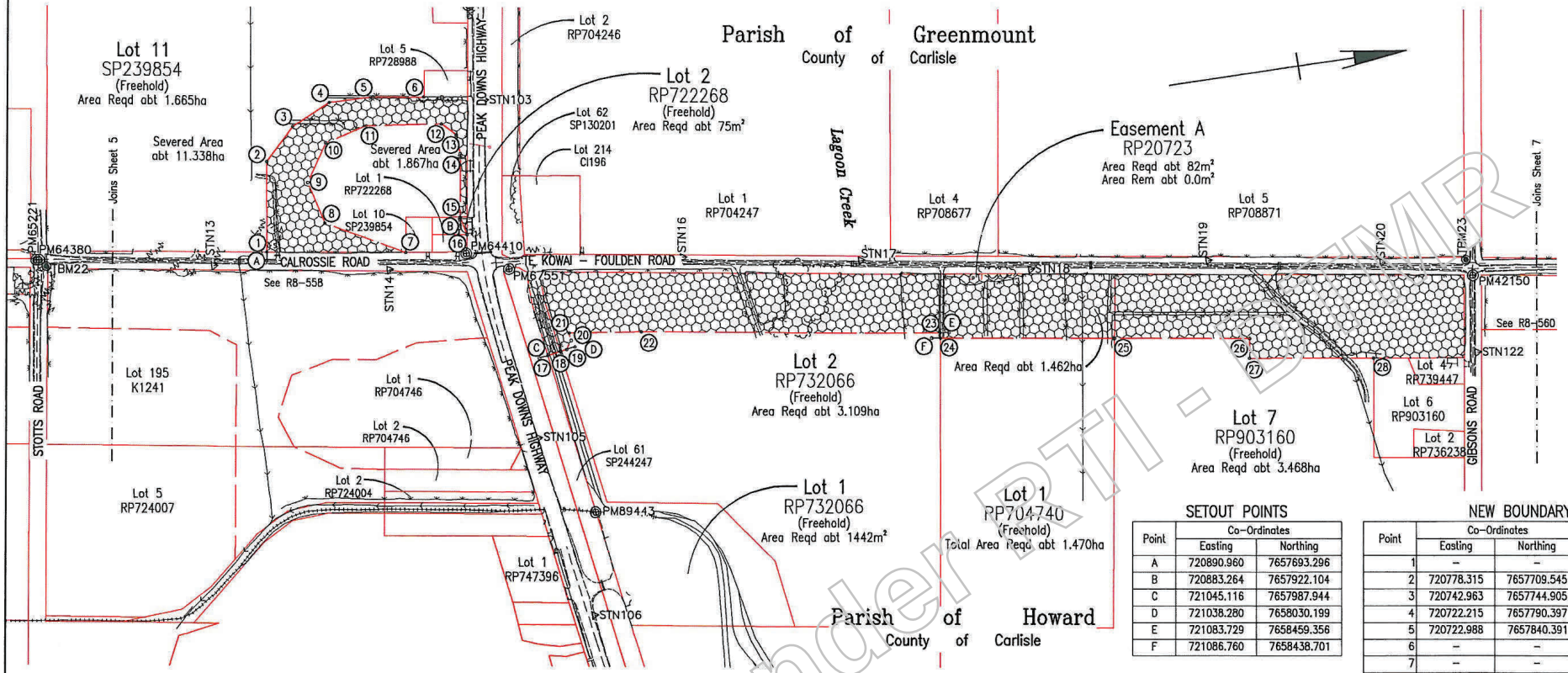
- Short Form Conditions of Contract For the Provision of Goods and/or Services, which can be located at:-
  http://www.hpw.qld.gov.au/SiteCollectionDocuments/ShortFormConditionsContract004.pdf
- Your quote dated 1 September 2016
- This letter of engagement

If you wish to clarify any valuation or property issues please contact Glen Dillon on 07 3066 6958.

Yours sincerely

Donna Brunello
**Director (Property Acquisitions and Disposals)**

Released under RTI - DTMR



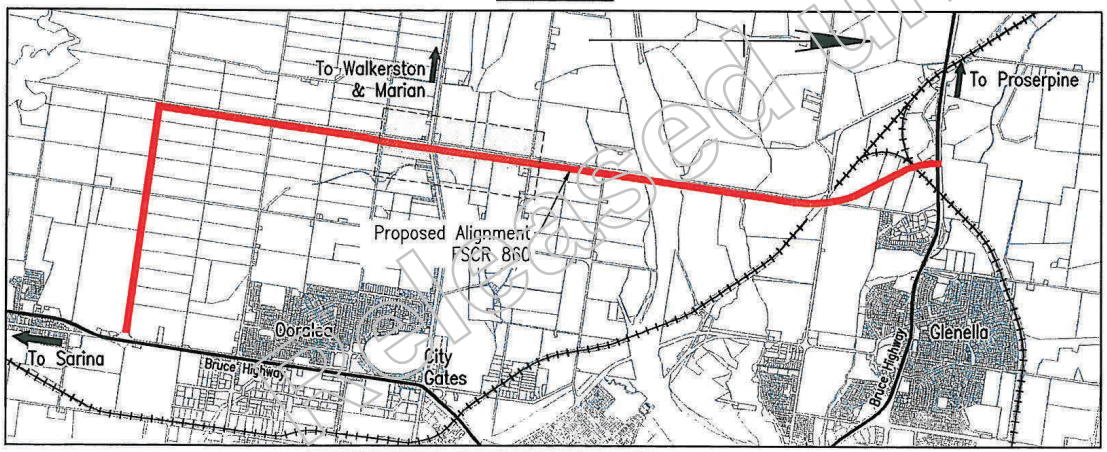

## SETOUT POINTS

| Point | Co-Ordinates | |
|---|---|---|
| | Easting | Northing |
| A | 720890.960 | 7657693.296 |
| B | 720883.264 | 7657922.104 |
| C | 721045.116 | 7657987.944 |
| D | 721038.280 | 7658030.199 |
| E | 721083.729 | 7658459.356 |
| F | 721086.760 | 7658438.701 |

## NEW BOUNDARY POINTS

| Point | Co-Ordinates | | Remark |
|---|---|---|---|
| | Easting | Northing | |
| 1 | – | – | On Boundary on Line A–2 |
| 2 | 720778.315 | 7657709.545 | |
| 3 | 720742.963 | 7657744.905 | |
| 4 | 720722.215 | 7657790.397 | |
| 5 | 720722.988 | 7657840.391 | |
| 6 | – | – | On Boundary Corner |
| 7 | – | – | On Boundary Corner |
| 8 | 720857.158 | 7657765.852 | |
| 9 | 720808.832 | 7657753.021 | |
| 10 | 720766.717 | 7657779.971 | |
| 11 | 720754.291 | 7657828.403 | |
| 12 | 720764.657 | 7657913.921 | |
| 13 | 720779.580 | 7657929.359 | |
| 14 | 720801.205 | 7657930.645 | |
| 15 | – | – | On Boundary on Line 14–B |
| 16 | – | – | On Boundary Corner |
| 17 | – | – | On Boundary on Line C–D |
| 18 | – | – | On Boundary on Line C–D |
| 19 | 721039.877 | 7658020.327 | |
| 20 | 721030.476 | 7658027.110 | |
| 21 | 721021.856 | 7658025.715 | |
| 22 | 721032.176 | 7658108.405 | |
| 23 | – | – | On Boundary on Line 22–E |
| 24 | – | – | On Boundary on Line F–26 |
| 25 | – | – | On Boundary on Line F–26 |
| 26 | 721140.104 | 7658801.870 | |
| 27 | 721162.405 | 7658798.554 | |
| 28 | – | – | On Boundary Corner |

## LOCALITY PLAN




## PERMANENT MARKS AND SURVEY STATIONS

| Station | Co-Oridinates | | Description |
|---|---|---|---|
| | Easting | Northing | |
| PM65221 | 720853.171 | 7657430.893 | Brass Plaque Buried |
| PM64380 | 720853.744 | 7657434.655 | Star Picket Buried |
| TBM22 | 720862.110 | 7657441.856 | Screw |
| TBM23 | 721087.14 | 7659060.76 | Star Picket |
| PM64410 | 720915.104 | 7657921.144 | Star Picket |
| PM67551 | 720939.611 | 7657967.475 | Star Picket |
| PM89443 | 721228.732 | 7658026.795 | Brass Plaque |
| PM42150 | 721106.05 | 7659066.12 | Star Picket Buried |
| STN13 | 720888.089 | 7657632.067 | Spike |
| STN14 | 720921.211 | 7657831.206 | Spike |
| STN103 | 720745.076 | 7657966.922 | Spike |
| STN105 | 721135.987 | 7657973.967 | Spike |
| STN106 | 721344.871 | 7658009.017 | Spike |
| STN16 | 720954.601 | 7658168.207 | Spike |
| STN17 | 720986.996 | 7658371.038 | Spike |
| STN18 | 721025.869 | 7658562.904 | Spike |
| STN19 | 721045.547 | 7658767.341 | Spike |
| STN20 | 721075.966 | 7658964.542 | Spike |
| STN122 | 721193.721 | 765905B.794 | Spike |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 6 | RP903160 | 7 | Freehold | Transport, in particular, road | 3.468ha | 25.142ha |
| 5 | RP704740 | 1 | Freehold | Transport, in particular, road Includes abt 82m² of Easement A | 1.470ha | 6.624ha |
| 4 | RP732066 | 2 | Freehold | Transport, in particular, road | 3.109ha | 10.861ha |
| 3 | RP732066 | 1 | Freehold | Transport, in particular, road | 1442m² | 2.759ha |
| 2 | RP722268 | 2 | Freehold | Transport, in particular, road | 75m² | 734m² |
| 1 | SP239854 | 11 | Freehold | Transport, in particular, road | 1.665ha | 13.205ha |
| File Ref. | Plan No. | Lot No. | Tenure And Purpose Of Requirement | | Area Reqt. | Area Rem. |

File Reference And Resumption Details — Area Required Shown Thus

Cadastral Map 8755–4133 | Parish of Howard/Greenmount | County of Carlisle

| Survey Data | |
|---|---|
| Datum | GDA94 |
| Horiz. Datum | MGA94 ZONE 55 |
| Height Datum | AHD DERIVED |
| Survey Books | MR94213 |
| Working drawings | |

Scales: 0 25 50 75 100m

Dimensions in metres except where shown otherwise. Areas in hectares (ha) or square metres (m2).

MACKAY REGIONAL COUNCIL
MACKAY RING ROAD
Auxiliary drawings: 650500; 678174 – 678178, 678180 – 678185 (inclusive)

| Drawing | Reqmts. | TMR Review | Resumption Proposals |
|---|---|---|---|
| JH | DS | | |
| Checked | Checked | Da | |
| DS | WW | | |

Queensland Government

| | |
|---|---|
| Job No. | 242/860/1 |
| Resumption Plan No. | R8–559 |
| Drawing No. | 678179 A |
| Series Number | 6 of 10 |
| | MRR_Resumption (02/11) |

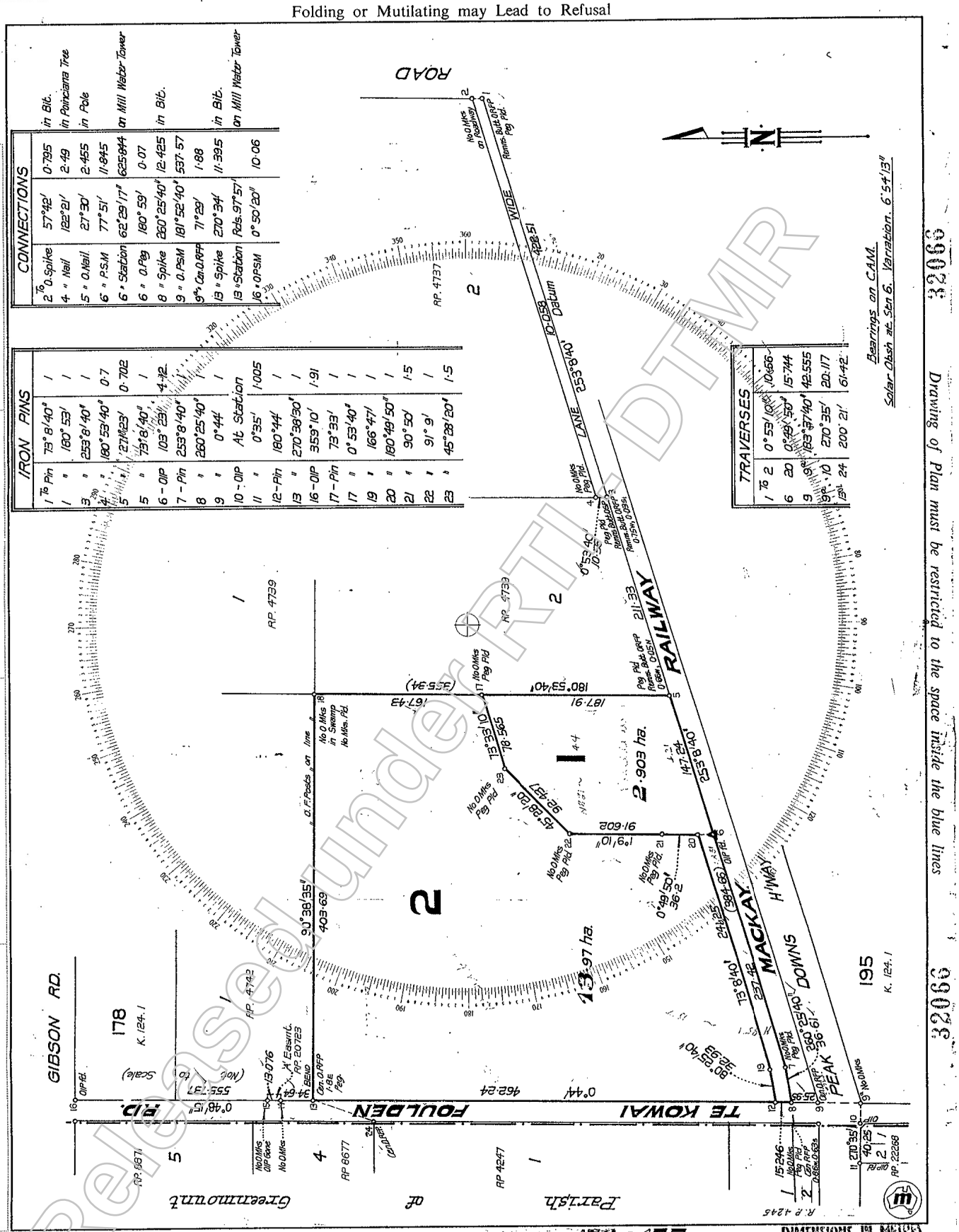
| | Revisions/Descriptions | Certification | Date | Microfiled |
|---|---|---|---|---|
| G | | | | |
| F | | | | |
| E | | | | |
| D | | | | |
| C | | | | |
| B | | | | |
| A | Original Issue A3 | | | |

CAD FILES C:\pwworking\healyj3\dms44784\60342905-0100-100006-RP.dwg

Last Modified: - Jul 28, 2015 - 10:01am

Released under RTI - DTMR

Folding or Mutilating may Lead to Refusal




CANCELLATIONS etc 39028

Lots 1 & 2

Cancelling Lots 1 & 2 on RP 24006

Surveyed by E.H. Westlake 4/4/1977

Orig. Portion 176 & 177

Orig. Grant 14439 (Por 176) & 14440 (Por 177)

County of Carlisle Town of

Parish of HOWARD

SCALE 1:3,000 REGISTERED PLAN 32066

DIMENSIONS IN METRES

CROWN COPYRIGHT RESERVED. REGISTRAR OF TITLES. QUEENSLAND

CISP

32066

Drawing of Plan must be restricted to the space inside the blue lines

32066

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Copyright protects the plan/s being ordered by you. Unauthorised reproduction or amendments are not permitted.

This plan MUST NOT BE FOLDED but may be rolled.

No 41436

I Evan Herbert Westlake of Mackay

Authorised Surveyor, do hereby solemnly and sincerely declare that I have faithfully and truly surveyed, measured and marked on the ground the parcel of land herein referred to, and that the measurements and boundaries given in this plan are correct, and do not to the best of my belief in any way interfere with the rights or property of any persons, owners or occupiers of the land adjoining the above land, and described in the said plan; and I make this solemn declaration conscientiously believing the same to be true, and by virtue of the provisions of the "Oaths Acts, 1867-1960"

E H Westlake
Authorised Surveyor

Made and Signed at Mackay this 22nd day of May 19 77 before me.

Signature of Registrar of Titles or of a Magistrate

Council of the Shire of Pioneer certifies that all the requirements of this Council, the Local Government Acts of 1936 to 19 and all By-Laws have been complied with and approves this Plan of Subdivision subject to

Dated this 23rd day of May 19 77

Mayor or Chairman

Town or Shire Clerk

I/We George Samuel McKay Richard Hamilton McKay James William McKay (Names in full) as proprietor(s) of this land, agree to this Plan of subdivision, and dedicate the new roads shown hereon to public use.

Signature of Proprietor/

THE COMMON SEAL of RACECOURSE CO-OPERATIVE SUGAR ASSOCIATION LIMITED was hereunto affixed by order of the Board of Directors on the SEVENTEENTH day of JULY 1978 in the presence of IAN GEORGE WATSON and JOHN HERBERT HANSEN two of the Directors thereof and ATHOL THOMAS BOWEN the Secretary thereof and these presents were also signed by the said IAN GEORGE WATSON and JOHN HERBERT HANSEN and ATHOL THOMAS BOWEN in the presence of:

Directors

Secretary

11-1-1978

CHAIRMAN

SHIRE CLERK

8th November 1978.

FOR TITLES OFFICE USE ONLY

Previous Title C/T Vol N851 Fol 159 Lot 2 RP 224006
C/T Vol N881 Fol 44 Lot 1 RP 224006
Resub 2 RP 4739

Council's Instrument No. RP 224006 Lodged 23/12/1977

| | Vol. | Fol. |
|---|---|---|
| 1 | N1082 | 187 |
| 2 | N1075 | 37 |

Ex C/T Vol N851 Fol 159 Lots 1 & 2
Ex C/T Vol N881 Fol 44 Lot 1.
Ex Orig Grant 14439 Lots 1 & 2
Ex Orig Grant 14440 Lots 1 & 2.
Tfr Sec 9 T 1084 Lot 1 - Sec D/6 Vol N 1565 Fol 208

For Additional Plan & Document Notings Refer to CISP

NEW TITLE Vol. Fol. (L) only.

$3.00 22 NOV 1978 D74612 Paid Vide No. — $3.00 19 OCT 1978 D74421

REQUISITION FEE $3.00 4 JAN 1979 Paid Vide No. D74810

Lodged by ROBERTS, LEU & NORTH SOLICITORS 54-56 DENHAM ST. TOWNSVILLE

RECEIVED TITLES TOWNSVILLE 11 58 AM '78

| Fees Payable | 23980 |
|---|---|
| Postal fee and Postage | 2-00 |
| 36-80 Lodgt. & Exam. | 20-00 |
| 4-50 Entd. on Docs. | 2-50 |
| 11-60 New Title | 1-50 |
| 9-00 Entd. on Deeds | 5-00 |
| 3-00 Photo Fee | 1-75 |
| 63-00 Total | 37-75 |

Short Fees Paid

Received Registrar of Titles Journal No. N894136 Receipt No. 18896 (37-50)

RECEIVED TITLES TOWNSVILLE 3 46 PM '78

Calc. Bk. No 118/80
Examined 24/10/78 mcd
Passed 25/10/78 (224)
Charted 29/11/78 M.M.S.
Located P.M. Diag. A

N4P 15-1-79 KH

Particulars entered in Register Book Vol. N881; N851 Folio 44; 159

15 JAN 1979 at 9.56a

REGISTRAR OF TITLES (NORTHERN DIVISION)

Dup. Certs N881/166 + 167 N881/169 by C'wealth Bank / Letter of Revocation of approval

F/N's REGISTERED PLAN 32066

released under RTI - DTMR

not relevant

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 495/07848 | R8-559 | Freehold | Lot 2 on RP732066 | 21087189 | [redacted] | | 13.97 ha | 3.109 ha | [redacted] 1/2 interest and [redacted] 1/2 interest, as tenants in common |

not relevant

Released under RTI - DTMR

## Glenroy S Dillon

**From:** Glenroy S Dillon
**Sent:** Tuesday, 6 September 2016 6:33 PM
**To:** [redacted]@htw.com.au'
**Subject:** Contact details
**Attachments:** Part 6 - Local Rates Information and Accommodation Works_RevisionB.xlsx

**Follow Up Flag:** Follow up
**Flag Status:** Flagged

Hi [redacted]

I have attached the contact details for the property owners affected by resumptions on the Mackay Ring Road Project.

Best regards
Glen Dillon

Released under RTI - DTMR

| Resump. Plan No. | (Ref) | Lot | Plan No. | Tenure | Total property area | Area required | Area remaining | Property Owner on Title Search | Mailing Address | Phone | Mobile | Accomodation Works |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R8-559 | 4 | 2 | RP732066 | FH | 13.97 | 3.109 | 10.861 | | 33 Nilssons Road<br>Te Kowai QLD 4740 | Contact: | Kelly Legal) - 4911 0500 | |

not relevant

not relevant

Released under RTI - MR

## Glenroy S Dillon

**From:** Glenroy S Dillon
**Sent:** Friday, 16 September 2016 4:12 PM
**To:**
**Subject:** FW: Ring Road Project - Contact Record for Scheduling Inspection

Hi

Emma from Mackay District has advised that the contact info for the is via . Please also note the correct phone number for

not relevant - unrelate property

Kind regards,

**Glen Dillon**
Principal Property Officer | Strategic Property Management / Property Acquisitions & Disposals
**Portfolio Investment & Programming** | Department of Transport and Main Roads

Floor 2 | Carseldine - GOP Building D | 532 Beams Road | Carseldine Qld 4034
GPO Box 1412 | Brisbane Qld 4001
P: (07) 30666958 | F: (07) 30668228
M: 0
E: glenroy.s.dillon@tmr.qld.gov.au
W: www.tmr.qld.gov.au

---

**From:** Emma J Rix
**Sent:** Friday, 16 September 2016 3:25 PM
**To:** Glenroy S Dillon <Glenroy.S.Dillon@tmr.qld.gov.au>
**Subject:** RE: Ring Road Project - Contact Record for Scheduling Inspection

Hi Glen

As per our conversation, please note that Lot 1 / RP732066 belongs to and not Mackay Sugar. The contact is c/- Kelly Legal.

Contact number for

not relevant

Correct mobile num

I have a diary entry to request an update on this report at the beginning of October.

Thanks for your help.

---

**From:** Glenroy S Dillon
**Sent:** Friday, 16 September 2016 2:30 PM
**To:** Emma J Rix <Emma.J.Rix@tmr.qld.gov.au>
**Subject:** FW: Ring Road Project - Contact Record for Scheduling Inspection

Hi Emma,

I haven't looked through this yet. Don't worry about the invoice I'll take care of it.

Kind regards,

Released under RTI - DTMR

**Glen Dillon**
Principal Property Officer | Strategic Property Management / Property Acquisitions & Disposals
**Portfolio Investment & Programming** | Department of Transport and Main Roads

Floor 2 | Carseldine - GOP Building D | 532 Beams Road | Carseldine Qld 4034
GPO Box 1412 | Brisbane Qld 4001
P: (07) 30666958 | F: (07) 30668228
M:
E: glenroy.s.dillon@tmr.qld.gov.au
W: www.tmr.qld.gov.au

**From:** [redacted]@htw.com.au]
**Sent:** Thursday, 15 September 2016 4:35 PM
**To:** Glenroy S Dillon <Glenroy.S.Dillon@tmr.qld.gov.au>
**Subject:** Ring Road Project - Contact Record for Scheduling Inspection

Hi Glen

Please find attached Contact Record and Invoice for Initial Scheduling of Inspections for the Ring Road Project.

Kind Regards

[redacted]
Valuation Coordinator

T (07) 4957 7348
E [redacted]@htw.com.au

25 River Street, Mackay, QLD, 4740
PO Box 865, Mackay, QLD, 4740

HERRON TODD WHITE | www.htw.com.au

Please consider the impact on the environment before you print this email

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Released under RTI - DTMR

## Glenroy S Dillon

**From:** Glenroy S Dillon
**Sent:** Wednesday, 5 October 2016 2:29 PM
**To:**
**Subject:** Title information for south side

**Follow Up Flag:** Follow up
**Flag Status:** Flagged

Hi

I have sent an Own Cloud link to you with the title information on properties south of the river.

The password i

If you have any trouble extracting the info let me know.

Kind regards,

**Glen Dillon**
Principal Property Officer | Strategic Property Management / Property Acquisitions & Disposals
**Portfolio Investment & Programming** | Department of Transport and Main Roads

Floor 2 | Carseldine - GOP Building D | 532 Beams Road | Carseldine Qld 4034
GPO Box 1412 | Brisbane Qld 4001
P: (07) 30666958 | F: (07) 30668228
M:
E: glenroy.s.dillon@tmr.qld.gov.au
W: www.tmr.qld.gov.au

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View File Return To Top

INTERNAL CURRENT TITLE SEARCH
DEPT OF NATURAL RESOURCES AND MINES, QUEENSLAND

Search Date: 12/08/2016 09:43 Title Reference: 21087189
Date Created: 19/01/1979

Previous Title: 20851159

REGISTERED OWNER Interest

Dealing No: 701450428 19/07/1996

1/2
1/2

AS TENANTS IN COMMON

ESTATE AND LAND

Estate in Fee Simple

LOT 2 REGISTERED PLAN 732066
Local Government: MACKAY

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10089203 (POR 176)
Deed of Grant No. 10089204 (POR 177)

ADMINISTRATIVE ADVICES

| Dealing | Type | Lodgement Date | Status | Location |
|---|---|---|---|---|
| 716751690 | NOTC INT RES<br>ACQUISITION OF LAND ACT 1967 | 15/09/2015 08:48 | CUR | EC-GEN -00 |

UNREGISTERED DEALINGS - NIL

CERTIFICATE OF TITLE ISSUED - Yes 30/08/1996 701498413 Certificate No. 2

** End of Current Title Search **

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Released under RTI - DTMR

## Glenroy S Dillon

**From:** Glenroy S Dillon
**Sent:** Friday, 7 October 2016 10:56 AM
**To:** '[redacted]'
**Subject:** Overall route plan
**Attachments:** 60342905 - Mackay Ring Road Overall Plan - Stage 1 -.pdf

Hi [redacted]

Please don't take the proposed access points as accurate.

Kind regards,

**Glen Dillon**
Principal Property Officer | Strategic Property Management / Property Acquisitions & Disposals
**Portfolio Investment & Programming** | Department of Transport and Main Roads

Floor 2 | Carseldine - GOP Building D | 532 Beams Road | Carseldine Qld 4034
GPO Box 1412 | Brisbane Qld 4001
P: (07) 30666958 | F: (07) 30668228
M:
E: glenroy.s.dillon@tmr.qld.gov.au
W: www.tmr.qld.gov.au

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Proposed Peak Downs Highway Realignment Project
North
To Nebo & Mines
To Walkerston & Marian
100
Peri Rd
Possible Cane Rail Relocation Options
Stockroute Road Intersection
Peak Downs Highway Interchange
Peak Downs Highway & Cane Rail Overpass
Landsdowne Road Underpass
Crossing of Pioneer River
Overpass - Railway & Sugarshed Road
Bruce Highway North Intersection
Future Road Overpass
To Proserpine
80
To Port
Calrossie Rd (Retained)
Te Kowai-Foulden Rd (Retained)
Maraju-Yakapari Rd (Retained)
Bald Hill Rd
Overpass - Railway
Stotts Road Overpass
Gibson Road Overpass
Stotts Rd
Gibson Rd
Racecourse Mill
Crossing of Overland Flowpath
Bald Hill Road Deviation
Overpass- Cane Rail, Drainage
Overtaking Lanes both sides
Crossing of Fursden Creek
Fursden Creek
Cowleys Rd
Horse and Jockey Rd
Possible Cane Rail Relocation Options
Sugarshed Rd
Bruce Highway
Cowleys Overpass- Cowleys Road, Cane Rail, Drainage
CQU
Pioneer River
Landsdowne Rd
Bruce Highway Mackay Northern Access Upgrade
Stockroute Rd
Schmidtkes Rd
Ooralea
Existing Bruce Highway South Intersection
Peak Downs Hwy
Mackay Bypass Rd / Glenella Connection Rd
To Sarina
Boundary Rd
Bruce Highway
City Gates
Lagoon St
Base Hospital
Mount Pleasant
Released under RTI by DTMR

## Glenroy S Dillon

**From:** @htw.com.au>
**Sent:** Friday, 14 October 2016 1:16 PM
**To:** Glenroy S Dillon
**Cc:**
**Subject:** Contact Record Report 14 October
**Attachments:** Contact Record Report 14.10.16.pdf

**Follow Up Flag:** Follow up
**Flag Status:** Flagged

Hi Glen

Please find attached updated contact record report.

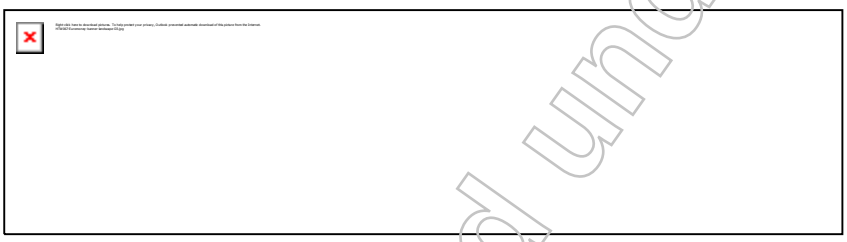
Kind Regards

Valuation Coordinator

T (07) 4957 7348
E @htw.com.au

25 River Street, Mackay, QLD, 4740
PO Box 865, Mackay, QLD, 4740

HERRON TODD WHITE | www.htw.com.au



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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| R8-559 | 4 | 2 RP732066 | FH | 13.97 | 3.109 | 10.861 | | 49110500 | Left Message 13/9/2016 9:35 am |

not relevant

Released under RTI - DTMR

## Glenroy S Dillon

**From:** [redacted]@htw.com.au>
**Sent:** Friday, 7 October 2016 11:21 AM
**To:** Glenroy S Dillon
**Cc:** [redacted]
**Subject:** Updated Contact Record Report
**Attachments:** Contact Record Report 7.10.16.pdf

**Follow Up Flag:** Follow up
**Flag Status:** Flagged

Hi Glen

Please find attached updated contact record report.

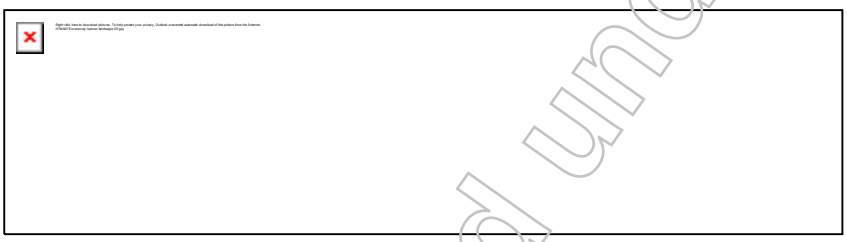
Kind Regards

[redacted]
Valuation Coordinator

T (07) 4957 7348
E [redacted]@htw.com.au

25 River Street, Mackay, QLD, 4740
PO Box 865, Mackay, QLD, 4740

HERRON TODD WHITE | www.htw.com.au



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| Resump. Plan No. | (Ref) | Lot | Plan No. | Tenure | Total property area | Area required | Area remaining | Property Owner on Title Search | Contact Details | Intial Contact | Subsequent Contact | Scheduled | HTW Ref | Inspected |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | **PROPOSED SOUTHERN ALIGNMENT** | | | | | | |
| | | | | | | | | | | | | | | cted |
| R8-559 | 4 | 2 | RP732066 | FH | | 3.97 | 3.109 | 10.861 | | 49110500 | Left Message 13/9/2016 9:35 am | | | |

not relevant

Released under RTI - DTMR

## Glenroy S Dillon

**From:** [redacted] htw.com.au>
**Sent:** Friday, 14 October 2016 1:16 PM
**To:** Glenroy S Dillon
**Cc:** [redacted]
**Subject:** Contact Record Report 14 October
**Attachments:** Contact Record Report 14.10.16.pdf

**Follow Up Flag:** Follow up
**Flag Status:** Flagged

Hi Glen

Please find attached updated contact record report.

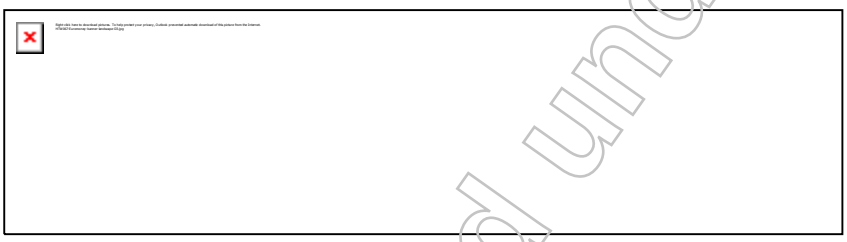
Kind Regards

[redacted]
Valuation Coordinator

T (07) 4957 7348
E [redacted]@htw.com.au

25 River Street, Mackay, QLD, 4740
PO Box 865, Mackay, QLD, 4740

HERRON TODD WHITE | www.htw.com.au



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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| not relevant | | | | | | | | | | | | | | |
| R8-559 | 4 | 2 | RP732066 | FH | 13.97 | 3.109 | 10.861 | | | Left Message 13/9/2016 9:35 am | | | | |

not relevant

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## Glenroy S Dillon

**From:** MRRP
**Sent:** Monday, 24 October 2016 11:14 AM
**To:** [redacted]@htw.com.au
**Cc:** Emma J Rix; Mark P Jones; Glenroy S Dillon
**Subject:** Mackay Ring Road Project - Resumption boundaries on project layout plans for valuer

**Follow Up Flag:** Follow up
**Flag Status:** Flagged

[redacted]

Please find attached link to our file sharing portal to gain access to the layout plans for the ring road project showing the resumption boundaries and a few other details transferred from the resumption plans. We have also added some dimensions which may assist you in your calculations of cropping areas and impacts upon farms.

https://owncloud.tmr.qld.gov.au/public.php?service=files&t=6de1a0a0dea5050c79f7478635d25f3a
**Password:** [redacted]
Please note this link will expire on 14/11/16

Kind regards,

**Anthony Blines**
Principal Project Manager | Mackay/Whitsunday District
**Program Delivery & Operations** | Department of Transport and Main Roads

2nd Floor | Mackay Office | 44 Nelson Street | Mackay Qld 4740
PO Box 62 | Mackay Qld 4740
P: (07) 49518556 | F: (07) 49518546
M:
E: anthony.g.blines@tmr.qld.gov.au
W: www.tmr.qld.gov.au

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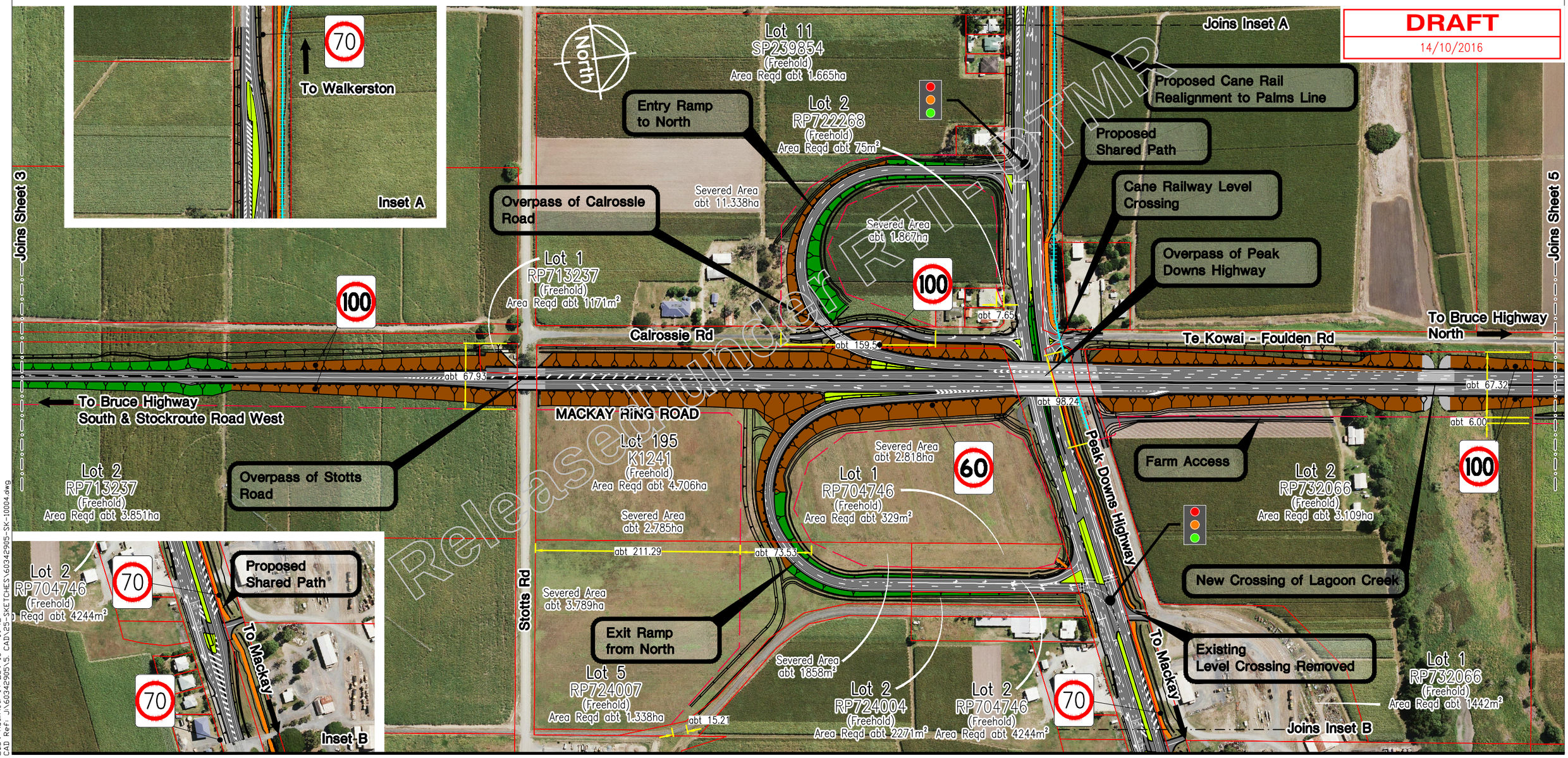
NOT FOR CONSTRUCTION

AECOM

DRAFT
14/10/2016

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Last modified: 14 Oct 16 - 09:42
CAD Ref: J:\60342905\S. CAD\25-SKETCHES\60342905-SK-10004.dwg

60342905
ISSUE 1

NOT TO BE USED
FOR CONSTRUCTION

DRAWING IN PROGRESS | DATE: 14/10/16 REVISION: DRAFT

0 20 40 60 80m 1:2000 (A1)

DEPARTMENT OF TRANSPORT AND MAIN ROADS
MACKAY RING ROAD PROJECT
GENERAL ARRANGEMENT - SHEET 4 OF 8
60342905-SK-10004

## Glenroy S Dillon

**From:** [redacted] htw.com.au>
**Sent:** Friday, 23 December 2016 10:28 AM
**To:** Glenroy S Dillon; Mark P Jones
**Subject:** Mackay Ring Road - Updated Contact Record Report
**Attachments:** Contact Record Report 23.12.16.pdf

**Follow Up Flag:** Follow up
**Flag Status:** Flagged

Good Morning

Please find attached updated contact record report.

Kind Regards

[redacted]
Valuation Coordinator

T (07) 4957 7348
E [redacted]@htw.com.au

25 River Street, Mackay, QLD, 4740
PO Box 865, Mackay, QLD, 4740

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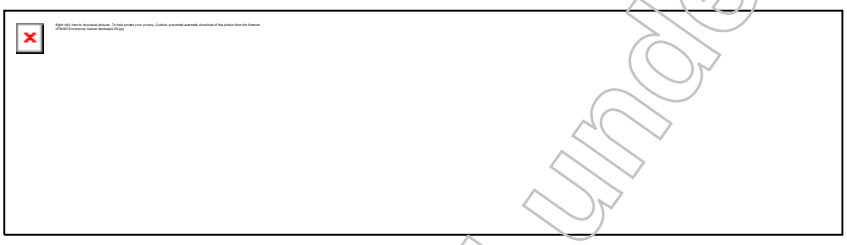

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not relevant

R8-559 4 2 RP732066 FH 13.97 3.109 10.861 Left Message 13/9/2016 9:35 am

not relevant

under RTI - DTMR

Rele

## Glenroy S Dillon

**From:** [redacted] htw.com.au>
**Sent:** Wednesday, 1 February 2017 1:10 PM
**To:** Glenroy S Dillon
**Subject:** Contact Record Report
**Attachments:** Contact Record Report 1.02.17.pdf

**Follow Up Flag:** Follow up
**Flag Status:** Flagged

Hi Glen

Please find attached updated contact record report.

Kind Regards

[redacted]
Valuation Coordinator

T (07) 4957 7348
E [redacted]@htw.com.au

25 River Street, Mackay, QLD, 4740
PO Box 865, Mackay, QLD, 4740

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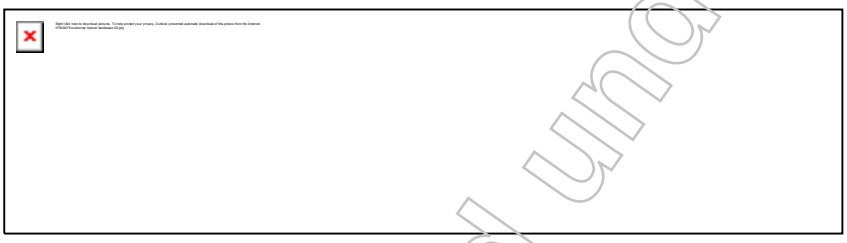

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| not relevant | | | | | | | | | | | | | | |
| R8-559 | 4 | 2 | RP732066 | FH | 13.97 | 3.109 | 10.861 | | | Left Message 13/9/2016 9:35 am<br>not relevant | | | | |

under RTI - DTMR

Rele

## Glenroy S Dillon

**From:** Glenroy S Dillon
**Sent:** Wednesday, 15 February 2017 10:11 AM
**To:** [redacted] htw.com.au
**Cc:** Mark P Jones
**Subject:** Fwd: Ring Road - DTMR Valuer Inspections
**Attachments:** image001.gif; ATT00001.htm; image002.gif; ATT00002.htm; image003.gif; ATT00003.htm; image004.gif; ATT00004.htm; Schedule of Inspections with DTMR Valuer.PDF.pdf; ATT00005.htm

**Follow Up Flag:** Follow up
**Flag Status:** Flagged

**Categories:** DMS

Hi [redacted]

[redacted] has forwarded a list of inspection times. Please let me know if these are practical for you.

**Best regards**
**Glen Dillon**
Principal Property Officer (North Queensland) | Strategic Property Management / Property Acquisitions & Disposals
**Portfolio Investment & Programming** | Department of Transport and Main Roads

Floor 2 | Carseldine - GOP Building D | 532 Beams Road | Carseldine Qld 4034
GPO Box 1412 | Brisbane Qld 4001
P: (07) 30666958 | F: (07) 30668228
M
E: glenroy.s.dillon@tmr.qld.gov.au
W: www.tmr.qld.gov.au

Sent from my iPad

Begin forwarded message:

> **From:** [redacted]@kellylegal.com.au>
> **Date:** 15 February 2017 at 9:55:50 am AEST
> **To:** "glenroy.s.dillon@tmr.qld.gov.au" <glenroy.s.dillon@tmr.qld.gov.au>
> **Subject: Ring Road - DTMR Valuer Inspections**
>
> Glen,
>
> Please see ***attached*** proposed schedule of inspection times for DTMR's valuer.
>
> Please advise.
>
> Regards,
>
> [redacted] **(LLB, MBA, M Tax Law)**
> Lawyer and Director
> DIRECT PHONE: (07) 4911 0505
>
> **Kelly Legal**
> **PHONE:** (07) 4911 0500

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**MAIL:** PO Box 1035, Mackay Qld 4740
**ADDRESS:** Level 2, 65 Sydney Street, Mackay Qld 4740

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# Schedule of Inspections with DTMR Valuer

| | |
|---|---|
| Wednesday, 1 March 2017 | |
| 2:30 pm | not relevant |
| Thursday, 2 March 2017 | |
| 8:00 am | not relevant |
| 10:30 am | |
| Friday, 3 March 2017 | |
| 10:30 am | |
| 2:30 pm | not relevant |

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## Glenroy S Dillon

**From:** Glenroy S Dillon
**Sent:** Friday, 24 February 2017 1:08 PM
**To:**
**Subject:** Contact details for clients of Kelly Legal

**Follow Up Flag:** Follow up
**Flag Status:** Flagged

**Categories:** DMS

Hi

You have asked for contact details so that you can confirm appointment times or advise of any delays. As requested I have the following information:

not relevant

- 4954 5052 (Jim)

not relevant

If you have any problems with these numbers please let me know.

Please be advised that, at our request, Kelly Legal has arranged for a later meeting time with the This is now 12 midday 3 March 2017.

Kind regards,

**Glen Dillon**
Principal Property Officer | Strategic Property Management / Property Acquisitions & Disposals
**Portfolio Investment & Programming** | Department of Transport and Main Roads

Floor 2 | Carseldine - GOP Building D | 532 Beams Road | Carseldine Qld 4034
GPO Box 1412 | Brisbane Qld 4001
P: (07) 30666958 | F: (07) 30668228
M:
E: glenroy.s.dillon@tmr.qld.gov.au
W: www.tmr.qld.gov.au

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## Glenroy S Dillon

**From:** [redacted]@htw.com.au>
**Sent:** Thursday, 2 March 2017 3:00 PM
**To:** Glenroy S Dillon
**Cc:** [redacted]
**Subject:** Request For Town Planning Report - Ajana Park Park - L7 RP894737 & L392 SP257985

**Follow Up Flag:** Follow up
**Flag Status:** Flagged

**Categories:** DMS

Hi Glen,

Further to our discussion today, can you please arrange a town planning report on these lots.

Thanks

[redacted] FAPI - Certified Practising Valuer
Director

T 07 4957 7348 | M [redacted]
E [redacted] htw.com.au

25 River Street, Mackay, QLD, 4740
PO Box 865, Mackay, QLD, 4740

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## Glenroy S Dillon

**From:** Glenroy S Dillon
**Sent:** Tuesday, 7 March 2017 12:27 PM
**To:**
**Cc:** Mark P Jones
**Subject:** Mackay Ring Road - Town Planning advice

**Follow Up Flag:** Follow up
**Flag Status:** Flagged

Hi

Our valuer for this project, of HTW Mackay, has asked for town planning advice on three properties.

The three properties are:

– 28 Te Kowai Foulden Rd., Te Kowai

has advised that this is in a High Impact buffer zone due to its proximity to the Racecourse Mill. He would like to know what this impact is and if it allows uses other than rural.

not relevant

Before we can proceed could you please provide a quote for advice on the above properties.

If you need any further information please ask.

Kind regards,

**Glen Dillon**
Principal Property Officer | Strategic Property Management / Property Acquisitions & Disposals
**Portfolio Investment & Programming** | Department of Transport and Main Roads

Floor 2 | Carseldine - GOP Building D | 532 Beams Road | Carseldine Qld 4034
GPO Box 1412 | Brisbane Qld 4001
P: (07) 30666958 | F: (07) 30668228
M:
E: glenroy.s.dillon@tmr.qld.gov.au
W: www.tmr.qld.gov.au

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## Glenroy S Dillon

**From:** [redacted]@htw.com.au>
**Sent:** Wednesday, 8 March 2017 11:49 AM
**To:** Glenroy S Dillon
**Subject:** 28 Te Kowai Foulden Road, Te Kowai (Mackay)

**Categories:** DMS

Good Morning Glen,

This property was inspected on Friday.

The future development potential of this site will be contentious.

Can you please arrange a town planning report?

Thanks

[redacted] | FAPI - Certified Practising Valuer
Director

T 07 4957 7348 | M [redacted]
E [redacted]@htw.com.au

25 River Street, Mackay, QLD, 4740
PO Box 865, Mackay, QLD, 4740

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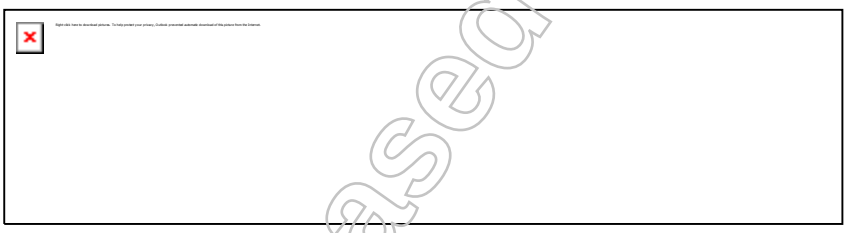

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## Glenroy S Dillon

**From:** Glenroy S Dillon
**Sent:** Wednesday, 8 March 2017 11:54 AM
**To:** [redacted]
**Subject:** RE: 28 Te Kowai Foulden Road, Te Kowai (Mackay)

**Categories:** DMS

Hi [redacted]

This property has been already included in the list for town planning advice we need from [redacted]

Kind regards,

**Glen Dillon**
Principal Property Officer | Strategic Property Management / Property Acquisitions & Disposals
**Portfolio Investment & Programming** | Department of Transport and Main Roads

Floor 2 | Carseldine - GOP Building D | 532 Beams Road | Carseldine Qld 4034
GPO Box 1412 | Brisbane Qld 4001
P: (07) 30666958 | F: (07) 30668228
M
E: glenroy.s.dillon@tmr.qld.gov.au
W: www.tmr.qld.gov.au

**From:** [redacted]@htw.com.au]
**Sent:** Wednesday, 8 March 2017 11:49 AM
**To:** Glenroy S Dillon <Glenroy.S.Dillon@tmr.qld.gov.au>
**Subject:** 28 Te Kowai Foulden Road, Te Kowai (Mackay)

Good Morning Glen,

This property was inspected on Friday.

The future development potential of this site will be contentious.

Can you please arrange a town planning report?

Thanks

[redacted] | FAPI - Certified Practising Valuer
Director

T 07 4957 7348 | M [redacted]
E [redacted]@htw.com.au

25 River Street, Mackay, QLD, 4740
PO Box 865, Mackay, QLD, 4740

HERRON TODD WHITE | www.htw.com.au

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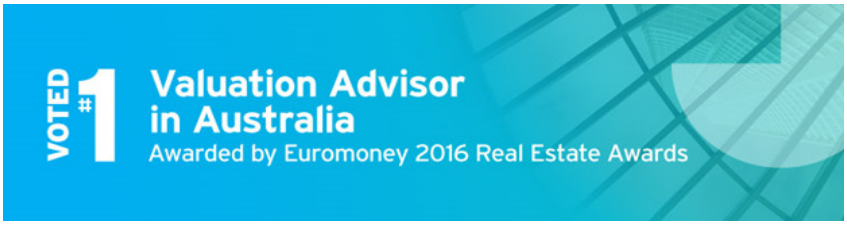


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## Glenroy S Dillon

**From:** [redacted] htw.com.au>
**Sent:** Wednesday, 8 March 2017 1:31 PM
**To:** Glenroy S Dillon
**Subject:** Re: 28 Te Kowai Foulden Road, Te Kowai (Mackay)

**Categories:** DMS

Thanks.

Please let me know when report is available.

[redacted] FAPI - Certified Practising Valuer
Director

T 07 4957 7348 | [redacted]
E [redacted]@htw.com.au

25 River Street, Mackay, QLD, 4740
PO Box 865, Mackay, QLD, 4740

HERRON TODD WHITE | www.htw.com.au

On 8 March 2017 at 11:54, Glenroy S Dillon <Glenroy.S.Dillon@tmr.qld.gov.au> wrote:

> Hi [redacted]
>
> This property has been already included in the list for town planning advice we need from [redacted]
>
> Kind regards,
>
> **Glen Dillon**
> Principal Property Officer | Strategic Property Management / Property Acquisitions & Disposals
> **Portfolio Investment & Programming** | Department of Transport and Main Roads
>
> Floor 2 | Carseldine - GOP Building D | 532 Beams Road | Carseldine Qld 4034
> GPO Box 1412 | Brisbane Qld 4001
> P: (07) 30666958 | F: (07) 30668228

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E: glenroy.s.dillon@tmr.qld.gov.au
W: www.tmr.qld.gov.au

**From:** [redacted]@htw.com.au]
**Sent:** Wednesday, 8 March 2017 11:49 AM
**To:** Glenroy S Dillon <Glenroy.S.Dillon@tmr.qld.gov.au>
**Subject:** 28 Te Kowai Foulden Road, Te Kowai (Mackay)

Good Morning Glen,

This property was inspected on Friday.

The future development potential of this site will be contentious.

Can you please arrange a town planning report?

Thanks

[redacted] | FAPI - Certified Practising Valuer
Director

T 07 4957 7348 | M [redacted]
E [redacted]@htw.com.au

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PO Box 865, Mackay, QLD, 4740

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## Glenroy S Dillon

**From:** Glenroy S Dillon
**Sent:** Thursday, 4 May 2017 9:42 AM
**To:** [redacted]
**Subject:** FW: Preliminary planning advice re Mackay Ring Road sites - Email 3 of 3 (Lot 2 RP32066)
**Attachments:** 2017 04 20 - Final Ltr to DTMR - Lot 2 on RP732066.pdf

**Categories:** DMS

Hi [redacted]

This is the planning report for the [redacted] property.

Kind regards,

**Glen Dillon**
Principal Property Officer | Strategic Property Management / Property Acquisitions & Disposals
**Portfolio Investment & Programming** | Department of Transport and Main Roads

Floor 2 | Carseldine - GOP Building D | 532 Beams Road | Carseldine Qld 4034
GPO Box 1412 | Brisbane Qld 4001
P: (07) 30666958 | F: (07) 30668228

E: glenroy.s.dillon@tmr.qld.gov.au
W: www.tmr.qld.gov.au

---

**From** [redacted]@jgplan.com.au]
**Sent:** Wednesday, 3 May 2017 10:07 AM
**To:** Glenroy S Dillon <Glenroy.S.Dillon@tmr.qld.gov.au>; Mark P Jones <Mark.P.Jones@tmr.qld.gov.au>
**Cc:** J [redacted]jgplan.com.au>
**Subject:** Preliminary planning advice re Mackay Ring Road sites - Email 3 of 3 (Lot 2 RP32066)

Hi [redacted]

Here is our preliminary town planning advice for the three sites in Mackay, in relation to the Mackay Ring Road project.

Email 3 of 3.

I am happy to discuss any aspect.

Regards

[redacted]

John Gaskell
planning consultants

Ground Floor
8 Catherine Street
WOOLLOONGABBA Q 4102

POST: PO Box 8103
WOOLLOONGABBA Q 4102

T - (07) 3392 1911
F – (07) 3392 1399
M – [redacted]
E - info@jgplan.com.au
W– www.jgplan.com.au

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John Gaskell
planning consultants

2 May 2017

Department of Transport and Main Roads
GPO Box 1412
Brisbane QLD 4001

**Attention:** **Glen Dillon**
**Principal Property Officer**
**Strategic Property Management/Property Acquisitions & Disposals**

Dear Glen,

**RE: MACKAY RING ROAD PROJECT**

**PRELIMINARY TOWN PLANNING ADVICE**

**28 TE KOWAI FOULDEN ROAD, RACECOURSE QLD 4740 AND DESCRIBED AS LOT 2 ON RP732066**

## 1. INTRODUCTION

This correspondence provides preliminary town planning advice in relation to land located at 28 Te Kowai Foulden Road, Racecourse and described as Lot 2 on RP732066 (hereafter referred to as the 'subject land').

The subject land comprises an area of approximately 13.97 hectares (refer to Figures 1 and 2). I understand the Department of Transport and Main Roads ('DTMR') resumed 3.109 hectares of the subject land on 12 August 2016 (the 'relevant date') for the Mackay Ring Road project.

This correspondence has been prepared to provide DTMR with a basic understanding of the relevant town planning provisions that apply to the subject land and, in particular, the implications on development where the subject land is included on the Mackay City Planning Scheme's ('Planning Scheme') High Impact Activity Map ('High Impact Activity').

This preliminary town planning advice follows a review of the Planning Scheme in effect and the Draft Mackay Region Planning Scheme publicly available at the relevant date. This preliminary town planning advice has not included a review of State government mapping (and associated legislation), a review of planning approvals within the locality, or identifying the highest and best for the subject land.

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Ground Floor
8 Catherine Street
Woolloongabba QLD 4102

PO Box 8103
Woolloongabba QLD 4102

Phone 07 3392 1911
Fax 07 3392 1399
Mobile 0408 550 747
info@jgplan.com.au
ABN 46 247 589 853

www.jgplan.com.au



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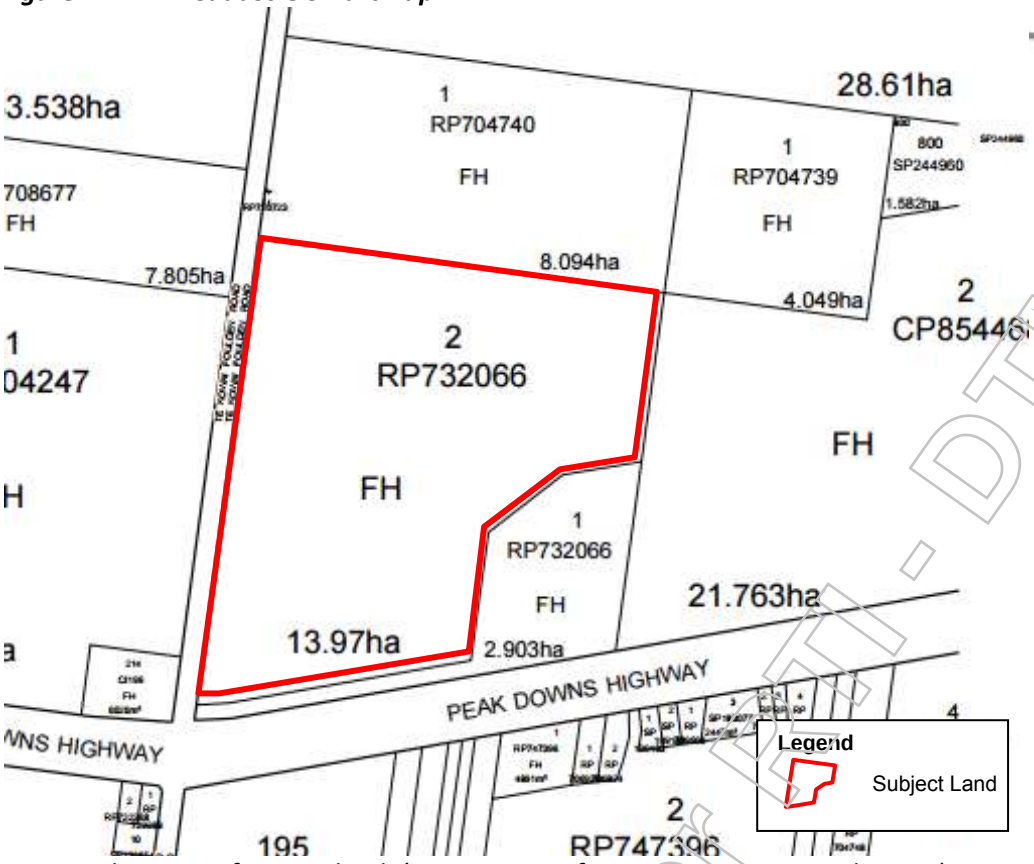
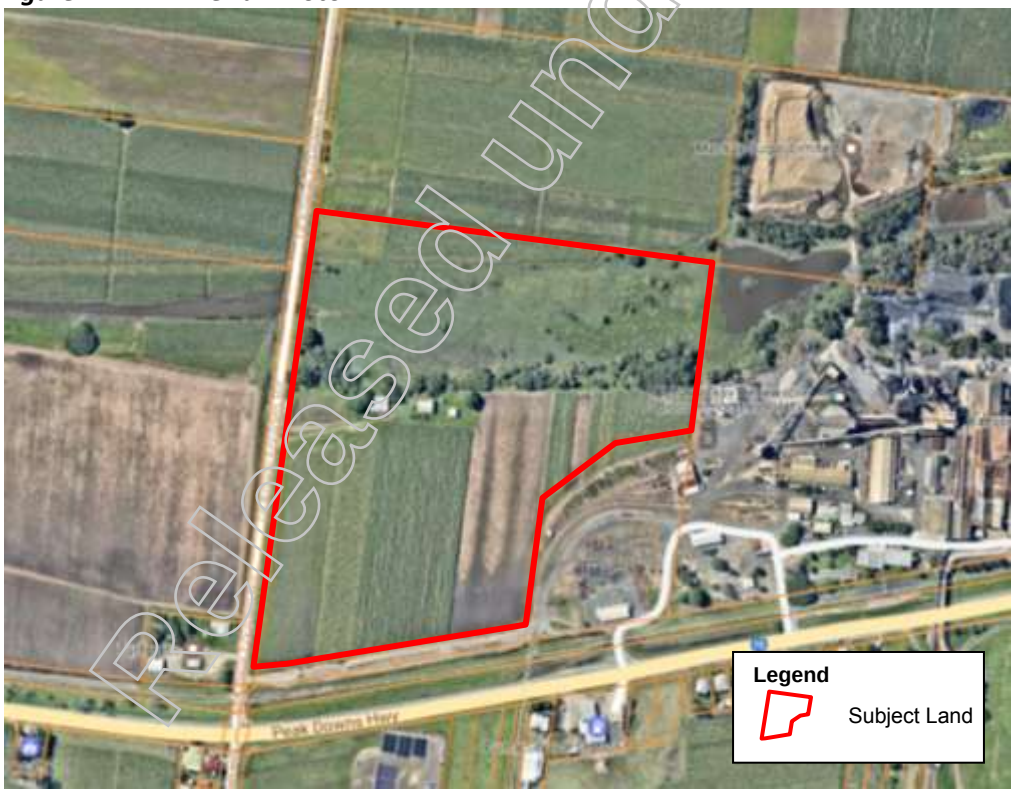
***Figure 1 Cadastre Smartmap***




*Source: The State of Queensland, (Department of Natural Resources and Mines) 2017*

***Figure 2 Aerial Photo***




*Source: Nearmap, 2017 (Image date: 9 June 2016)*

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## 2. MACKAY CITY PLANNING SCHEME

The planning scheme in effect at the time the land was resumed was the Mackay City Planning Scheme version 1 adopted 13 May 2009 and including Adopted Planning Scheme Amendments.

### 2.1 Locality and Precinct

The Planning Scheme includes the subject land in the Pioneer River and Southern Streams precinct of the Hinterland locality.

An overall outcome of the Mackay Hinterland Locality Code states *'Urban development occurs on land included within an urban zone...in preference to land included in non urban zones...'*

An overall outcome of the Mackay Hinterland Locality Code also states *'rural areas, particularly areas of good quality agricultural land identified in the... Pioneer River & Southern Streams precinct, are protected from the constraining effect of encroaching urban development (including but not limited to residential, industrial and commercial, rural residential development) or sensitive land uses'.*

An overall outcome of the Mackay Hinterland Locality Code states *'non rural activities in rural areas are limited to activities which specifically require the particular rural location and do not adversely affect the operation of rural uses or the rural landscape and character of the area'.*

It is therefore understood the subject land is not intended by the Planning Scheme to be developed for urban development.

### 2.2 Zone

The Planning Scheme includes the subject land in the Rural zone. Refer to Figure 3.

The Planning Scheme statements and my understanding at Section 3.1.1 above is further supported by the overall outcomes for the Rural zone in the Mackay Hinterland Locality, such as overall outcome (a) and (c) which state: *'(a) rural activities undertaken on land within the Rural Zone continue unconstrained by encroachment of incompatible land uses...(c) non-rural activities do not occur'*.

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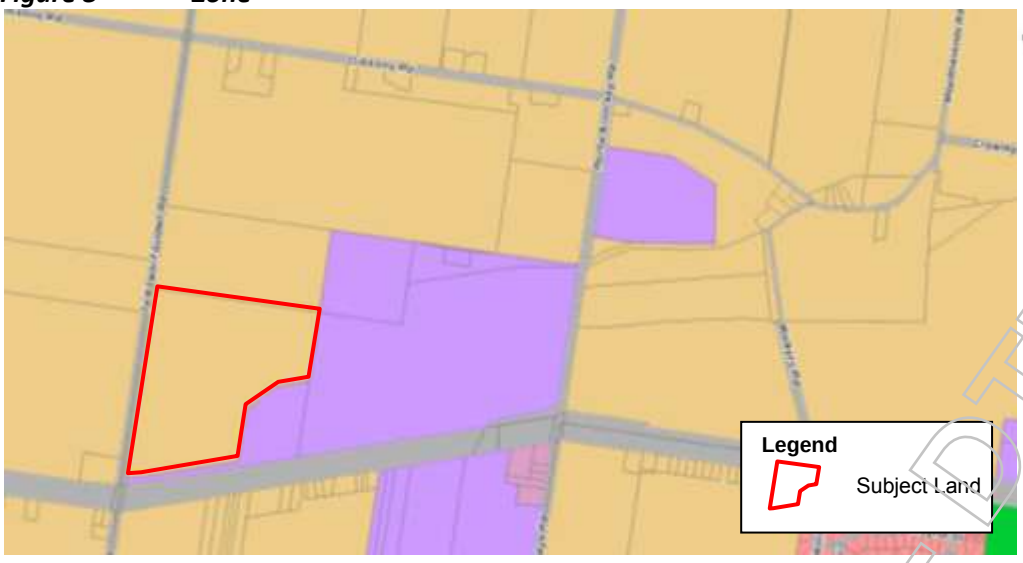
***Figure 3 Zone***




*Source: MiMAPS 2017*

## 2.3 Overlays

The Planning Scheme identifies the following overlays may apply to development on the subject land:

- Airport overlay - Obstacle limitation surface;
- Bushfire management overlay;
- Flood and inundation overlay; and
- Good quality agricultural land overlay (GQAL).

The applicability of the above overlays will depend on the nature of development proposed.

The GQAL mapping overlay provisions reinforce the intended agricultural use of the subject land, consistent with the precinct and zone provisions applying to the subject land.

A map of each overlay is included at Attachment 1.

## 2.4 Information Maps

The subject land is identified as located within the:

- Image Corridors Information Map;
- 3 to 6 kilometre radius from the Mackay Airport on the Airport Development Limits Information Map; and
- Sugar Mill (Racecourse) High Impact Industry area on the High Impact Industry Area Information Map.

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An extract from each information map is included at Attachment 2.

The Environment and Infrastructure Code provides assessment criteria for development located on land identified on the High Impact Industry Map. Acceptable/Probable Solutions S2 states:

> *'Land uses other than Industry (High Impact) uses, adjoining high impact activity areas are set back from those areas in accordance with Table 9-8.4'.*

Table 9-8.4 identifies a setback of 1,000 metres from sugar mills. Where development cannot meet this Acceptable/Probable Solutions, the development will need to demonstrate compliance with the corresponding Specific Outcome that states:

> *'Land uses adjoining high impact activity activities including activities as indicated on… Information Map "High Impact Activities", are designed and sited to manage adverse effects on site users by providing:*
> *(i) noise attenuation measures;*
> *(ii) buffers between sensitive uses and the high activity areas;*
> *(iii) landscaping including bunding between sensitive use areas and high impact activity areas; and*
> *(iv) any other measures required to ensure that a nuisance is minimised'.*

If development were to occur on the subject land, it would be required to demonstrate compliance with the above assessment criteria. Essentially, any development needs to demonstrate that appropriate measures can be adopted to ensure there are no adverse impacts (e.g. noise, air quality) on development of the subject land from the Sugar Mill (Racecourse).

### 2.5 Level of Assessment

Table 6.1 (Assessment categories and relevant assessment criteria for making a material change of use – Hinterland Locality) of the Planning Scheme identifies the level of assessment for development involving a material change of use in the Rural Zone in the Hinterland Locality. Table 1 below identifies the uses identified as exempt, self assessable or code assessable in the Rural Zone in the Hinterland Locality.

Table 1 Exempt, Self and Code Assessable Uses

| Use | Level of Assessment |
|---|---|
| Agriculture | Exempt |
| Animal husbandry | Self assessable or code assessable |
| Bed and breakfast accommodation | Code assessable |
| Bulk landscape supplies | Code assessable |
| Caretaker's residence | Code assessable |
| Dependent persons accommodation | Self assessable or code assessable |
| Dwelling house | Self assessable or code assessable |
| Family day care | Exempt |
| Forestry | Exempt |
| Home occupation | Self assessable or code assessable |

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| Use | Level of Assessment |
|---|---|
| Home based business | Code assessable |
| Intensive animal husbandry | Code assessable |
| Kennels | Code assessable |
| Park | Exempt |
| Plant nursery(not including retail sales) | Code assessable |
| Public utility | Code assessable |
| Residential storage shed | Self assessable or code assessable |
| Roadside stall | Code assessable |
| Rural industry | Code assessable |
| Special purpose | Code assessable |
| Stable | Self assessable or code assessable |
| Telecommunications facility | Code assessable |
| Veterinary hospital | Code assessable |

Where development is for a use other than those listed above, impact assessment applies.

The applicable overlays may elevate the level of assessment for those uses listed above however this will depend on the type and detail of development proposed.

Table 6.2 (Other development) of the Planning Scheme identifies the level of assessment for development involving reconfiguring a lot in the Hinterland Locality. This table identifies code assessment for reconfiguring a lot. The Reconfiguring of a Lot Code identifies a minimum lot size of 100 hectares for land included in the Rural Zone.

On review of the Rural Zone, and level of assessment tables, it is my view that the subject land is not intended by the Planning Scheme to be developed for urban development, and is not intended to be subdivided (that is, reconfigured into smaller lots).

## 3. PROPOSED MACKAY REGION PLANNING SCHEME VERSION 8

The Proposed Mackay Region Planning Scheme, Version 8 ('Proposed Planning Scheme 2013') was publicly advertised in May 2013. This planning document was therefore available to the public prior to the taking of the subject land.

### 3.1 Zone

The Planning Scheme includes the subject land in the Rural zone. Refer to Figure 4.

The overall outcomes for the Rural zone (Section 6.2.16) in the Proposed Mackay Region Planning Scheme expect land to be used for rural activities. For example, overall outcome (a) states: *'(a)Uses: (i) the predominant form of development within the zone is rural activities; (ii) limited residential uses support the use of land for rural activities; and (iii) the zone also accommodates intensive rural activities, extractive industry and other activities requiring a location outside urban areas due to the amount of land required...'.*

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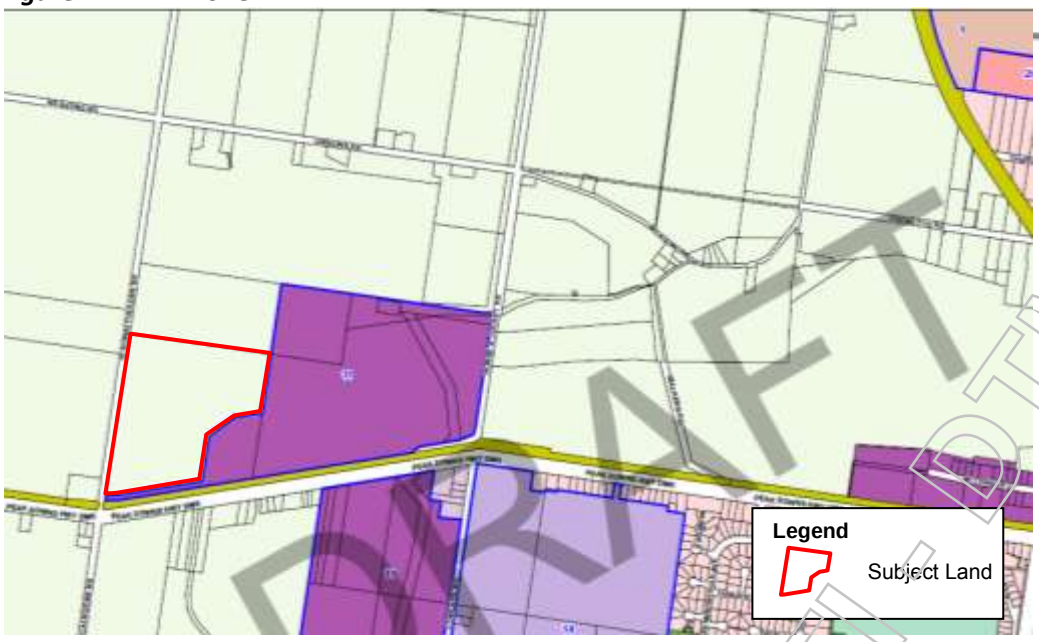
***Figure 4 Zone***




*Source: Proposed Planning Scheme 2013*

### 3.2 Overlays

The Planning Scheme identifies the following overlays may apply to development on the subject land:

- Acid Sulfate Soils Overlay – Acid Sulfate Soils, Land above 5m and below 20m AHD;
- Airport Environs Overlay – Airport Development Distances, Distance from Airport 8km; Obstacle Limitation Surface, between 70 and 100 Conical limitation surface contours;
- Bushfire Hazard Overlay – Medium Risk Area; Medium Risk Area 50m Buffer;
- Extractive Resources and High Impact Activities Overlay – High Impact Activity Buffer;
- Flood and Coastal Hazard Overlay – Area affected by 1% AEP flood event ; Area affected by 0.2% AEP flood event;
- Good quality agricultural land Overlay – Good quality agricultural land;
- Landscape Character and Image Corridor Overlay – Image Corridor;
- Landslide Hazard Overlay – Landslide Hazard (Slope 15% or greater);
- Natural Waterways, Wetlands and Coastal Communities Overlay – Natural Waterways;
- Road Hierarchy Overlay – Arterial; Local Street (Access);

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- Short-Cycle Cropping Land Overlay – Short-Cycle Cropping Land; Short-Cycle Cropping Land Buffer; and

- Transport Noise Corridor Overlay – Category 2 Noise Corridor.

The applicability of the above overlays will depend on the type and detail of development proposed. Similar to the 2009 planning scheme, the GQAL overlay reinforces the intended rural use of the subject land.

A map of each overlay is included at Attachment 3.

### 3.3 Level of Assessment

Table 5.5 (Levels of assessment – Material change of use) of the Planning Scheme identifies the level of assessment for development involving a material change of use in the Rural Zone. Table 2 below identifies the uses identified as exempt, self assessable or code assessable in the Rural Zone.

Table 2 Exempt, Self and Code Assessable Uses

| Use | Level of Assessment |
|---|---|
| Animal husbandry | Exempt or code assessable |
| Animal keeping | Self assessable or code assessable |
| Aquaculture | Code assessable (impact assessable in some instances) |
| Bulk landscape supplies | Code assessable |
| Caretaker's accommodation | Code assessable |
| Cropping | Exempt, self assessable or code assessable |
| Dwelling house | Self assessable or code assessable (If the Dwelling house does not comply with all assessment criteria for self-assessment, the application for building work – development permit is referred to Council as a concurrence agency) |
| Emergency services | Code assessable |
| Environment facility | Exempt or code assessable |
| Extractive industry | Code assessable (impact assessable in some instances) |
| Home base business | Exempt, self assessable or code assessable |
| Intensive animal industry | Exempt or code assessable (impact assessable in some instances) |
| Intensive horticulture | Code assessable |
| Nature based tourism | Code assessable |
| Park | Code assessable |
| Permanent plantations | Exempt or code assessable |
| Roadside stall | Self assessable or code assessable |
| Rural industry | Code assessable |
| Rural workers accommodation | Code assessable |
| Sales office | Self assessable or code assessable |

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| Use | Level of Assessment |
|---|---|
| Short term accommodation | Code assessable (if not more than 25 accommodation rooms; and providing accommodation for not more than 60 guests) |
| Substation | Code assessable (if the input and/or output voltage is 66kV or less) |
| Tourist park | Code assessable (if involving not more than 50 caravan or camping sites) |
| Utility installation | Exempt or code assessable (impact assessable in some instances) |
| Wholesale nursery | Exempt or code assessable |
| Winery | Code assessable |

Where development is for a use other than those listed above, impact assessment applies.

The applicable overlays may elevate the level of assessment for those uses listed above however this will depend on the type and detail of development proposed.

Table 5.7 (Levels of assessment – Reconfiguring a lot) of the Proposed Planning Scheme 2013 identifies the level of assessment for development involving reconfiguring a lot in the Rural Zone. This table identifies reconfiguring a lot in the Rural Zone as either exempt or code assessable. The Reconfiguring of a Lot Code identifies a minimum lot size of 100 hectares for land included in the Rural Zone.

On review of the Rural Zone, and level of assessment tables, it is my view that the subject land is not intended by the Planning Scheme to be developed for urban development, and is not intended to be subdivided (that is, reconfigured into smaller lots).

## 4. PROPOSED MACKAY REGION PLANNING SCHEME VERSION 9

The Proposed Mackay Region Planning Scheme, Version 9 ('Proposed Planning Scheme 2014') was publicly advertised in December 2014. This planning document was therefore also available to the public prior to the taking of the subject land.

### 4.1 Zone

The Planning Scheme includes the subject land in the Rural zone. Refer to Figure 5. The purpose of the Rural Zone Code is similar to the current zoning intent for the subject land (that is, the intent under the Planning Scheme in effect).

The local government purpose of the Rural Zone Code states: *'provide for a range of rural activities, residential uses that support rural activities and intensive rural activities and other uses that cannot be located in urban areas. The zone also contains undeveloped land providing ecological and habitat value. The zone does not accommodate development for urban purposes'*.

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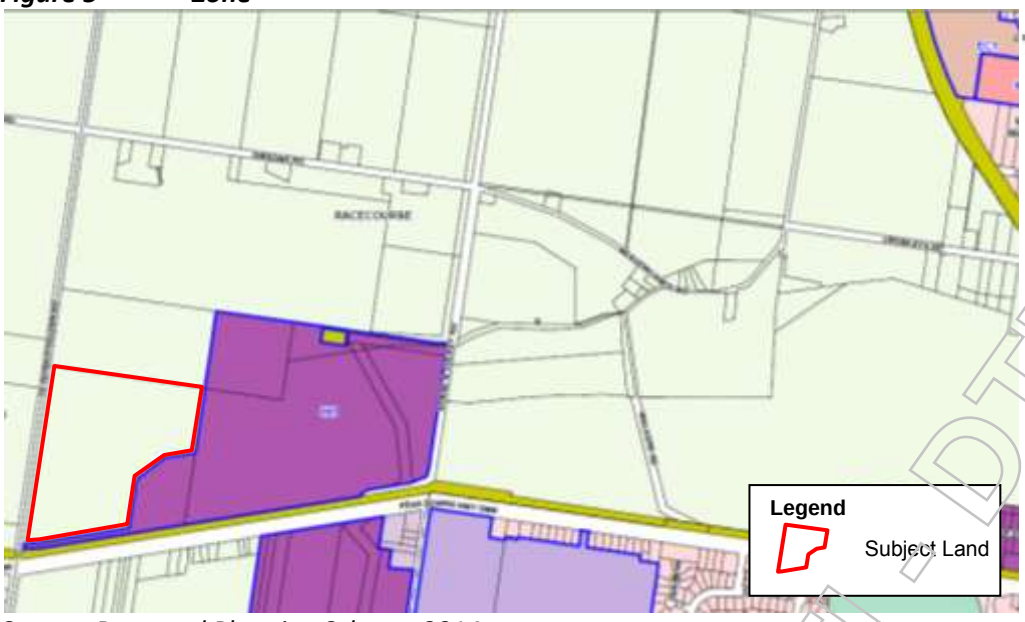
***Figure 5 Zone***




*Source: Proposed Planning Scheme 2014*

### 4.2 Overlays

The Planning Scheme identifies the following overlays may apply to development on the subject land:

- Acid Sulfate Soils Overlay – Acid Sulfate Soils, Land above 5m and below 20m AHD;
- Agricultural Land Overlay (Agricultural Land Classification A and B Overlay) – Agricultural land classification (ALC) Class A and B;
- Agricultural Land Overlay (Locally Important Agricultural Areas Overlay) – Locally important agricultural areas, Locally important agricultural areas (40m buffer area);
- Airport Environs Overlay – Airport Development Distances, Distance from Airport 8km; Obstacle Limitation Surface, between 70 and 100 Conical limitation surface contours;
- Biodiversity Overlay - Environmentally significant vegetation; Waterways; Waterways buffer;
- Bushfire Hazard Overlay – Medium bushfire hazard area; Within 100m of a bushfire hazard area;
- Extractive Resources and High Impact Activities Overlay – High Impact Activity Buffer;
- Flood and Coastal Hazard Overlay – Area affected by 1% AEP flood event ; Area affected by 0.2% AEP flood event;

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- Landscape Character and Image Corridors Overlay – Image Corridor;
- Landslide Hazard Overlay – Landslide Hazard (Slope 15% or greater);
- Regional Infrastructure Overlay – Proximate to railway infrastructure;
- Road Hierarchy Overlay – Arterial; and
- Transport Noise Corridor Overlay – Category 2 Noise Corridor.

The applicability of the above overlays will depend on the type and detail of development proposed. Again, the Agricultural Land Overlay reinforces the intended rural use of the subject land.

A map of each overlay is included at Attachment 4.

### 4.3 Level of Assessment

Table 5.5.17 (Rural zone) of the Proposed Planning Scheme 2014 identifies the level of assessment for development involving a material change of use in the Rural Zone. Table 4 below identifies the uses identified as exempt, self assessable or code assessable in the Rural Zone.

Table 1 Exempt, Self and Code Assessable Uses

| Use | Level of Assessment |
|---|---|
| Animal husbandry | Exempt or code assessable |
| Animal keeping | Self assessable or code assessable |
| Aquaculture | Code assessable (impact assessable in some instances) |
| Bulk landscape supplies | Code assessable |
| Caretaker's accommodation | Code assessable |
| Cropping | Exempt, self assessable or code assessable |
| Dwelling house | Self assessable or code assessable |
| Emergency services | Code assessable |
| Environment facility | Exempt |
| Extractive industry | Code assessable (impact assessable in some instances) |
| Home based business | Exempt, self assessable or code assessable |
| Intensive animal husbandry | Exempt or code assessable (impact assessable in some instances) |
| Intensive horticulture | Code assessable |
| Nature based tourism | Code assessable (if involving no more than 25 accommodation rooms; and providing accommodation for no more than 60 guests) |
| Park | Code assessable |
| Permanent plantations | Exempt or code assessable |
| Roadside stall | Self assessable or code assessable |
| Rural industry | Code assessable |
| Rural workers accommodation | Code assessable |
| Sales office | Self assessable or code assessable |
| Short-term accommodation | Code assessable (if involving a farm stay with |

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| Use | Level of Assessment |
|---|---|
| | no more than 10 accommodation rooms; and providing accommodation for not more than 30 guests) |
| Substation | Code assessable (if the input and/or output voltage is 66kV or less) |
| Telecommunications facility | Code assessable |
| Tourist park | Code assessable (if involving no more than 50 caravan or camping sites) |
| Utility installation | Exempt or code assessable (impact assessable in some instances) |
| Wholesale nursery | Exempt or code assessable |
| Winery | Code assessable |

Where development is for a use other than those listed above, impact assessment applies.

The applicable overlays may elevate the level of assessment for those uses listed above however this will depend on the type and detail of development proposed.

Table 5.6 (Levels of assessment – Reconfiguring a lot) of the Proposed Planning Scheme 2013 identifies the level of assessment for development involving reconfiguring a lot in the Rural Zone. This table identifies reconfiguring a lot in the Rural Zone as either exempt or code assessable. The Reconfiguring of a Lot Code identifies a minimum lot size of 100 hectares for land included in the Rural Zone.

## 5. SUMMARY

The Mackay planning scheme in force at the relevant date, and the draft planning schemes, all include the land in the Rural Zone. Land use activities are also restricted by the subject land's inclusion of GQAL mapping and within the high impact industry activity buffer. The intended land use is clearly for rural or rural related activities. The land is not intended for development for urban purposes, and is unable to be further subdivided into smaller lots.

Yours sincerely,

**John Gaskell**
Director

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# A1 Overlays – Planning Scheme

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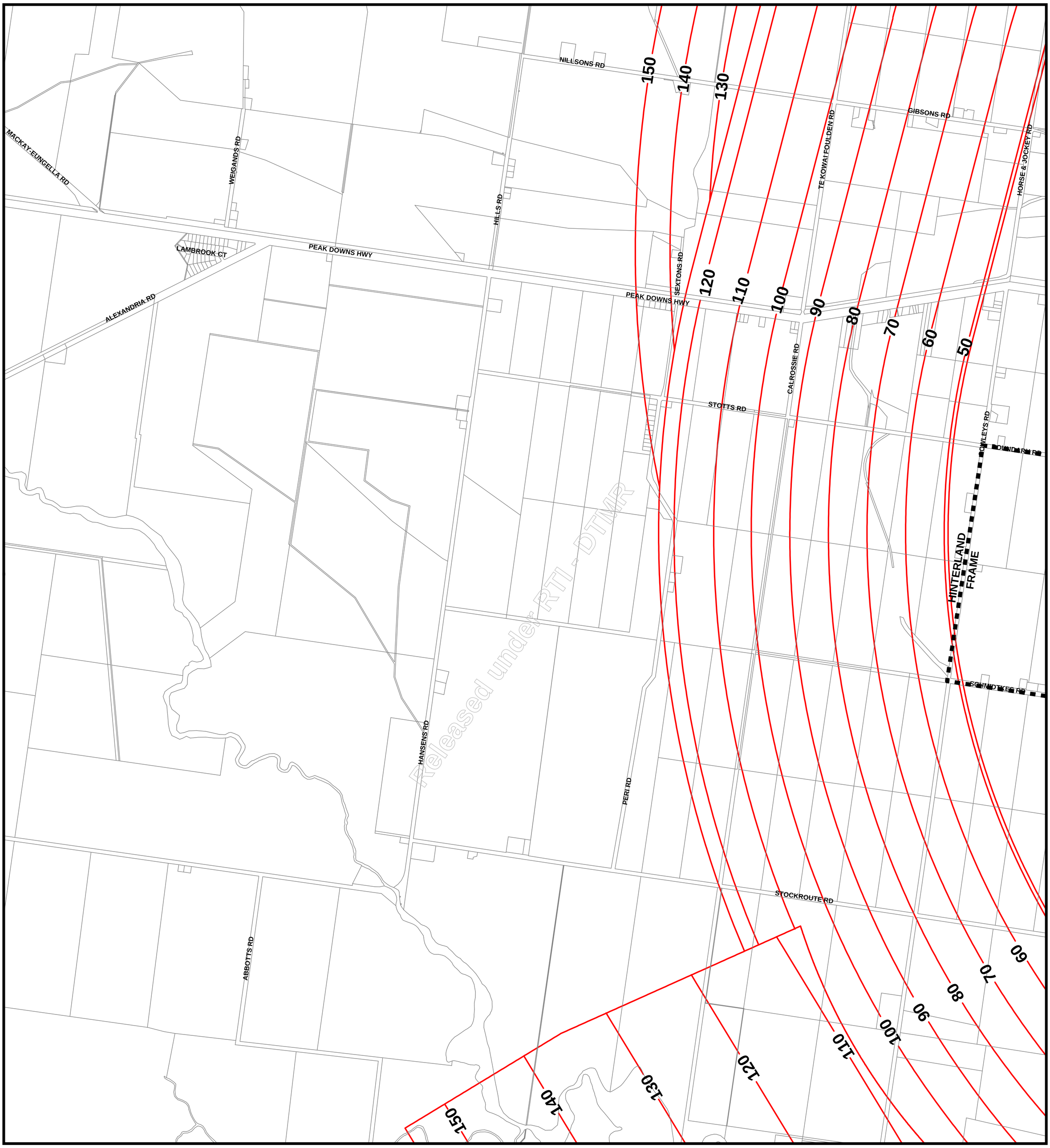
# *Mackay City Council Planning Scheme*

## Development in the vicinity of Mackay Airport Overlay

## OBSTACLE LIMITATION SURFACE

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**Extent of Overlay**

Obstacle Limitation Surfaces

▪ ▪ ▪ Locality Boundaries

N

0 200 400 600 800 1,000

Metres

MACKAY CITY COUNCIL

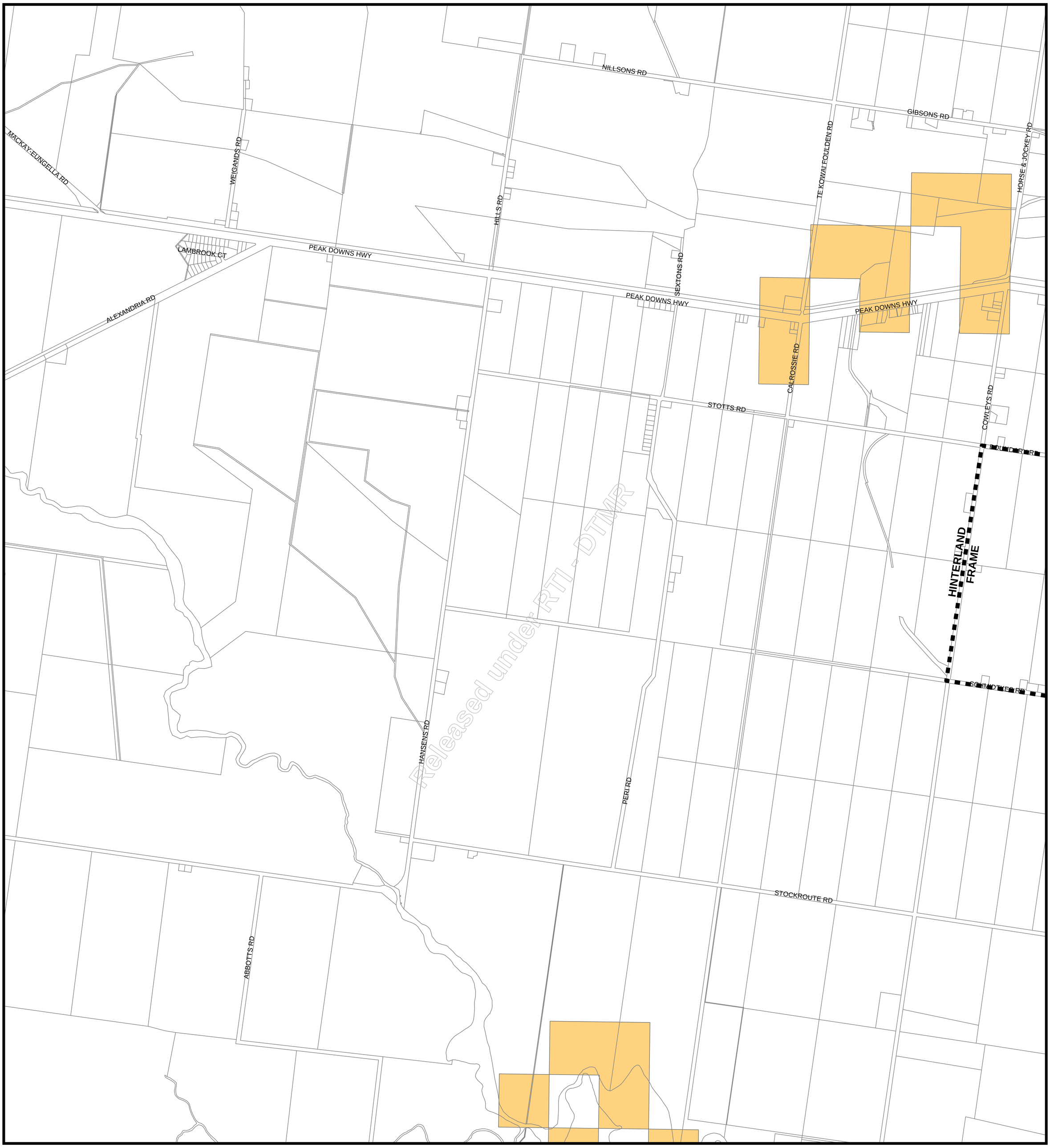
**Series 23 - Alexandra**

Feb 09, 2006

**The Planning Scheme took effect on 24 March 2006**

# *Mackay City Council Planning Scheme*

## BUSHFIRE MANAGEMENT OVERLAY

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N

**Extent of Overlay**

- High Risk Bushfire Hazard Area
- Medium Risk Bushfire Hazard Area
- Locality Boundaries

0 200 400 600 800 1,000
Metres

MACKAY CITY COUNCIL

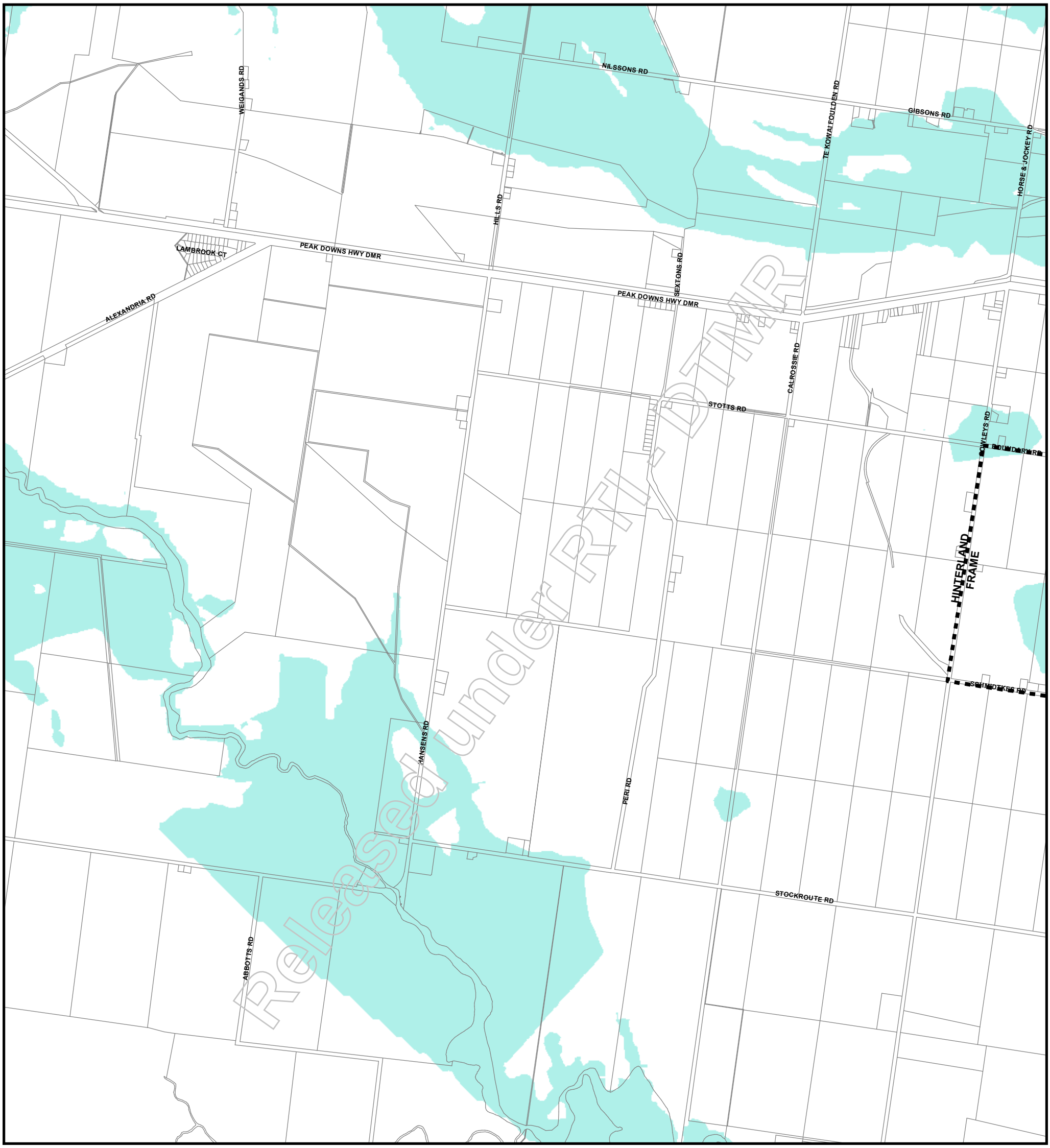
**Series 23 - Alexandra**

Jul 05, 2005

**The Planning Scheme took effect on 24 March 2006**

# *Mackay City Council Planning Scheme*

# FLOOD & INUNDATION MANAGEMENT OVERLAY

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▪▪▪▪▪ Locality Boundaries

**Extent of Overlay**

Self Assessable Category - Dwelling House

Limit of Inundation relates to Riverine flooding only

**The limit of inundation is generally based on the 1% AEP (100 year ARI) flood level**

**THE FLOODING INFORMATION IS INDICATIVE ONLY AND SHOULD NOT BE USED FOR ANY OTHER PURPOSE OTHER THAN FOR PLANNING SCHEME INTERPRETATION. (This information refers to riverine flooding only)**

0 200 400 600 800 1,000

Metres

N

Mackay REGIONAL COUNCIL

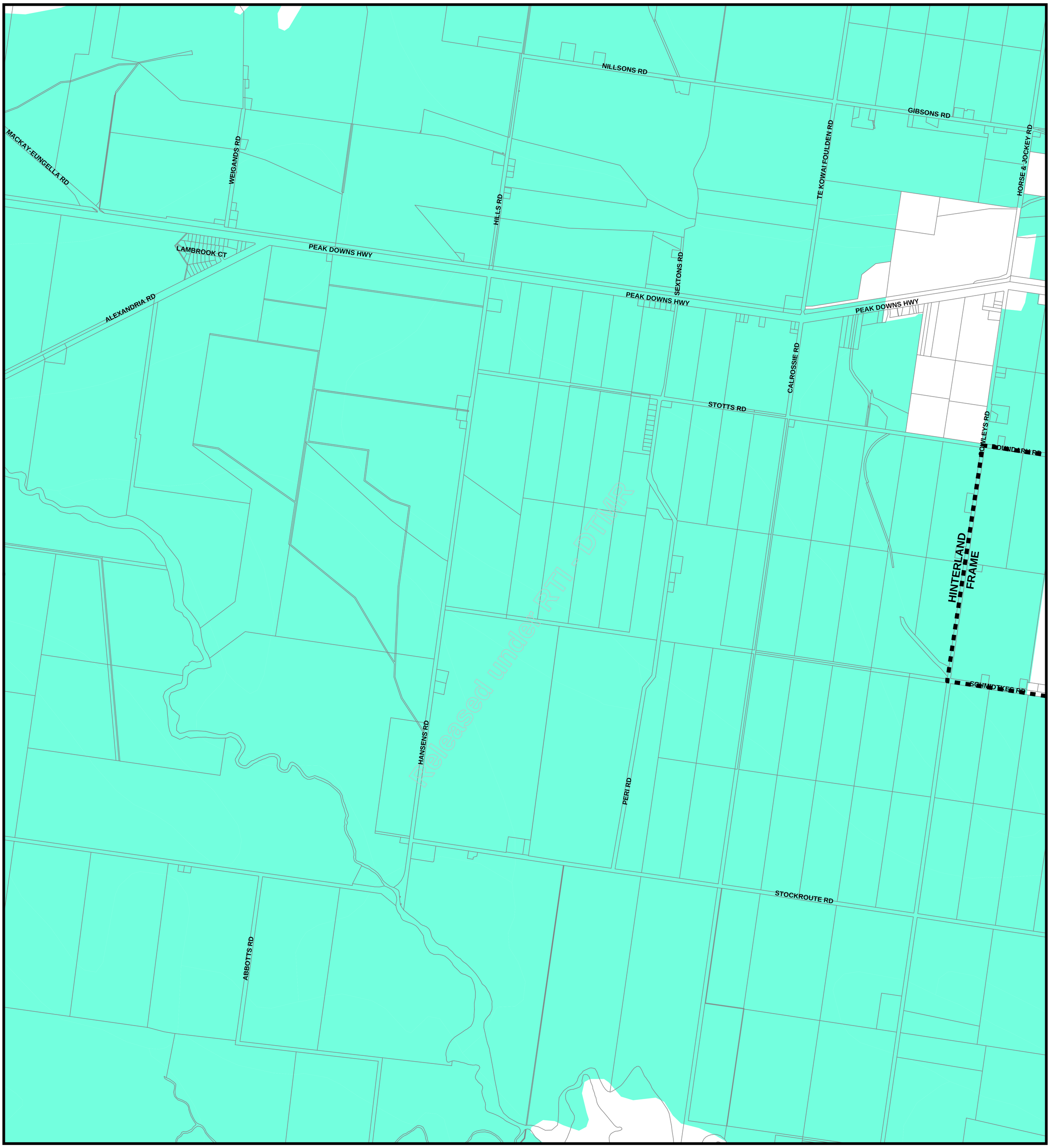
## Series 23 - Alexandra

**Amendments took effect on 24 April 2009**

Apr 22, 2009

# *Mackay City Council Planning Scheme*

# GOOD QUALITY AGRICULTURAL LAND OVERLAY

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**Extent of Overlay**

Good Quality Agricultural Land

Locality Boundaries

N

0 200 400 600 800 1,000

Metres

MACKAY CITY COUNCIL

## Series 23 - Alexandra

Feb 22, 2006

**The Planning Scheme took effect on 24 March 2006**

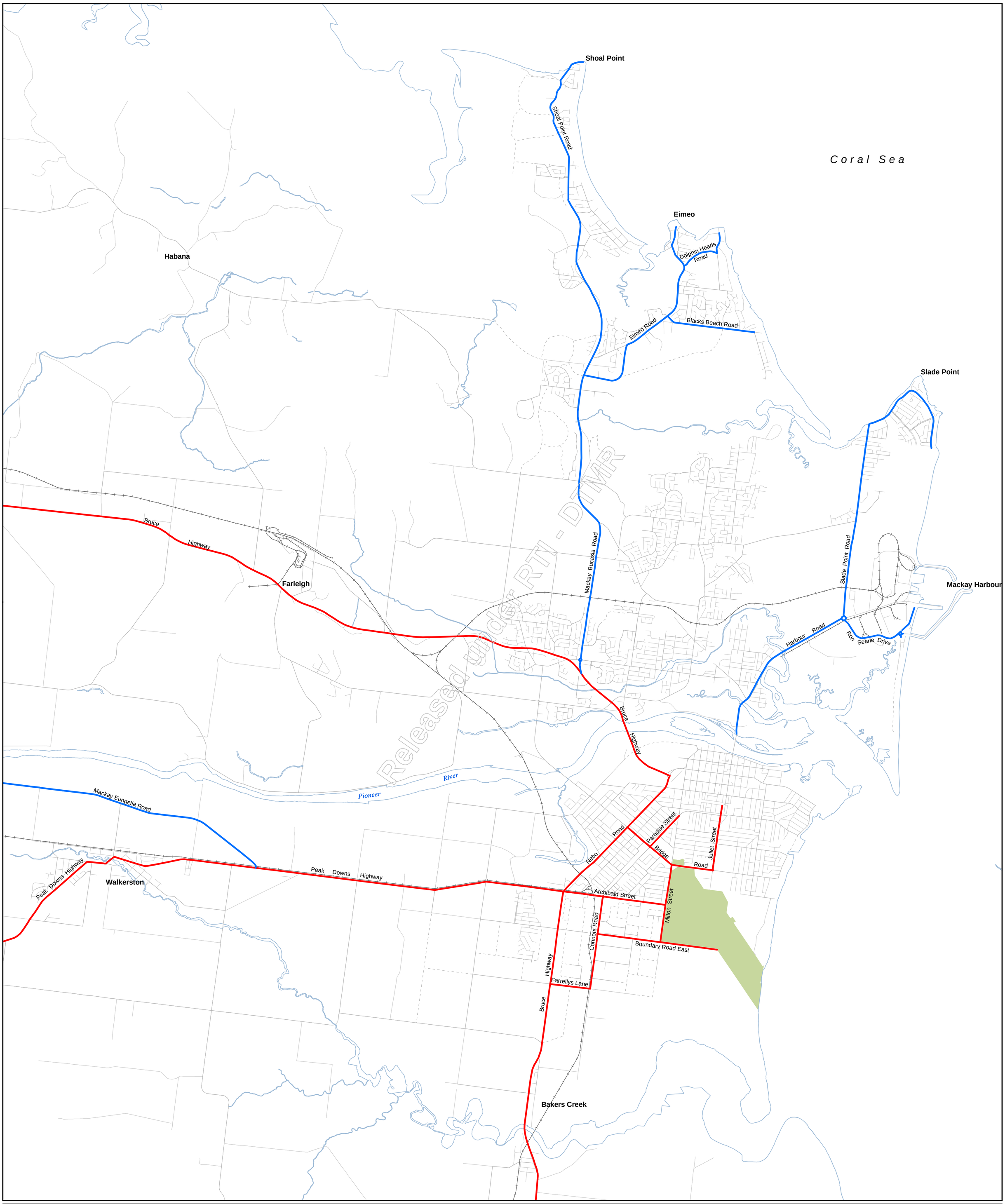
# A2 Information Map

Released under RTI - DTMR

# *Mackay City Council Planning Scheme*

# IMAGE CORRIDORS MAP A

## Information Map

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N

**Legend**

- Entry Corridor
- Tourist Corridor
- Mackay Port Authority Airport

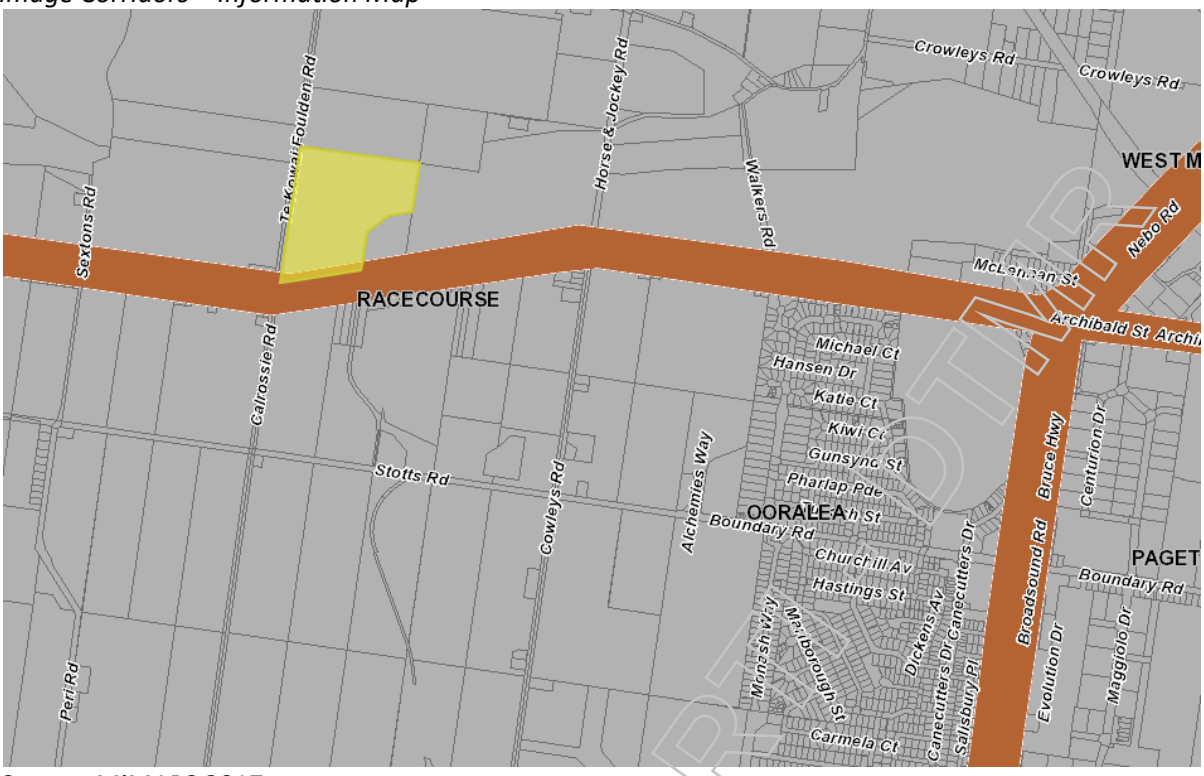
0 500 1,000 1,500 2,000 2,500
Metres

MACKAY CITY COUNCIL

**Image Corridors Map A**

**The Planning Scheme took effect on 24 March 2006**

*Image Corridors – Information Map*

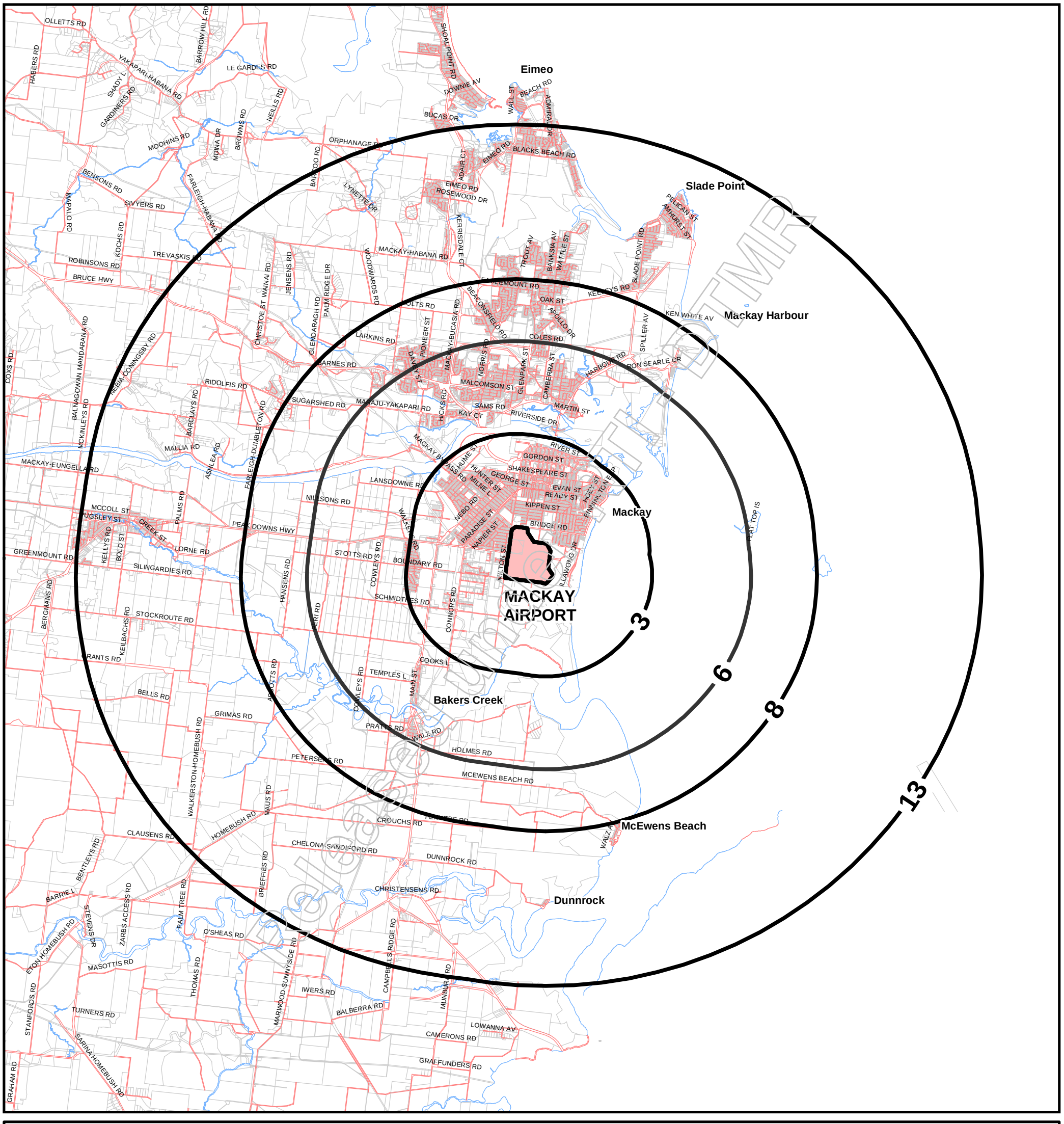



*Source: MiMAPS 2017*

Released under RTI

*Mackay City Council Planning Scheme*

# Development in the Vicinity of Mackay Airport
# Distances from Airport
# Information Map

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N

**Legend**

Radius from Airport in Kilometres

0 1 2 3 4 5
Kilometres

MACKAY CITY COUNCIL

**The Planning Scheme took effect on 24 March 2006**

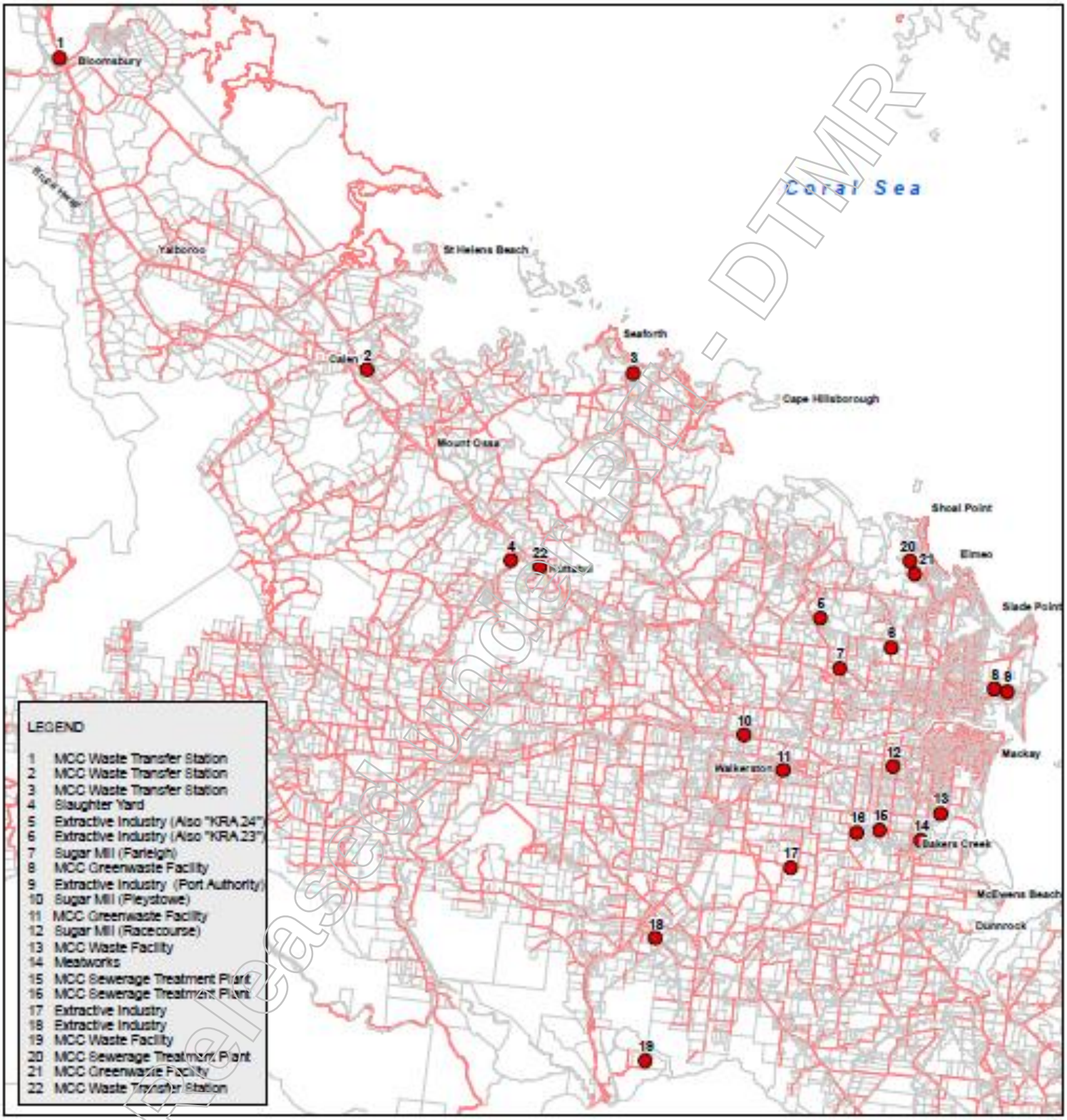
*Airport Development Distances – Information Map*

*Source: MiMAPS 2017*

Released under RTI-DTMR

*Mackay City Council Planning Scheme*

# HIGH IMPACT ACTIVITY AREAS
## Information Map

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N

0 4 8 12 16 20
Kilometres

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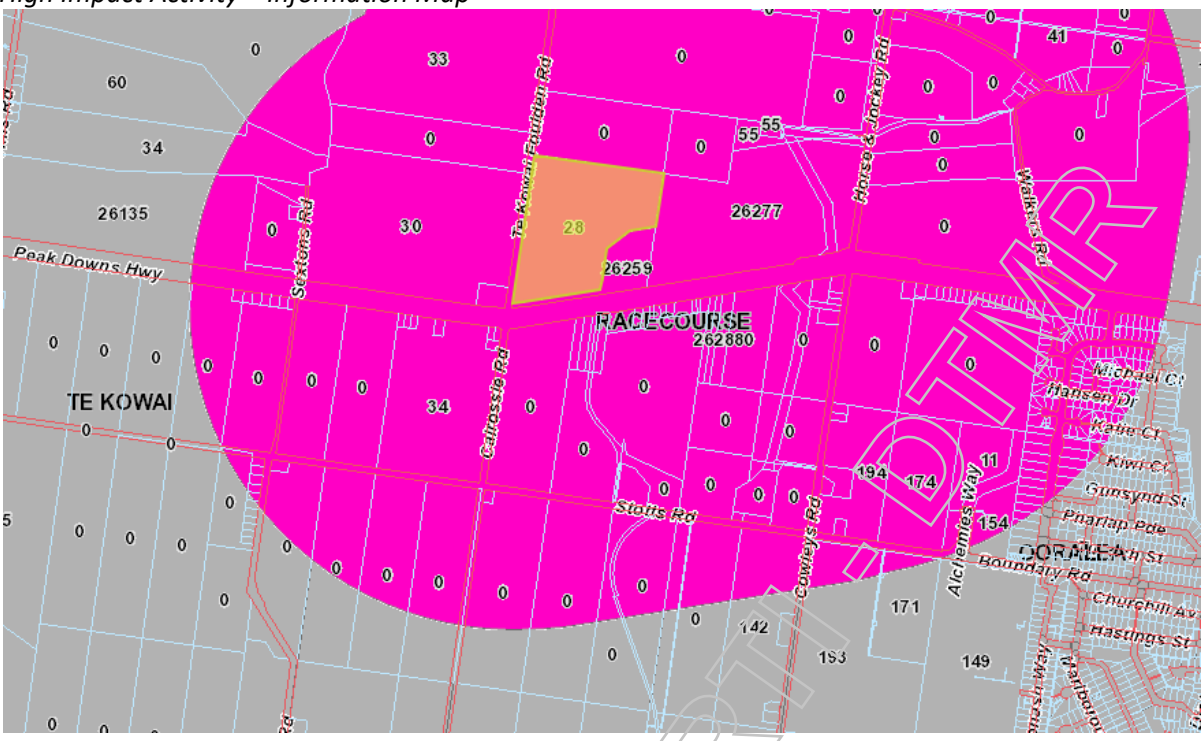
Amendments took effect on 24 April 2009

*High Impact Activity – Information Map*




*Source: MiMAPS 2017*

Released under RTI - DTMR

# A3 Overlays – Proposed Planning Scheme 2013

Released under RTI - DTMR

# Mackay Region PLANNING SCHEME

Mackay REGIONAL COUNCIL

**Acid Sulfate Soils Overlay Maps**

## Development Constraints

**Acid Sulfate Soils**

- Land at or below 5m AHD
- Land above 5m and below 20m AHD

**Cadastre**

- Local Government Boundary
- Cadastre - March 2013 (Sourced DNRM)
- Suburb or Locality
- Waterway or Waterbody

Potential and Actual Acid Sulfate Soils Overlay data was compiled by Mackay Regional Council. The information is based on a DTM developed with LiDAR 2009 data where available and 25m DEM data for areas south of Sarina. This data is to be used as a guide only for planning purposes.

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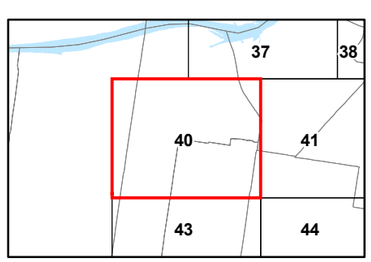
**Approx Scale @ A3 1:10000**

0 125 250 500 Metres




**Acid Sulfate Soils Overlay Map - AS - 40**

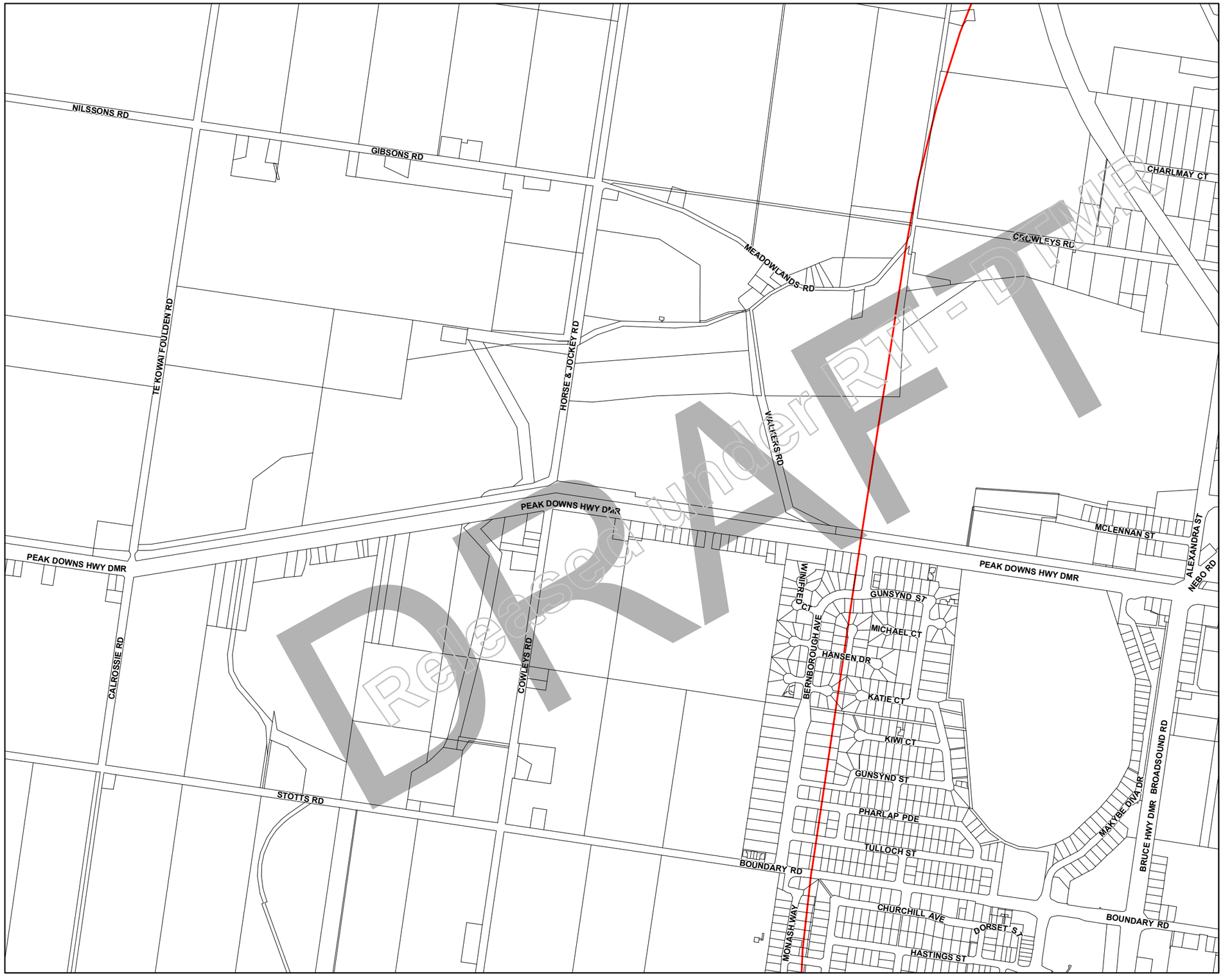
V 0.8, May 2013, DRAFT FOR PUBLIC CONSULTATION

# Mackay Region
PLANNING SCHEME

Mackay REGIONAL COUNCIL

## Airport Environs Overlay Maps

**Airport Development Distances and Airport Noise Exposure Frequency (ANEF) Contour**

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### Development Constraints

**Airport Development Distances**

- Distance from Airport - 3km
- Distance from Airport - 8km
- Distance from Airport - 13km
- Mackay Airport Boundary

**Australian Noise Exposure Forecast Contour (ANEF)**

- Highest ANEF contour value
- Intermediate ANEF contour value
- Lowest ANEF contour value

**Cadastre**

- Local Government Boundary
- Cadastre - March 2013 (Sourced DNRM)
- Suburb or Locality
- Waterway or Waterbody

Airport Environs Overlay data was compiled by Mackay Regional Council based on latest available information. This data is to be used as a guide only for planning purposes.

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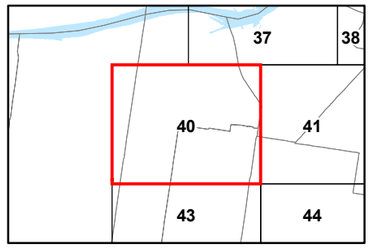
0 125 250 500 Metres




**Airport Environs Overlay Map - AE - DN - 40**

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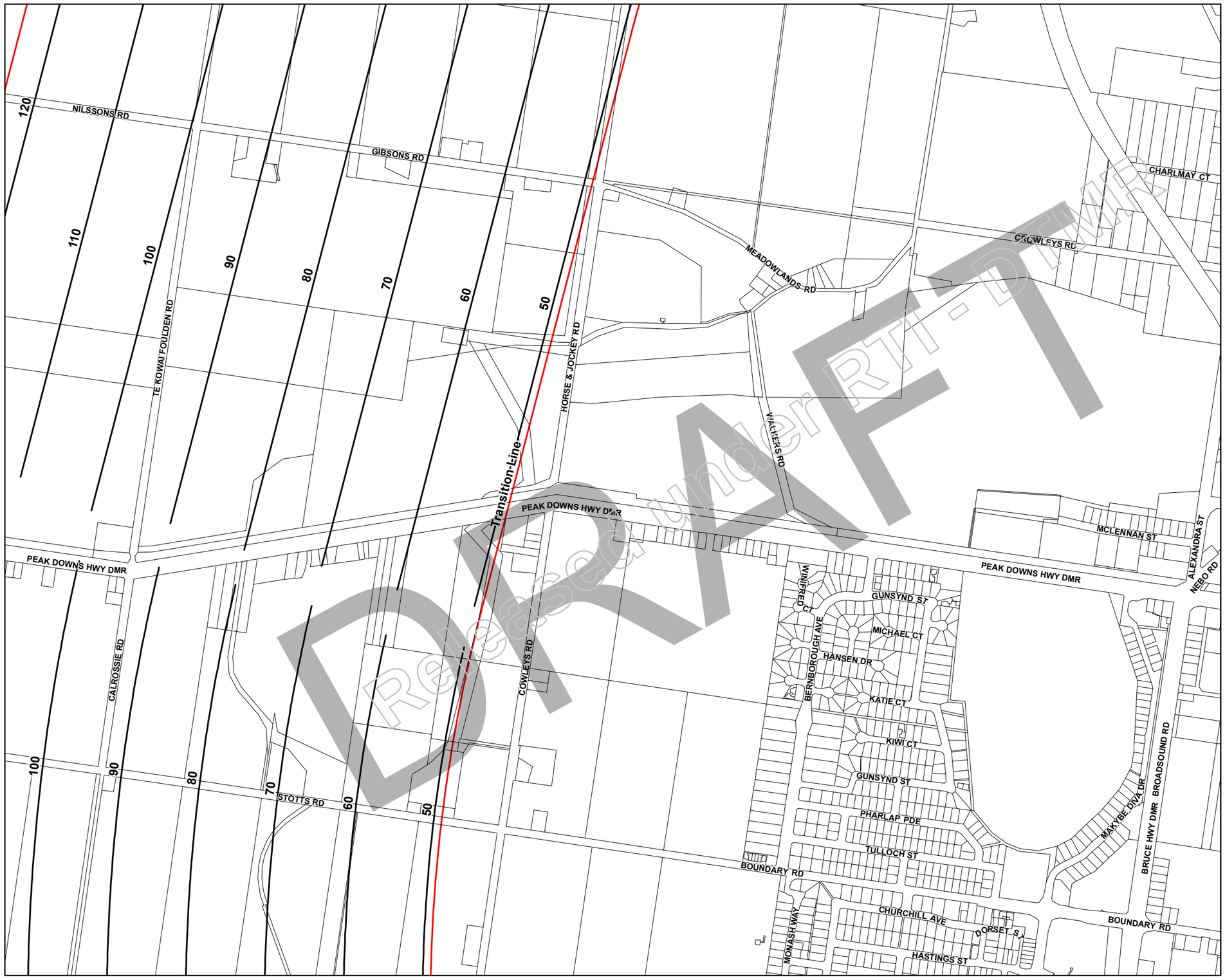
# Mackay Region PLANNING SCHEME

Mackay REGIONAL COUNCIL

## Airport Environs Overlay Maps

**Obstacle Limitation Surface Contours, Airport Saftey Zone and Airport Runway**




### Development Constraints

**Obstacle Limitation Surface (OLS)**

- Conical limitation surface contours
- Approach and departure limitation surface boundary and contours
- Runway centreline
- Airport Safety Zone
- Airport Runway

**Cadastre**

- Local Government Boundary
- Cadastre - March 2013 (Sourced DNRM)
- Suburb or Locality
- Waterway or Waterbody

Airport Environs Overlay data was compiled by Mackay Regional Council based on latest available information. This data is to be used as a guide only for planning purposes.

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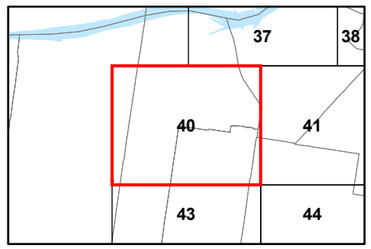


**Airport Environs Overlay Map - AE - OL - 40**

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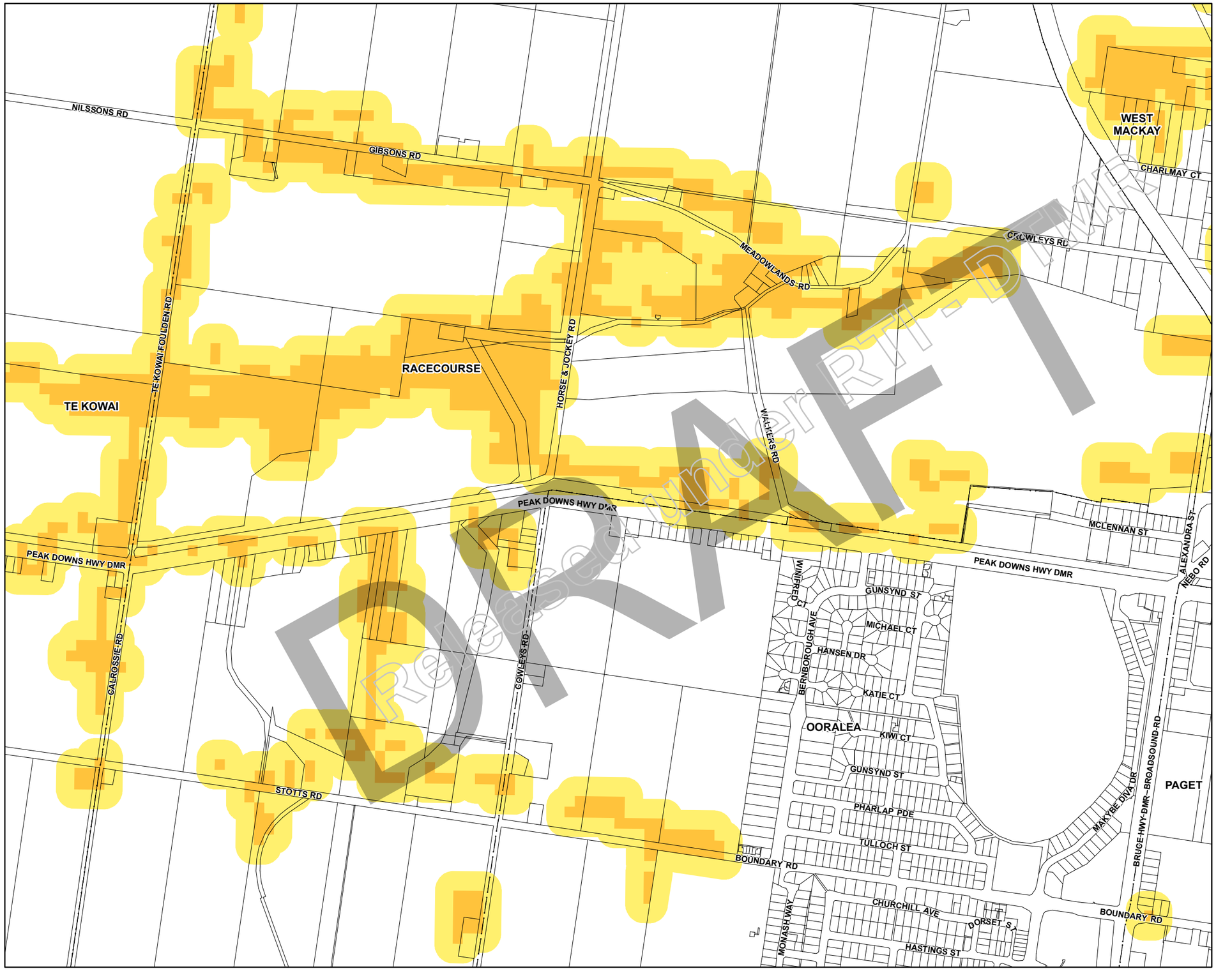
# Mackay Region PLANNING SCHEME

Mackay REGIONAL COUNCIL

**Bushfire Hazard Overlay Maps**

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## Development Constraints

**Bushfire Hazard**

- High Risk Area
- High Risk Area 100m Buffer
- Medium Risk Area
- Medium Risk Area 50m Buffer

**Cadastre**

- Local Government Boundary
- Cadastre - March 2013 (Sourced DNRM)
- Suburb or Locality
- Waterway or Waterbody

Bushfire Hazard Overlay data was compiled by Mackay Regional Council based on information provided by Queensland Fire and Rescue Service, with amendments made in the 5 major urban areas. This data is to be used as a guide only for planning purposes.

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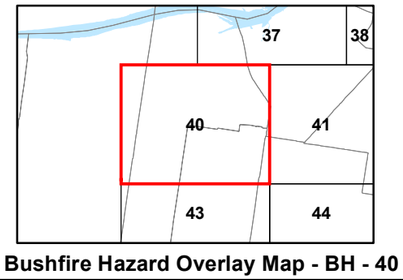


## Bushfire Hazard Overlay Map - BH - 40

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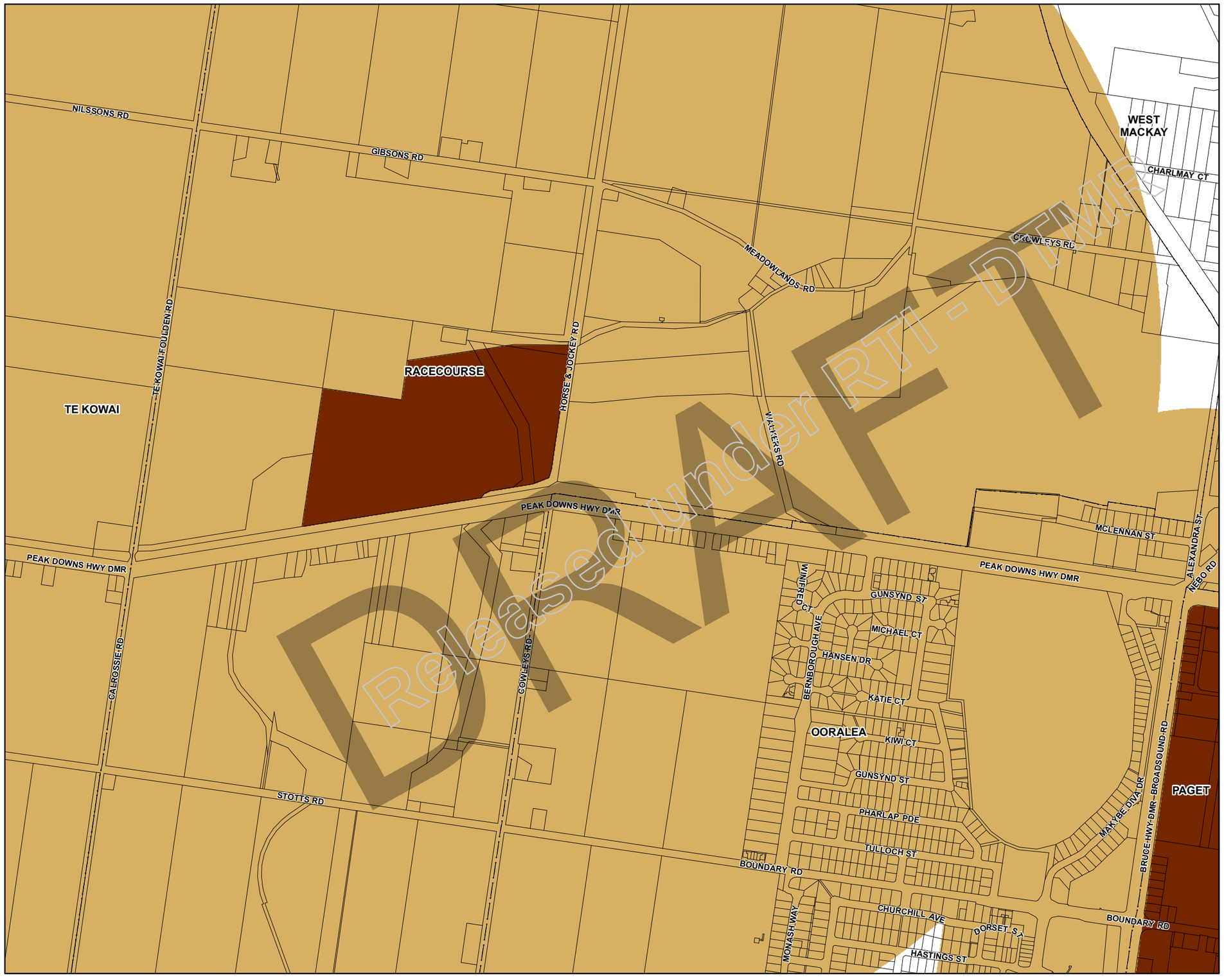
# Mackay Region
PLANNING SCHEME

Mackay Regional Council

**Extractive Resources and High Impact Activities Overlay Maps**




## Natural Resources and Development Constraints

**Key Resource Areas**

- Processing Area
- Separation Area
- KRA Transport Route

**High Impact Activity Areas**

- High Impact Activity
- High Impact Activity Buffer

**Non- KRA Quarries**

- Non-KRA Quarry
- Non-KRA Quarry Buffer

- Mining Tenements (Information only, no provisions in the overlay code)

**Cadastre**

- Local Government Boundary
- Cadastre - March 2013 (Sourced DNRM)
- Suburb or Locality
- Waterway or Waterbody

Extractive Resources and High Impact Activities Overlay data was created by Mackay Regional Council. This data is to be used as a guide only for planning purposes.

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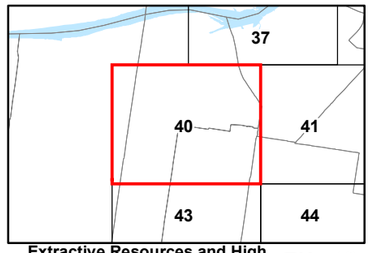


**Extractive Resources and High Impact Activities Overlay Map - EH - 40**

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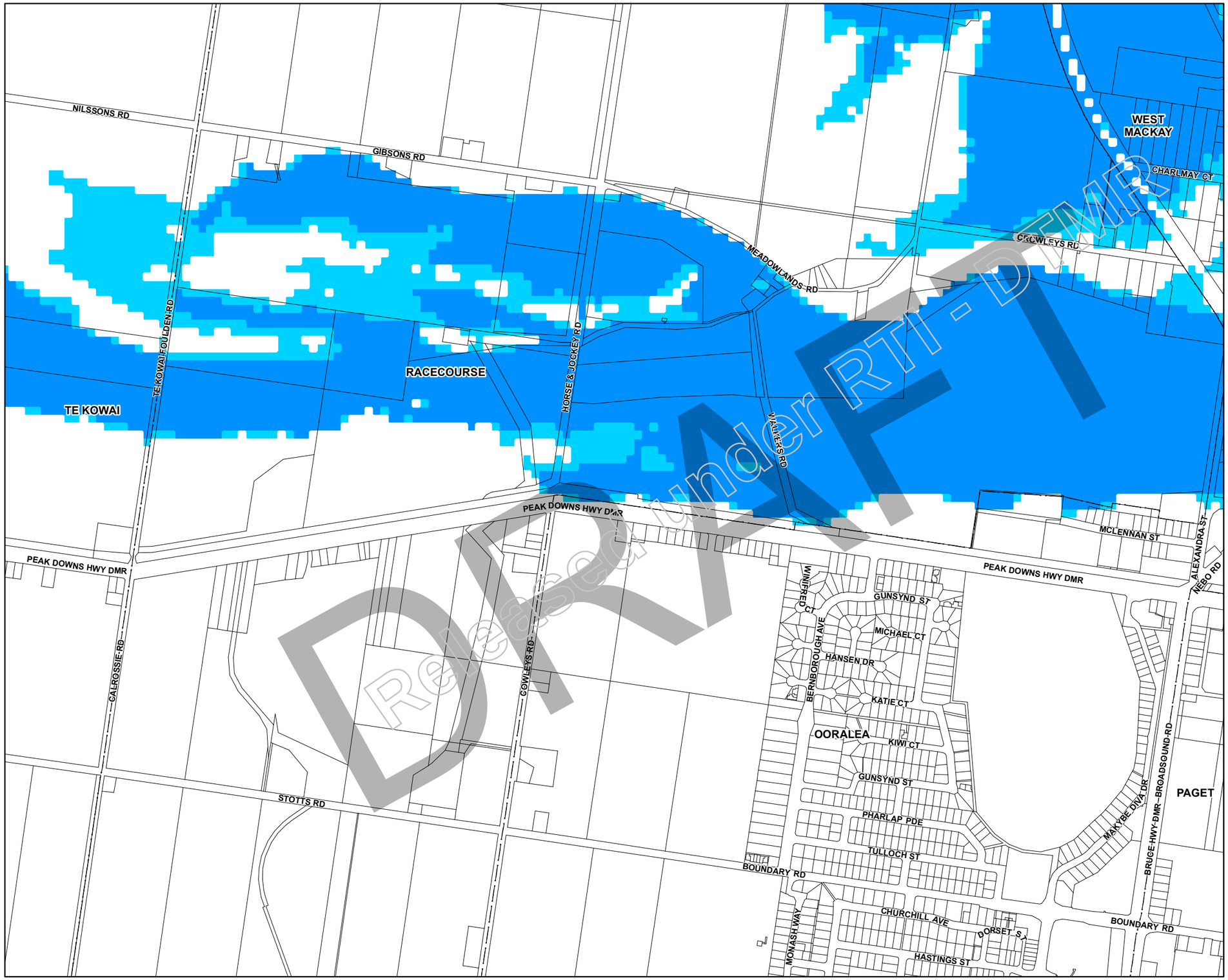
# Mackay Region
PLANNING SCHEME

Mackay Regional Council

**Flood Hazard Overlay Maps**

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## Development Constraints

- Area affected by 1% AEP flood hazard
- Area affected by 0.2% AEP flood event

**Cadastre**

- Local Government Boundary
- Cadastre - March 2013 (Sourced DNRM)
- Suburb or Locality
- Waterway or Waterbody

Flood Hazard Overlay data was supplied by Mackay Regional Council Flood Studies on the Pioneer River, Goosepond Creek and McCreadys Creek South. This data is to be used as a guide only for planning purposes.

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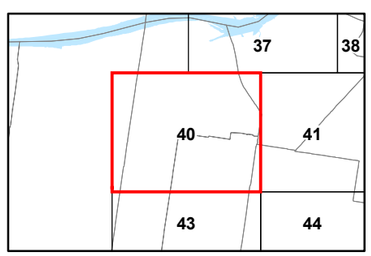


**Flood Hazard Overlay Map - FH - 40**

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# Mackay Region
PLANNING SCHEME

Mackay REGIONAL COUNCIL

**Good Quality Agricultural Land Overlay Maps**

## Natural Resources

- Good Quality Agricultural Land
- Good Quality Agricultural Land (300m buffer)

**Cadastre**

- Local Government Boundary
- Cadastre - March 2013 (Sourced DNRM)
- Suburb or Locality
- Waterway or Waterbody

Good Quality Agricultural Land Overlay is based on data supplied by the Department of Environment and Resource Management (DERM,) with amendments made in urban areas. This data is to be used as a guide only for planning purposes.

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**Approx Scale @ A3 1:10000**

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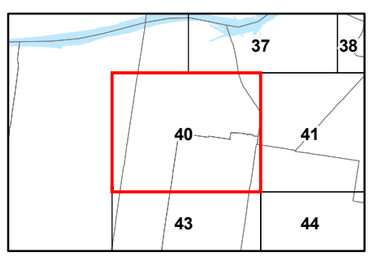


**Good Quality Agricultural Land Overlay Map - GQ - 40**

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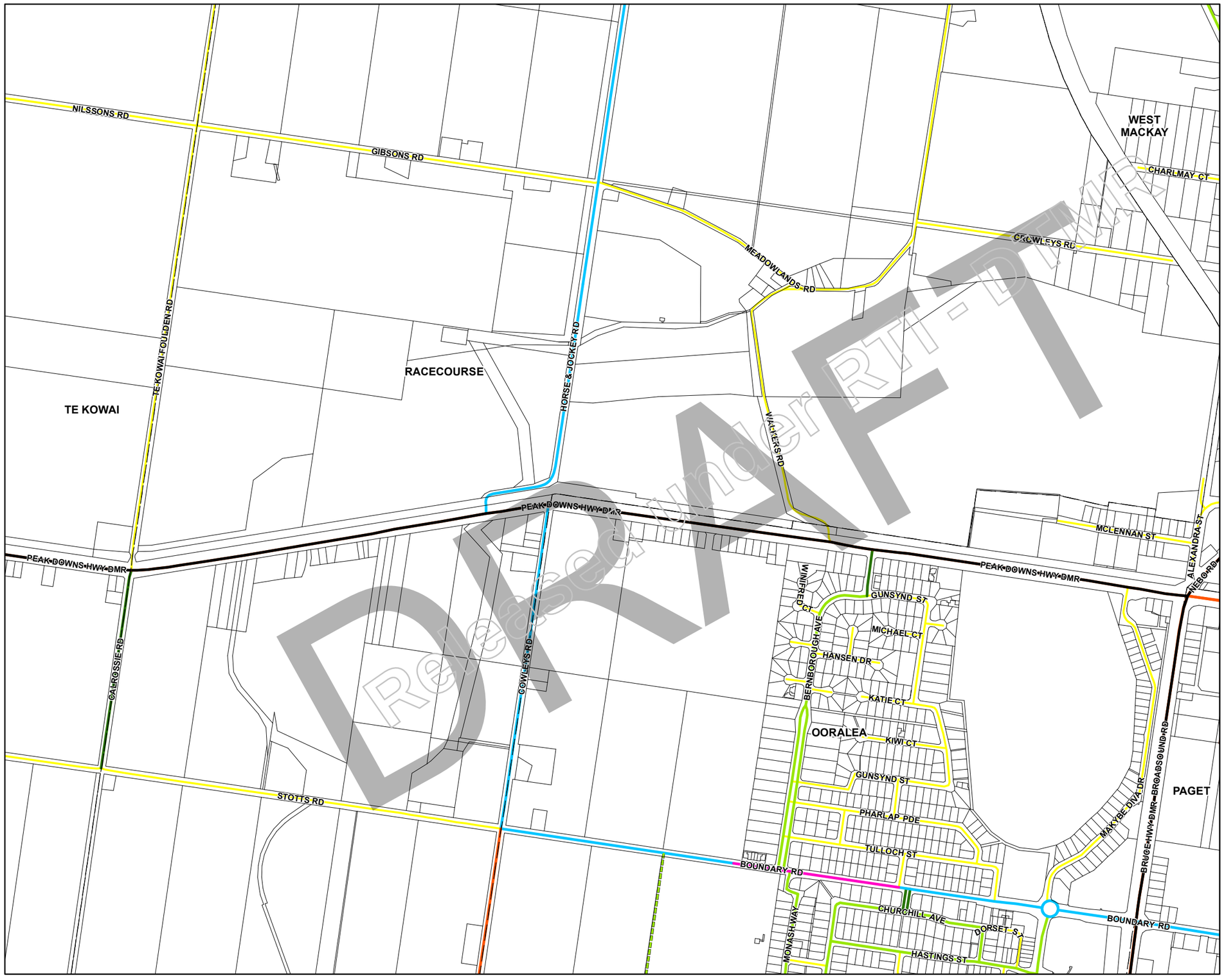
# Mackay Region
PLANNING SCHEME

Mackay REGIONAL COUNCIL

**Road Hierarchy Overlay Maps**

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## Infrastructure

**Proposed MRC Hierarchy**

- Arterial (State Controlled Road)
- Arterial
- Arterial (Main Street)
- Controlled Distributor
- Traffic Distributor
- Sub-Arterial Main Street
- Major Collector
- Major Collector (Industrial)
- Minor Collector
- Local Street (Access)
- Local Street (Urban Place)
- Laneway
- Private
- Major Rural (Collector)
- Minor Rural (Access)
- MULTIMODAL
- Proposed Arterial
- Proposed Controlled Distributor
- Proposed Traffic Distributor
- Proposed Major Collector
- Proposed Minor Collector

**Cadastre**

- Local Government Boundary
- Cadastre - March 2013 (Sourced DNRM)
- Suburb or Locality
- Waterway or Waterbody

Road Hierarchy Overlay data was created by Mackay Regional Council. This data is to be used as a guide only for planning purposes.

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**Approx Scale @ A3 1:10000**

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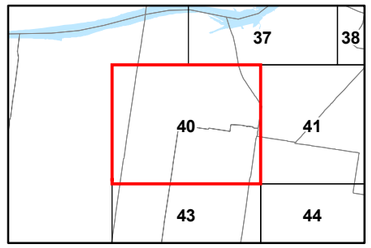


## Road Hierarchy Overlay Map - RH - 40

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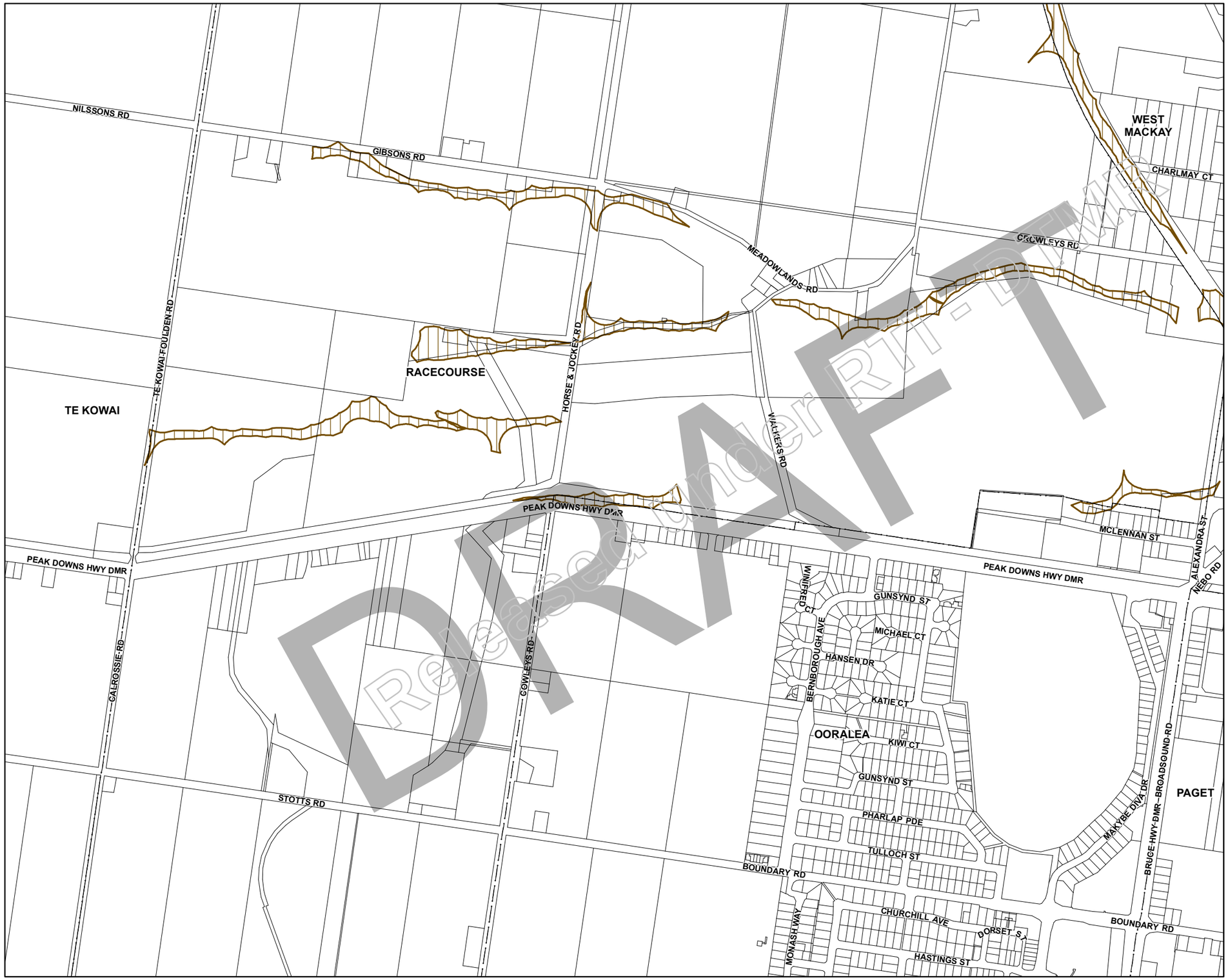
# Mackay Region PLANNING SCHEME

Mackay REGIONAL COUNCIL

**Landslide Hazard Overlay Maps**

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## Development Constraints

Landslide Hazard (Slope 15% or greater)

**Cadastre**

- Local Government Boundary
- Cadastre - March 2013 (Sourced DNRM)
- Suburb or Locality
- Waterway or Waterbody

Landslide Hazard Overlay was compiled by Mackay Regional Council using information provided by LiDAR 2009 data, 25m DEM data and other external data. This data is to be used as a guide only for planning purposes.

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**Approx Scale @ A3 1:10000**

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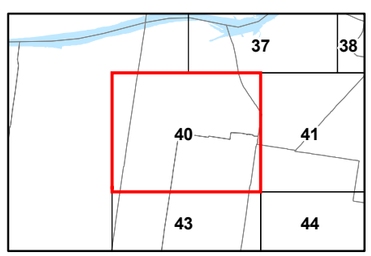


**Landslide Hazard Overlay Map - LH - 40**

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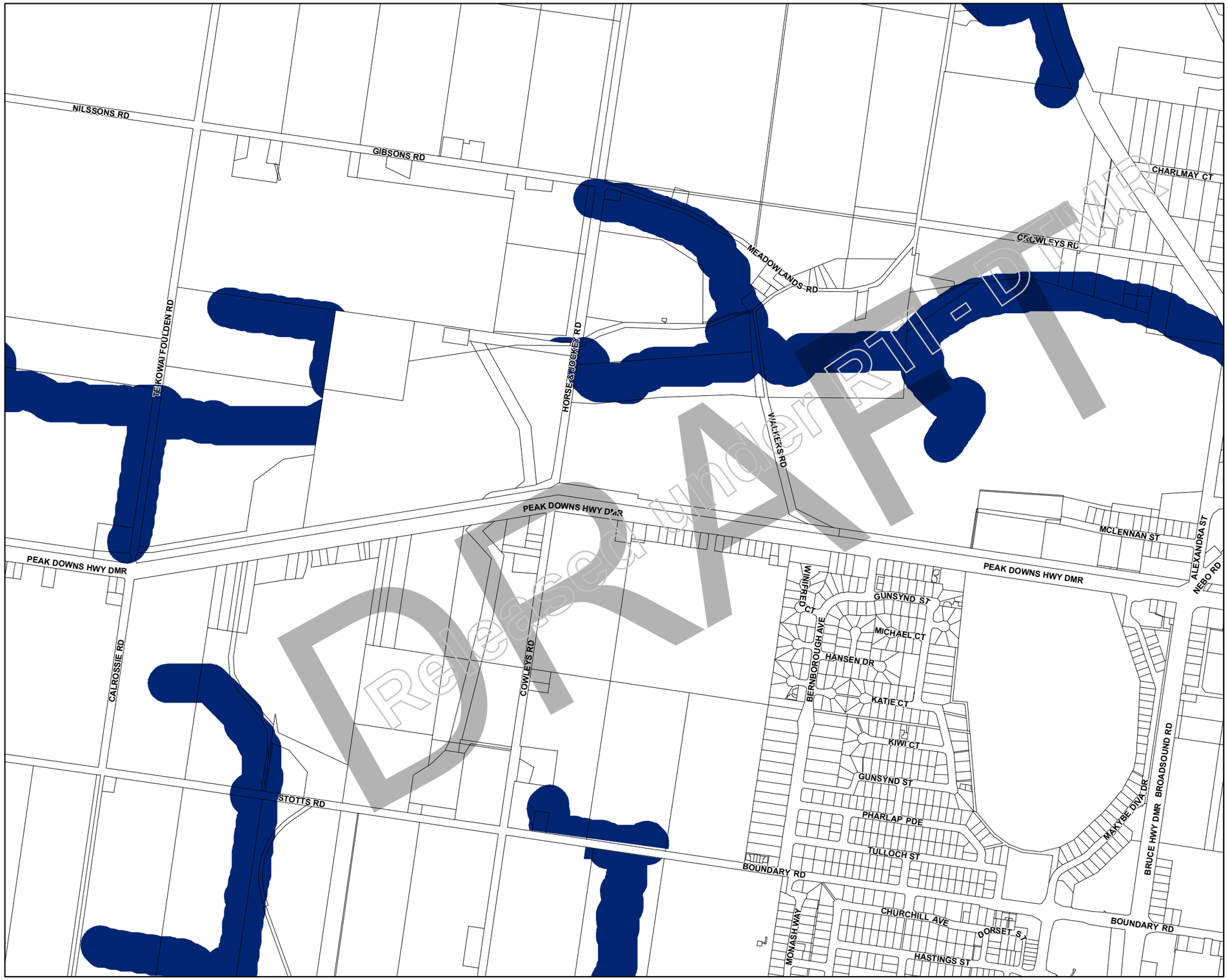
# Mackay Region
PLANNING SCHEME

Mackay REGIONAL COUNCIL

**Natural Waterways, Wetlands and Coastal Communities Overlay Maps**

**Natural Waterways and Wetlands**




DRAFT
Released unde

## Environment

- Natural Waterways
- Natural Wetlands
- Wetland Management Areas

### Cadastre

- Local Government Boundary
- Cadastre - March 2013 (Sourced DNRM)
- Suburb or Locality
- Waterway or Waterbody

Wetlands of High Ecological Significance Overlay data was supplied by the Department of Environment and Resource Management (DERM) relating to areas of environmental significance. This data is to be used as a guide only for planning purposes.

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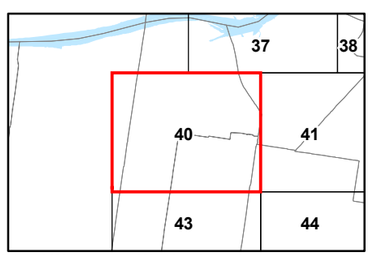
**Approx Scale @ A3 1:10000**

0 125 250 500 Metres



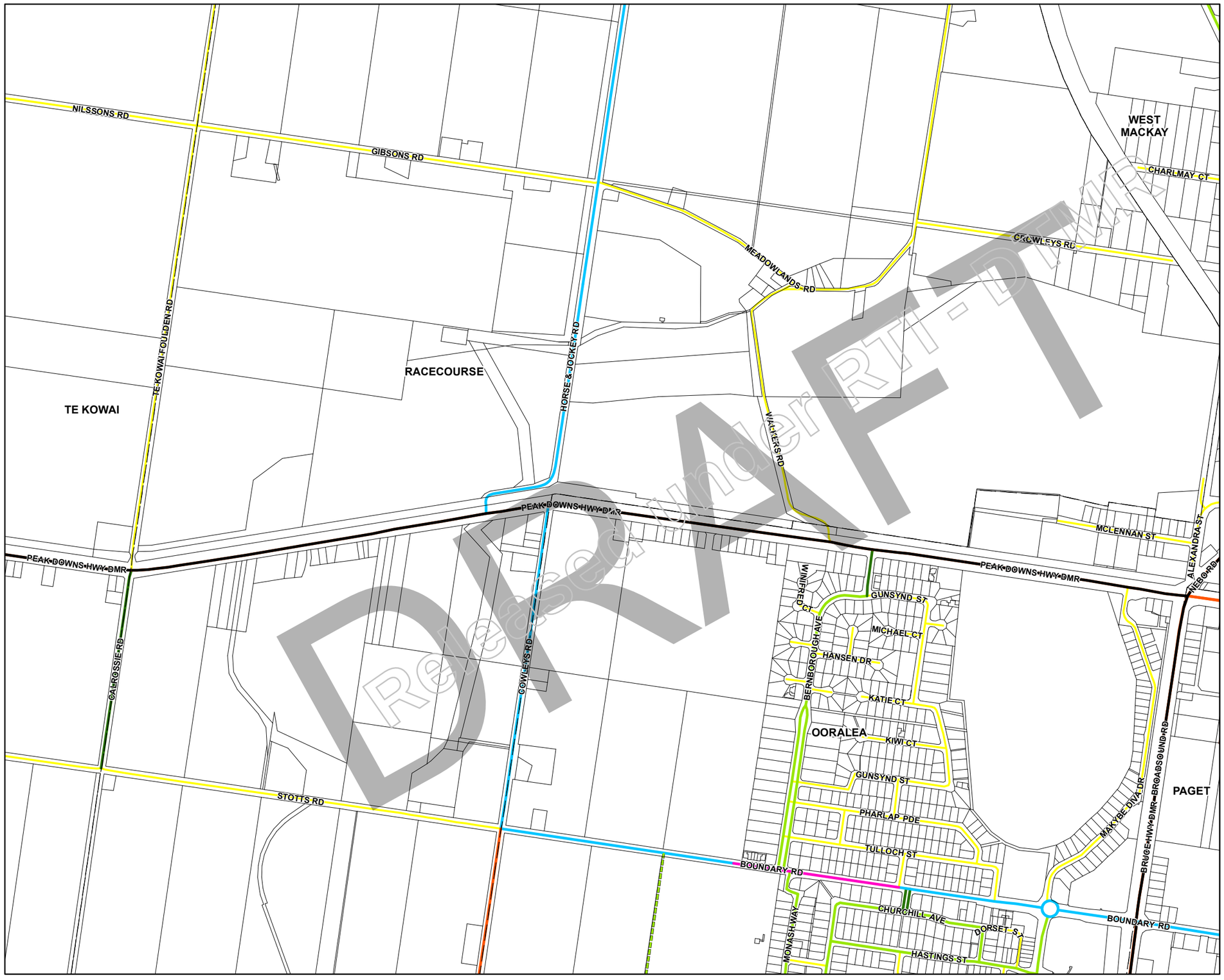

**Natural Waterways, Wertlands and Coastal Communities Overlay Map - NW - NW - 40**

V 0.8, May 2013, DRAFT FOR PUBLIC CONSULTATION

# Mackay Region
PLANNING SCHEME

Mackay REGIONAL COUNCIL

**Road Hierarchy Overlay Maps**




## Infrastructure

**Proposed MRC Hierarchy**

- Arterial (State Controlled Road)
- Arterial
- Arterial (Main Street)
- Controlled Distributor
- Traffic Distributor
- Sub-Arterial Main Street
- Major Collector
- Major Collector (Industrial)
- Minor Collector
- Local Street (Access)
- Local Street (Urban Place)
- Laneway
- Private
- Major Rural (Collector)
- Minor Rural (Access)
- MULTIMODAL
- Proposed Arterial
- Proposed Controlled Distributor
- Proposed Traffic Distributor
- Proposed Major Collector
- Proposed Minor Collector

**Cadastre**

- Local Government Boundary
- Cadastre - March 2013 (Sourced DNRM)
- Suburb or Locality
- Waterway or Waterbody

Road Hierarchy Overlay data was created by Mackay Regional Council. This data is to be used as a guide only for planning purposes.

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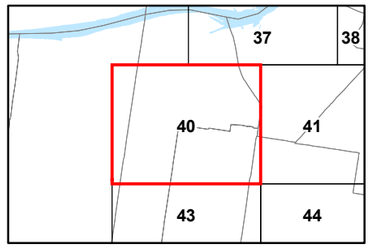


## Road Hierarchy Overlay Map - RH - 40

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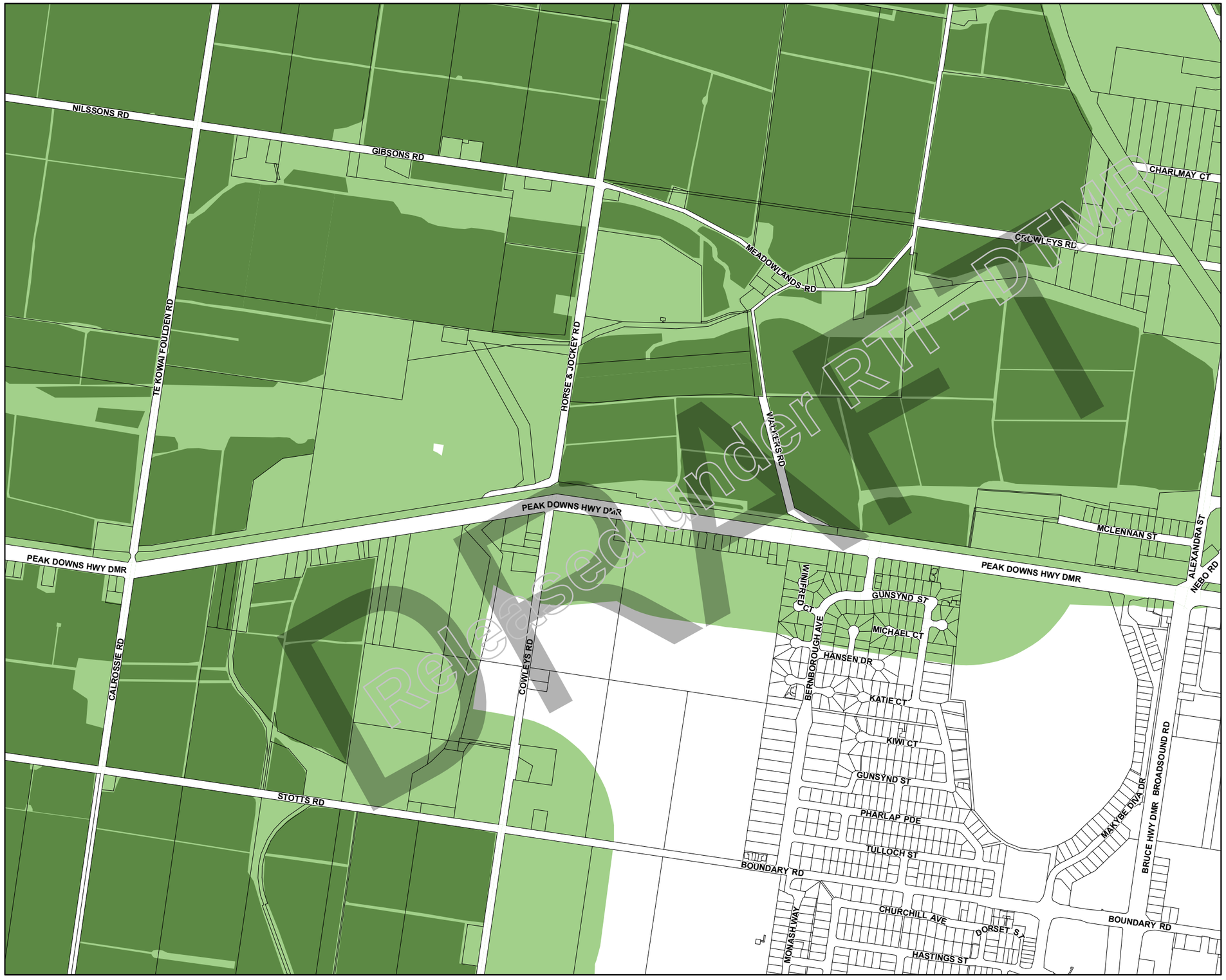
# Mackay Region PLANNING SCHEME

Mackay Regional Council

**Short-Cycle Cropping Land Overlay Maps**




Released under DNRM

## Natural Resources

- Short-Cycle Cropping Land
- Short-Cycle Cropping Land Buffer

**Cadastre**

- Local Government Boundary
- Cadastre - March 2013 (Sourced DNRM)
- Suburb or Locality
- Waterway or Waterbody

Cane Footprint Overlay was developed in consultation with the sugar industry. The cane footprint includes the highest value land specifically suitable for sugarcane production. The cane footprint identifies land according to set criteria. This data is to be used as a guide only for planning purposes.

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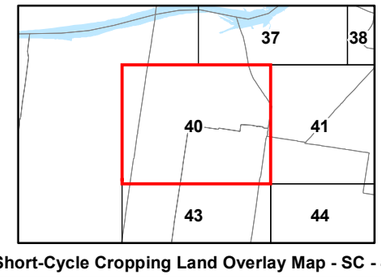


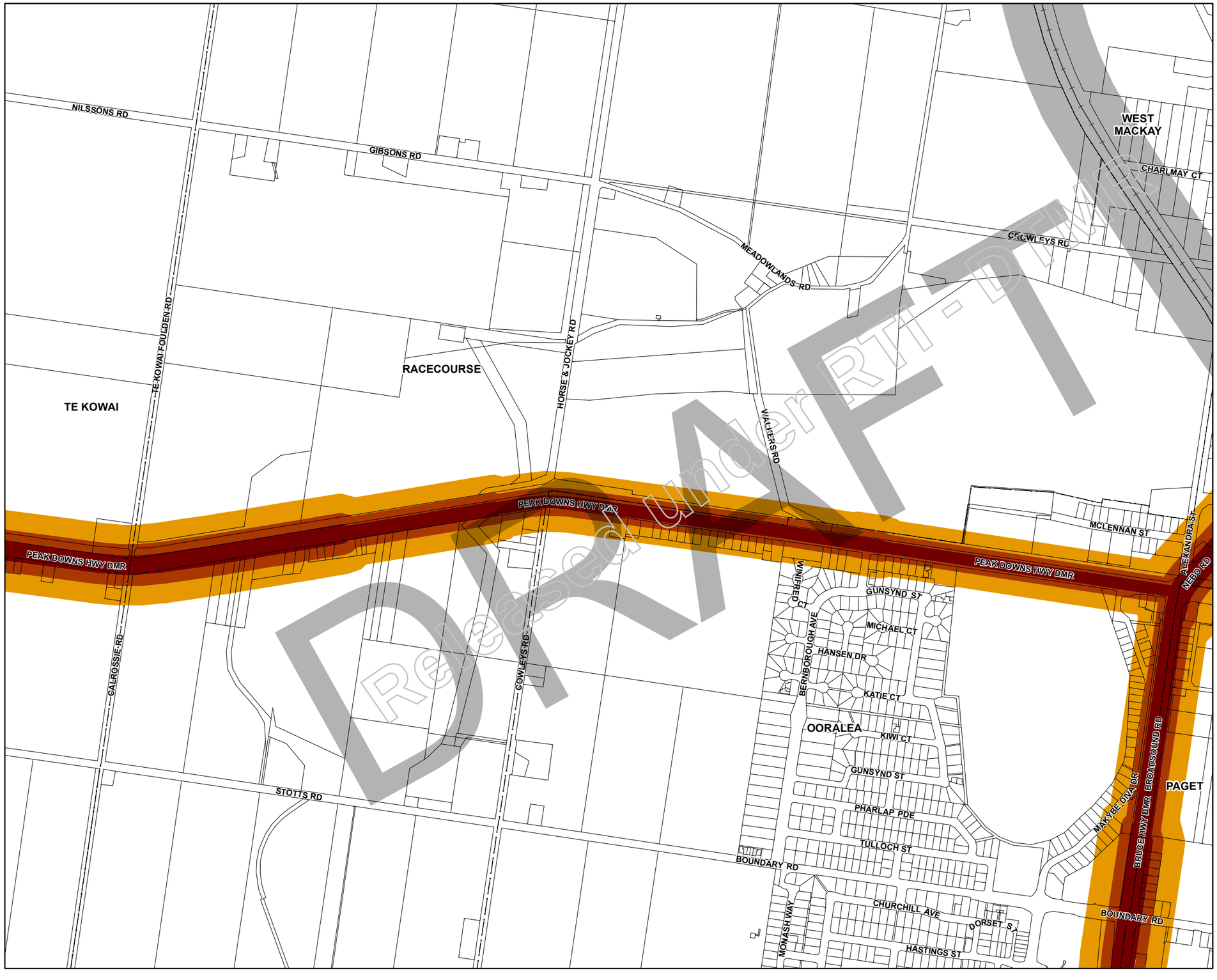

**Short-Cycle Cropping Land Overlay Map - SC - 40**

V 0.8, May 2013, DRAFT FOR PUBLIC CONSULTATION

# Mackay Region PLANNING SCHEME

Mackay REGIONAL COUNCIL

**Transport Noise Corridor Overlay Maps**




DRAFT
Released under AeRT - DTMR

## Development Constraints

**Transport Noise Corridor**

- Category 1 Noise Corridor
- Category 2 Noise Corridor
- Category 3 Noise Corridor
- Category 4 Noise Corridor
- Railway Network
- Railway Network Buffer

**Cadastre**

- Local Government Boundary
- Cadastre - March 2013 (Sourced DNRM)
- Suburb or Locality
- Waterway or Waterbody

Transport Noise Corridor Overlay data was supplied by the Department of Transport and Main Roads, with amendments made where the State Controlled road network has changed. This data is to be used as a guide only for planning purposes.

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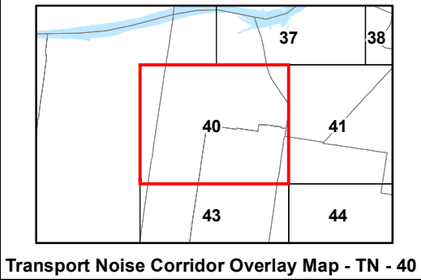


**Transport Noise Corridor Overlay Map - TN - 40**

# A4 Overlays – Proposed Planning Scheme 2014

Released under RTI - DTMR

Mackay Region
PLANNING SCHEME

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Mackay
REGIONAL COUNCIL

# Acid Sulfate Soils Overlay Maps

## Development Constraints

**Acid Sulfate Soils**

- Land at or below 5m AHD
- Land above 5m and below 20m AHD

**Cadastre**

- Local Government Boundary
- Cadastre - October 2014 (Sourced DNRM)
- Suburb or Locality
- Waterway or Waterbody

Potential and Actual Acid Sulfate Soils Overlay data was compiled by Mackay Regional Council. The information is based on a DTM developed with LiDAR 2009 data where available and 25m DEM data for areas south of Sarina. This data is to be used as a guide only for planning purposes.

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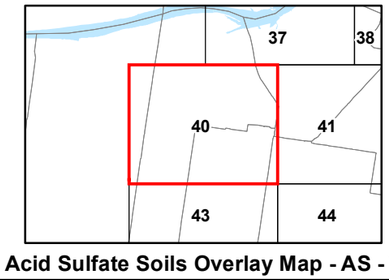


## Acid Sulfate Soils Overlay Map - AS - Y22

V0.9, NOVEMBER 2014, FOR ADOPTION

# Mackay Region PLANNING SCHEME

Mackay REGIONAL COUNCIL

**Agricultural Land Overlay Maps**
**Agricultural Land Classification - Class A and B**

Released under RTI - DTMR

## Natural Resources

- Agricultural land classification (ALC) - Class A and B
- Agricultural land classification (ALC) - Class A and B (40m buffer area)

**Cadastre**

- Local Government Boundary
- Cadastre - October 2014 (Sourced DNRM)
- Suburb or Locality
- Waterway or Waterbody

Agricultural Land Overlay, Agricultural Land Class A & B is based on data supplied by the Department of Agriculture, Fisheries and Forestry (DAFF) (dated 21 January 2014), with amendments made in urban areas. This data is to be used as a guide only for planning purposes.

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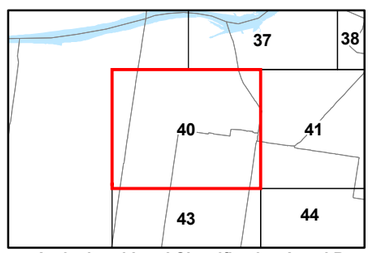


**Agricultural Land Classification A and B Overlay Map - AG - AB - 40**

V0.9, NOVEMBER 2014, FOR ADOPTION

Mackay Region
PLANNING SCHEME

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REGIONAL COUNCIL

# Agricultural Land Overlay Maps Locally Important Agricultural Areas

## Natural Resources

- Locally important agricultural areas (LIAA)
- Locally important agricultural areas (LIAA) (40m buffer area)

**Cadastre**

- Local Government Boundary
- Cadastre - October 2014 (Sourced DNRM)
- Suburb or Locality
- Waterway or Waterbody

Agricultural Land Overlay, Locally Important Agricultural Areas (LIAA) was developed in consultation with the sugar industry. The LIAA includes the highest value land specifically suitable for sugarcane production. The LIAA footprint identifies land according to set criteria. This data is to be used as a guide only for planning purposes.

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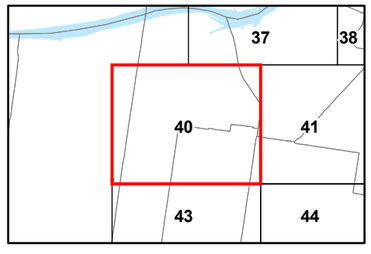



**Locally Important Agricultural Areas Overlay Map - AL - LI - 40**

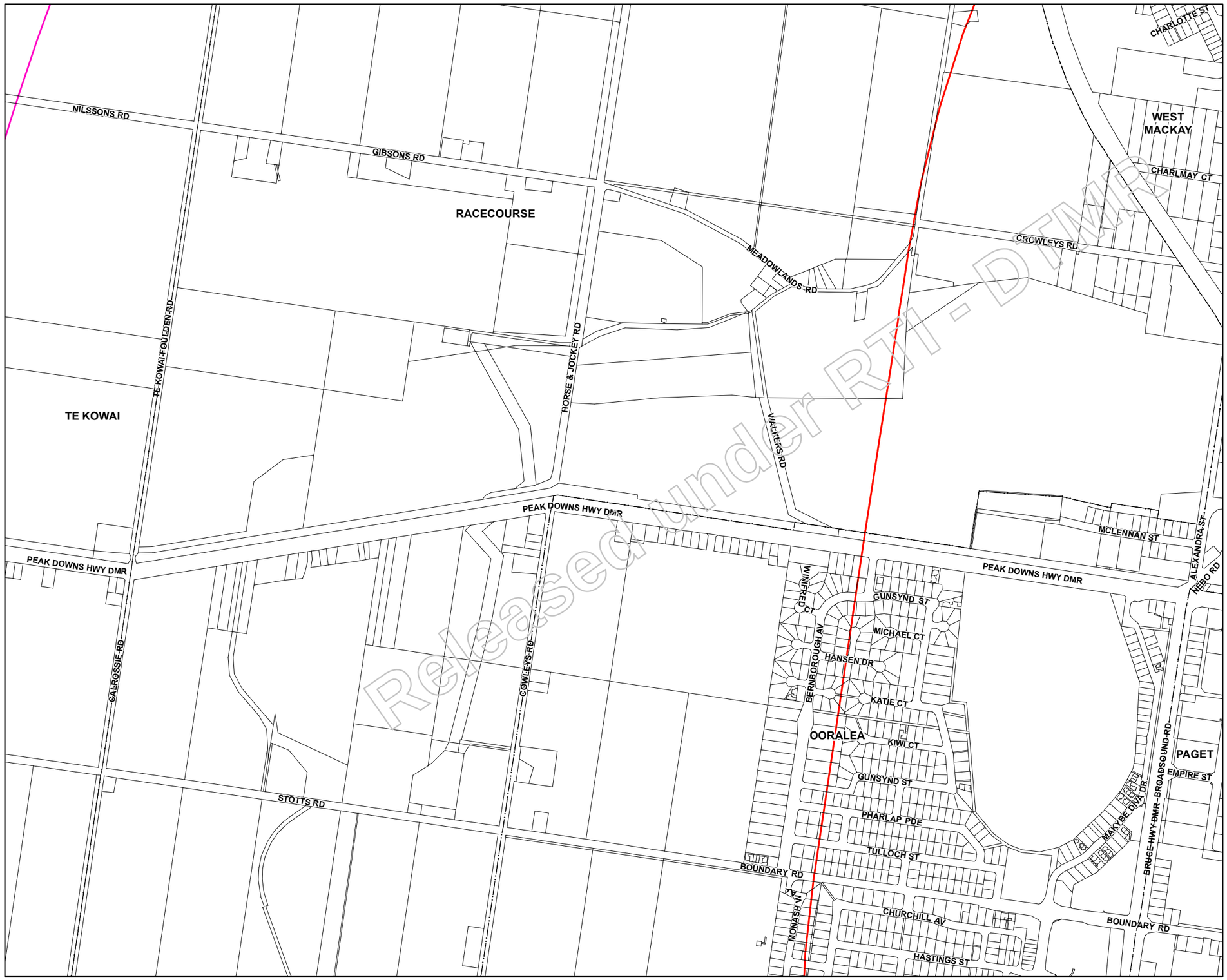
V0.9, NOVEMBER 2014, FOR ADOPTION

# Mackay Region PLANNING SCHEME

Mackay REGIONAL COUNCIL

## Airport Environs Overlay Maps

### Airport Development Distances and Australian Noise Exposure Frequency (ANEF) Contour




Released under RTI - DTMR

## Development Constraints

**Airport Development Distances**

- Distance from Airport - 3km
- Distance from Airport - 8km
- Distance from Airport - 13km
- Mackay Airport Boundary

**Australian Noise Exposure Forecast Contour (ANEF)**

- Highest ANEF contour value
- Intermediate ANEF contour value
- Lowest ANEF contour value

- Lightening area buffer 6km

**Cadastre**

- Local Government Boundary
- Cadastre - October 2014 (Sourced DNRM)
- Suburb or Locality
- Waterway or Waterbody

Airport Envrions Overlay data was compiled by Mackay Regional Council based on latest available information and using information provided by Department of Transport and Main Roads (DTMR). This data is to be used as a guide for planning purposes.

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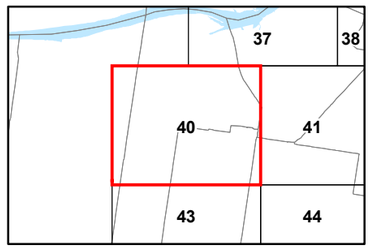


## Airport Environs Overlay Map - AE - DN - 40

V0.9, NOVEMBER 2014, FOR ADOPTION

# Mackay Region PLANNING SCHEME

Mackay REGIONAL COUNCIL

## Airport Environs Overlay Maps

**Obstacle Limitation Surface Contours, Airport Public Saftey Area and Airport Runway**

Released under RTI - DTMR

### Development Constraints

**Obstacle Limitation Surface (OLS)**

- Conical limitation surface contours
- Approach and departure limitation surface boundary and contours
- Runway centreline
- Airport public safety area
- Airport Runway

**Cadastre**

- Local Government Boundary
- Cadastre - October 2014 (Sourced DNRM)
- Suburb or Locality
- Waterway or Waterbody

Airport Envrions Overlay data was compiled by Mackay Regional Council based on latest available information and using information provided by Department of Transport and Main Roads (DTMR). This data is to be used as a guide for planning purposes.

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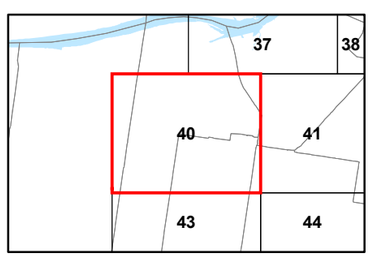



**Airport Environs Overlay Map - AE -OL- 40**

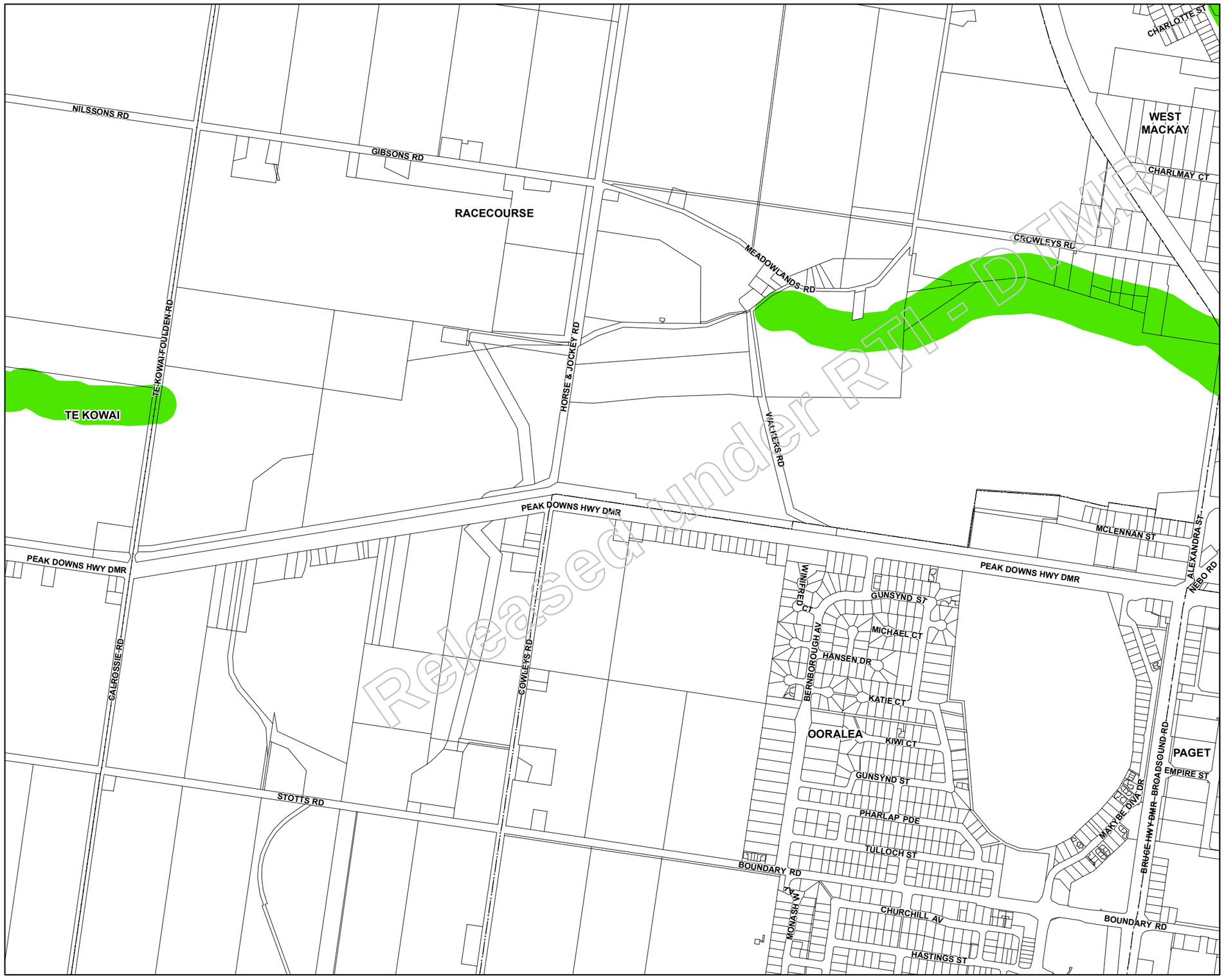
V0.9, NOVEMBER 2014, FOR ADOPTION

# Mackay Region
PLANNING SCHEME

Mackay REGIONAL COUNCIL

**Biodiversity Overlay Map**

**Environmentally Significant Vegetation and Wildlife Habitats**




Released under RTI - DEMR

## Environment

- Environmentally significant vegetation
- Wildlife habitat

**Cadastre**

- Local Government Boundary
- Cadastre - October 2014 (Sourced DNRM)
- Suburb or Locality
- Waterway or Waterbody

Biodiversity Overlay data was supplied by the Department of Environment and Heritage Protection (DEHP) (dated 1 August 2014) relating to areas of environmental significance. This data is to be used as a guide only for planning purposes.

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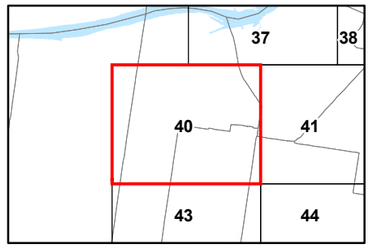


**Environmentally Significant Vegetation and Wildlife Habitats** **- BD - SV - 40**

V0.9, NOVEMBER 2014, FOR ADOPTION

# Mackay Region PLANNING SCHEME

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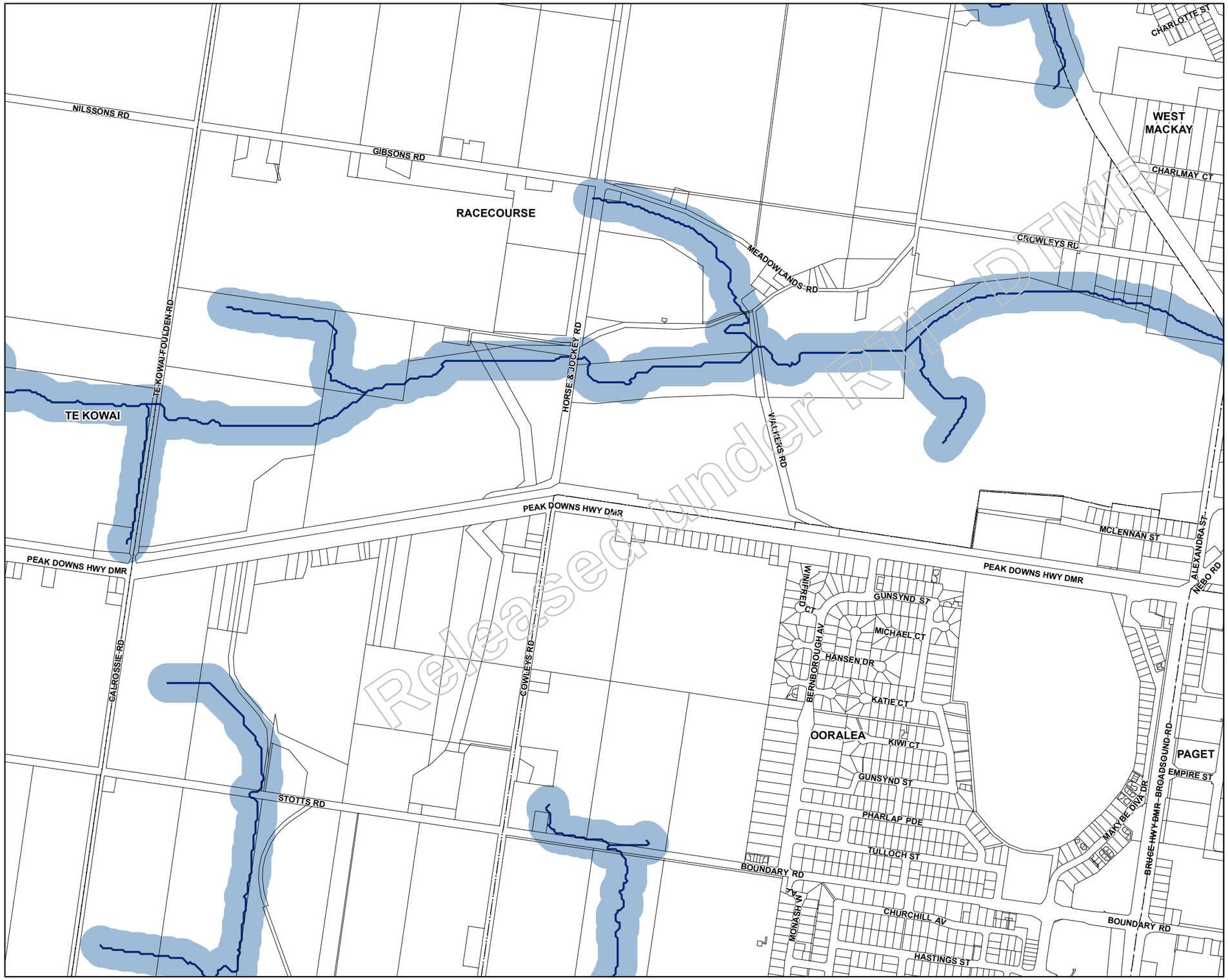
Mackay REGIONAL COUNCIL

**Biodiversity Overlay Maps**

**Waterways and Wetlands**




Released unaltered under RTI DMR

## Environment

- Waterways
- Waterways buffer
- Wetlands
- Wetlands buffer

**Cadastre**

- Local Government Boundary
- Cadastre - October 2014 (Sourced DNRM)
- Suburb or Locality
- Waterway or Waterbody

Waterways and wetlands maps as part of the Biodiversity overlay was compiled by Mackay Regional Council using stream order 100k mapping supplied by DERM, LiDAR derived stream network created by Aurecon and information supplied by the Department of Environment and Resource Management (DERM) relating to areas of environmental significance. This data is to be used as a guide only for planning purposes.

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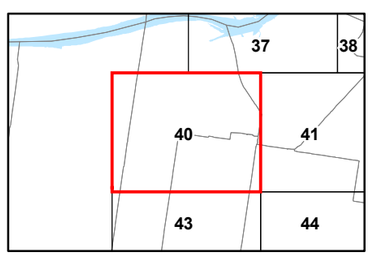


**Waterways and Wetlands - BD - WW - 40**

Mackay Region
PLANNING SCHEME

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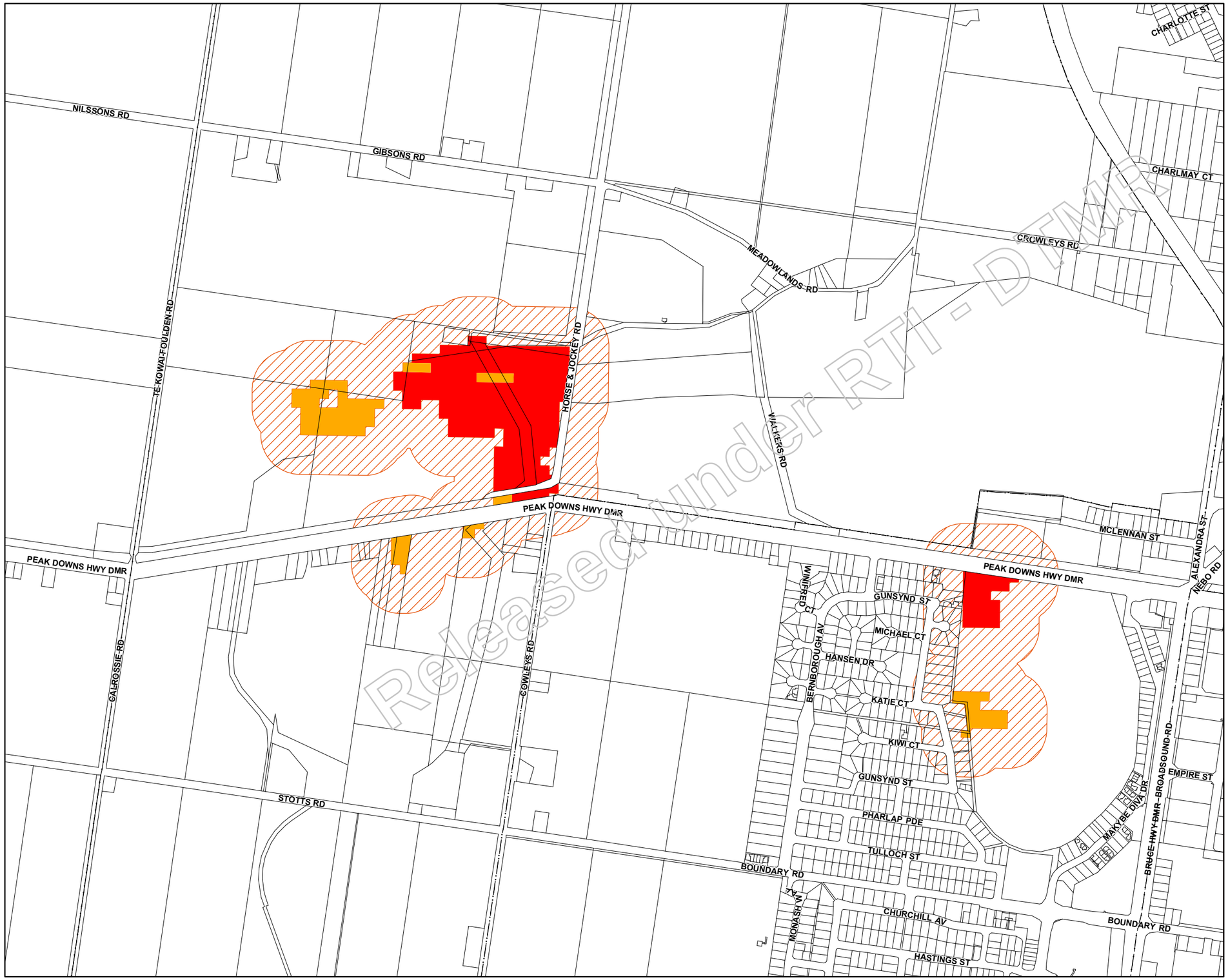
Mackay
REGIONAL COUNCIL

**Bushfire Hazard Overlay Maps**




Released under RTI - DEMR

## Development Constraints

### Bushfire Hazard Areas

- Very high bushfire hazard area
- High bushfire hazard area
- Medium bushfire hazard area
- Within 100m of a bushfire hazard area

### Cadastre

- Local Government Boundary
- Cadastre - October 2014 (Sourced DNRM)
- Suburb or Locality
- Waterway or Waterbody

Bushfire Hazards Overlay data was supplied by the Department of State Development Infrastructure and Planning (DSDIP) (dated 30 July 2014), with amendments made in the 5 major urban areas. This data is to be used as a guide only for planning purposes.

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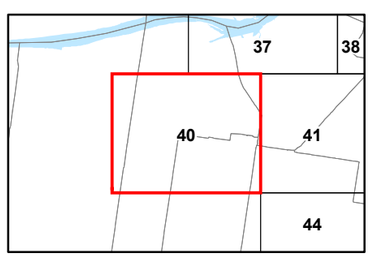


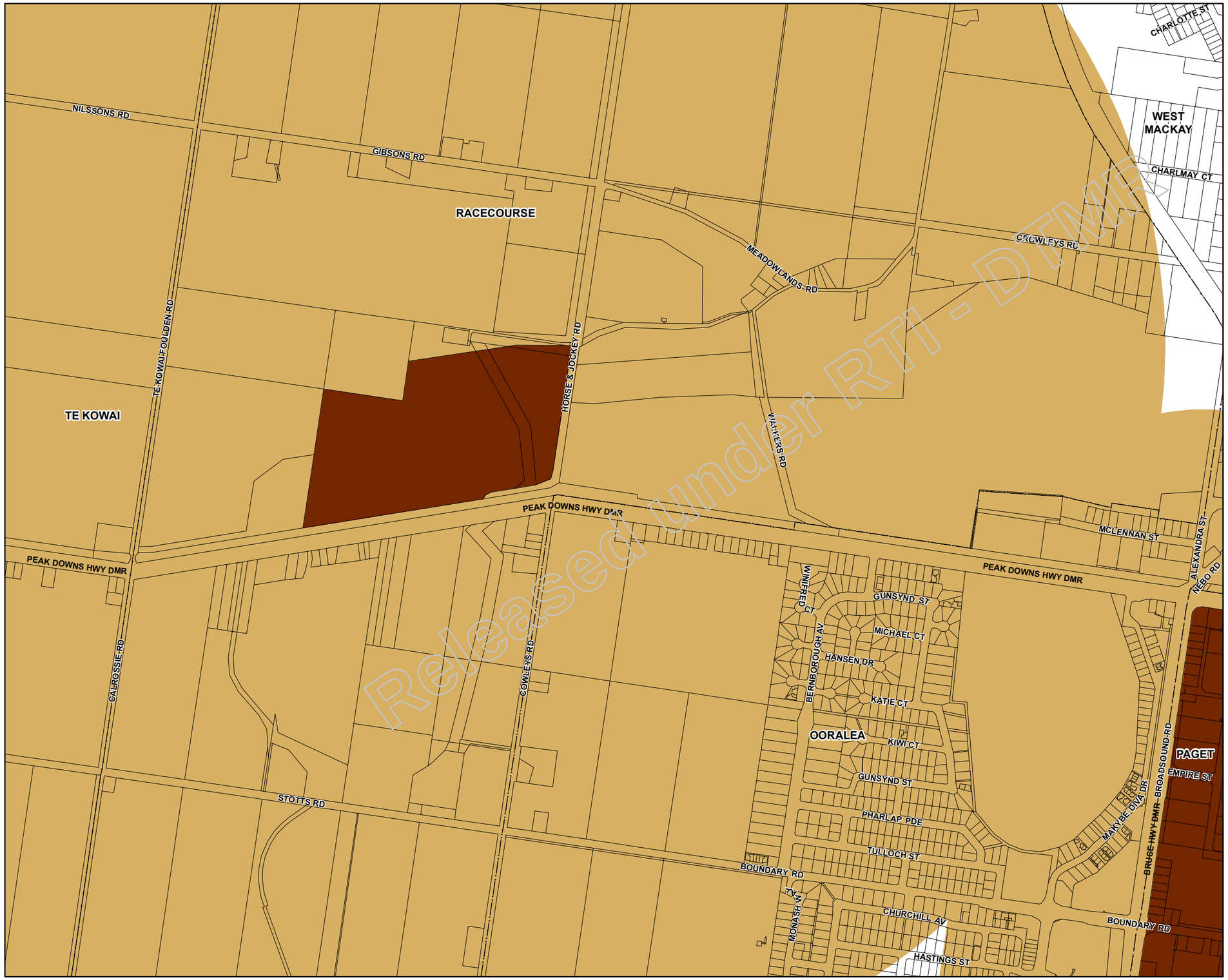

**Bushfire Hazard Overlay Map - BH - 40**

V0.9, NOVEMBER 2014, FOR ADOPTION

# Mackay Region PLANNING SCHEME

Mackay Regional Council

**Extractive Resources and High Impact Activities Overlay Maps**




## Natural Resources and Development Constraints

**Key Resource Areas**

- KRA - Resource/processing Area
- KRA - Separation area
- KRA Transport route separation area
- KRA - Transport route

**High Impact Activity Areas**

- High Impact Activity
- High Impact Activity Buffer

**Non- KRA Quarries**

- Non-KRA Quarry
- Non-KRA Quarry Buffer
- Mining Tenements (Information only, no provisions in the overlay code)

**Cadastre**

- Local Government Boundary
- Cadastre - October 2014 (Sourced DNRM)
- Suburb or Locality
- Waterway or Waterbody

Extractive Resource data as part of the Extractive Resources and High Impact Activities Overlay data was supplied by the Department of Natural Resources and Mines (DNRM) (dated 8 August 2014). All other data was created by Mackay Regional Council. This data is to be used as a guide only for planning purposes.

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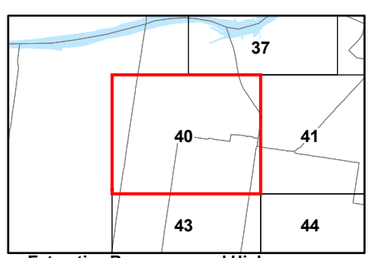


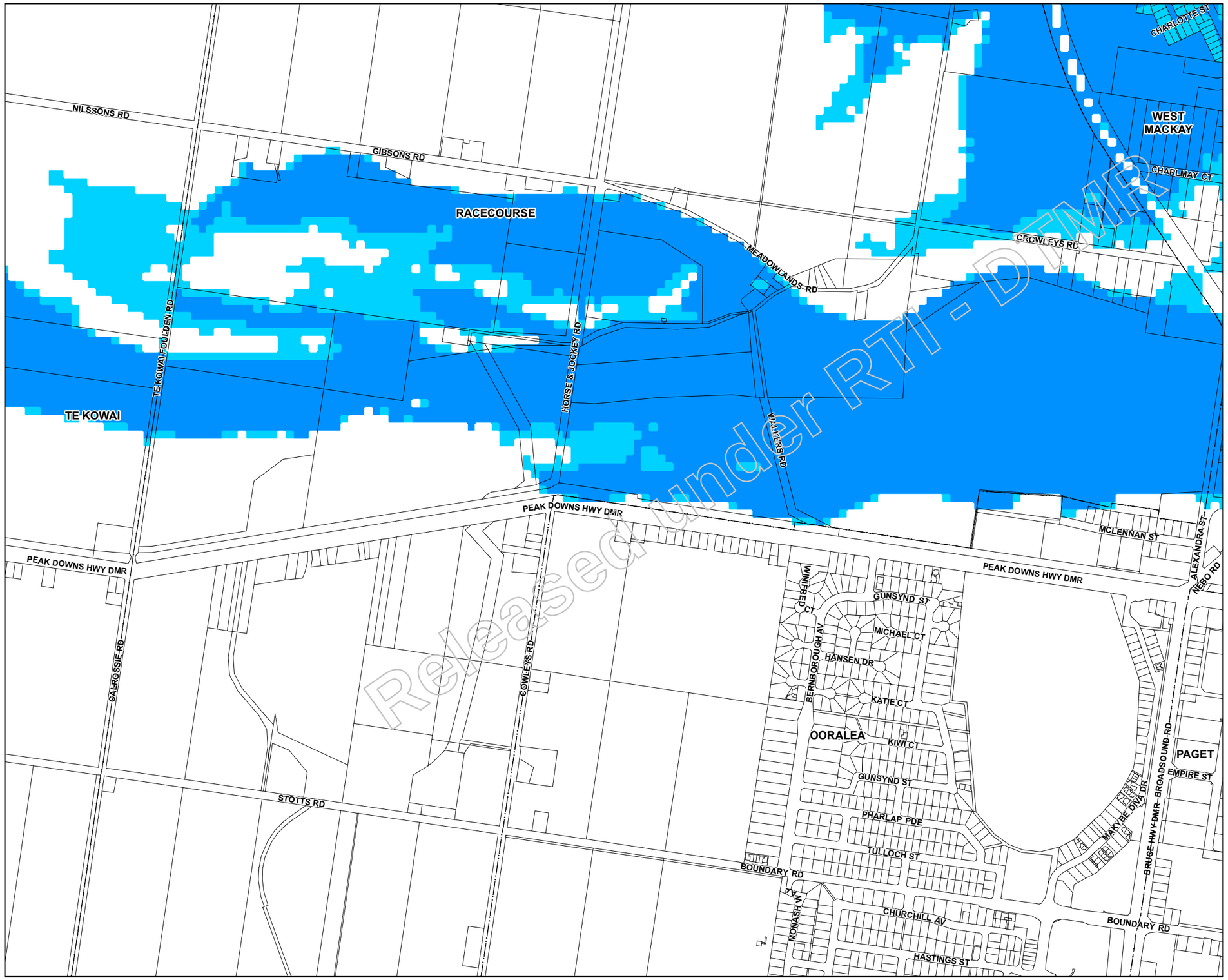

**Extractive Resources and High Impact Activities Overlay Map - EH - 40**

V0.9, NOVEMBER 2014, FOR ADOPTION

# Mackay Region
PLANNING SCHEME

Mackay REGIONAL COUNCIL

**Flood and Coastal Hazards Overlay Maps**




## Development Constraints

- Area affected by 1% AEP flood hazard
- Area affected by 0.2% AEP flood event

**Cadastre**

- Local Government Boundary
- Cadastre - October 2014 (Sourced DNRM)
- Suburb or Locality
- Waterway or Waterbody

Flood Hazard Overlay data was supplied by Mackay Regional Council Flood Studies on the Pioneer River, Goosepond Creek and McCreadys Creek South, with amendments made in the 5 major urban areas. This data is to be used as a guide only for planning purposes.

While every care is taken to ensure the accuracy of this product Mackay Regional Council makes no representations or warranties about the accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) or all expenses, losses, damages (including indirect or consequential damage) and costs you may incur as a result of this product being inaccurate or incomplete in any way or for any reason.

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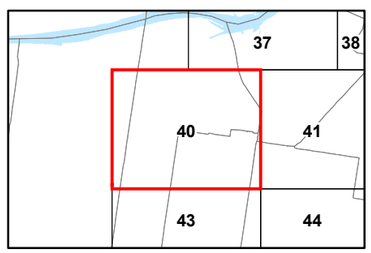
Geocentric Datum of Australia 1994 (GDA94)

**Approx Scale @ A3 1:10000**

0 125 250 500 Metres




**Flood Hazard Overlay Map - FC - FH - 40**

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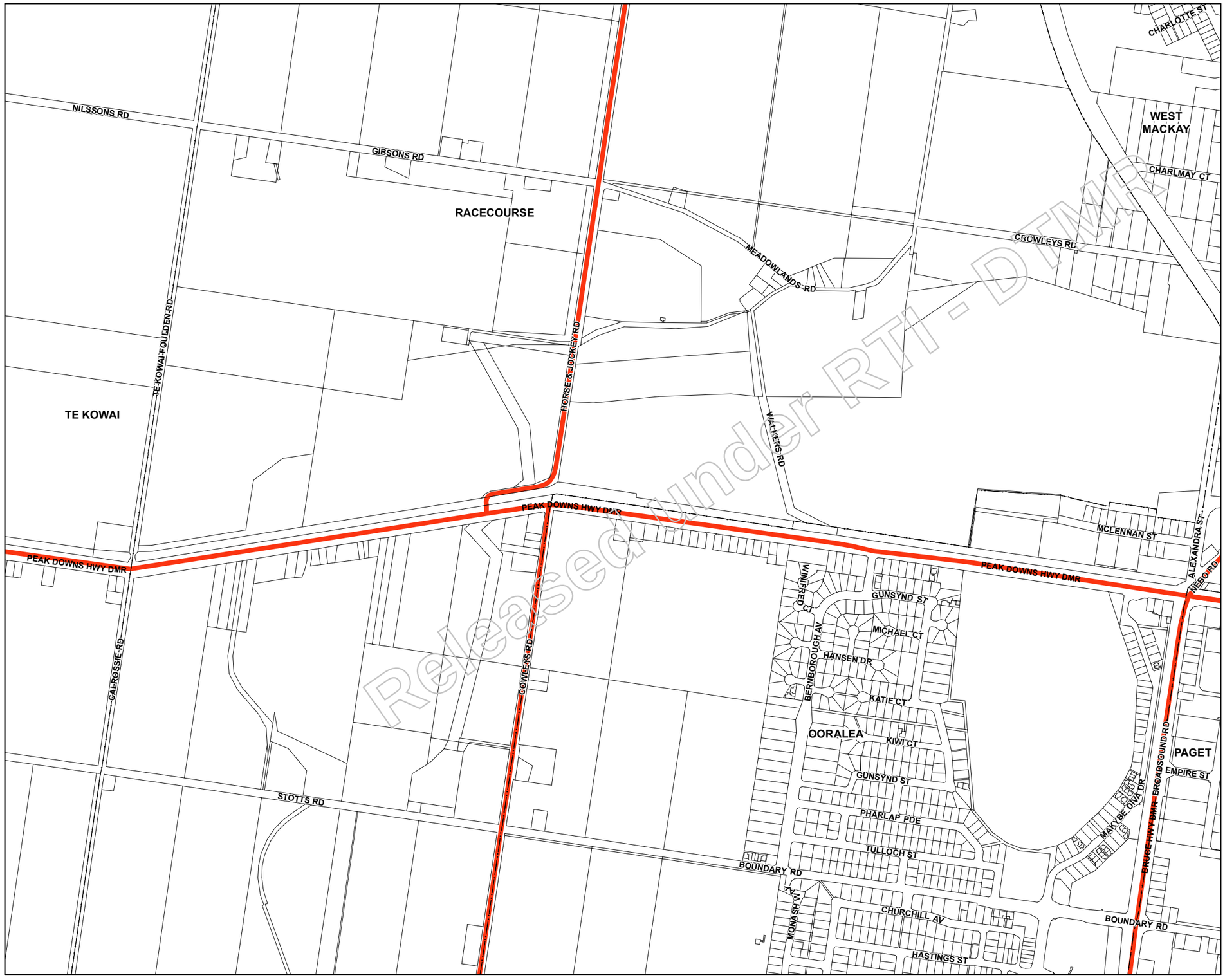
# Mackay Region PLANNING SCHEME

Mackay REGIONAL COUNCIL

**Landscape Character and Image Corridors Overlay Maps**




Released under RTI - DMR

## Character

- Image Corridor
- Landscape Character

**Cadastre**

- Local Government Boundary
- Cadastre - October 2014 (Sourced DNRM)
- Suburb or Locality
- Waterway or Waterbody

Landscape Character overlay data was developed by Mackay Regional Council, with data based on various vegetation and slope datasets (including LiDAR). Image Corridor Overlay data was compiled by Mackay Regional Council.

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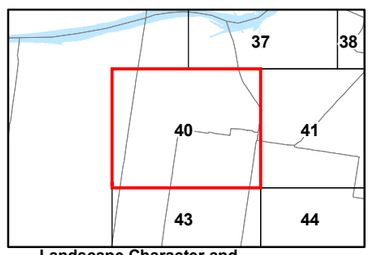
**Approx Scale @ A3 1:10000**

0 125 250 500 Metres




**Landscape Character and Image Corridor Overlay Map - LI - 40**

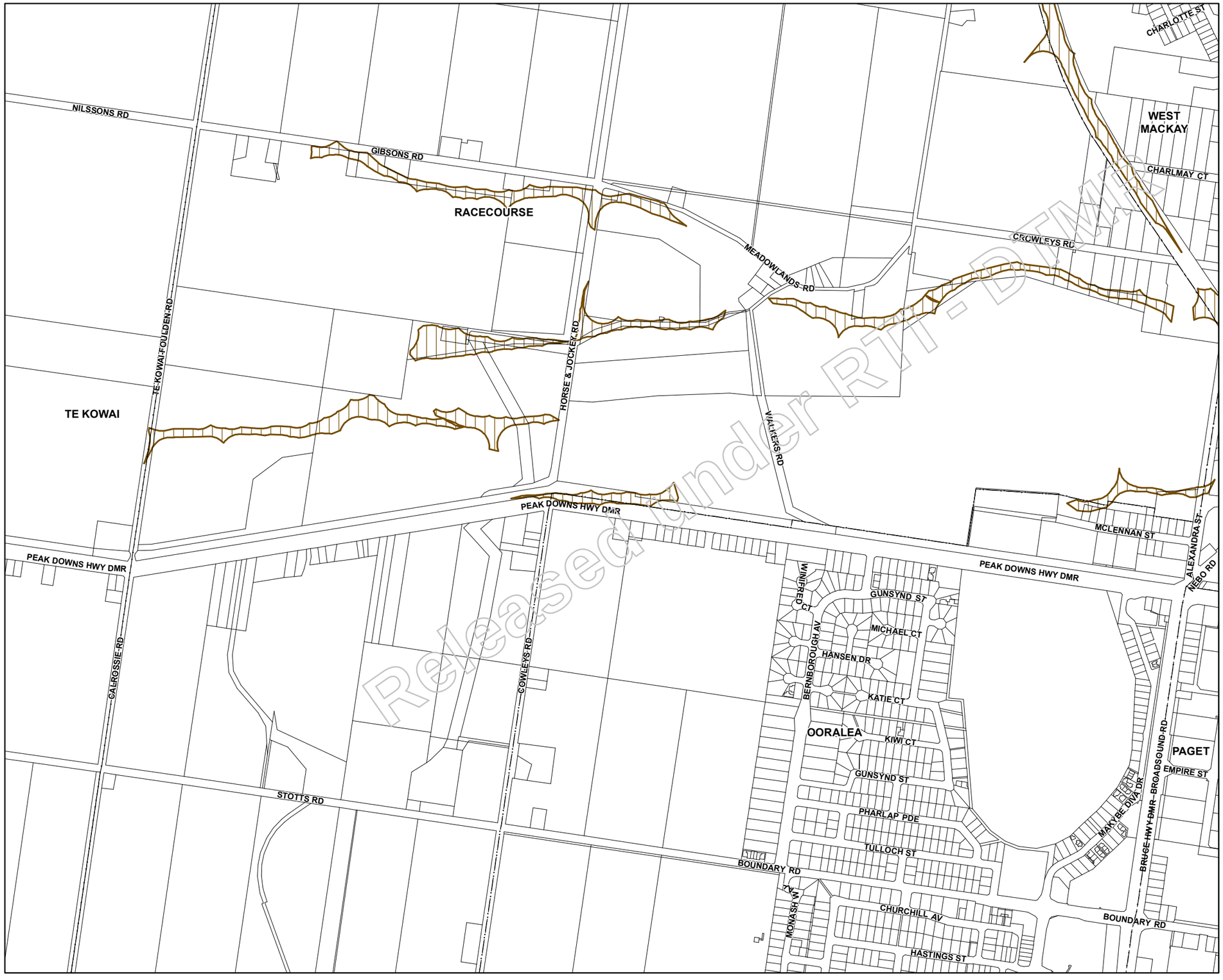
V0.9, NOVEMBER 2014, FOR ADOPTION

Mackay Region
PLANNING SCHEME

DRAFT

Mackay
REGIONAL COUNCIL

# Landslide Hazard Overlay Maps




Released under RTI - DEMR

## Development Constraints

Landslide Hazard (Slope 15% or greater)

**Cadastre**

Local Government Boundary
Cadastre - October 2014 (Sourced DNRM)
Suburb or Locality
Waterway or Waterbody

Landslide Hazard Overlay was compiled by Mackay Regional Council using information provided by LiDAR 2009 data, 25m DEM data and other external data with amendments made in the 5 major urban areas. This data is to be used as a guide only for planning purposes.

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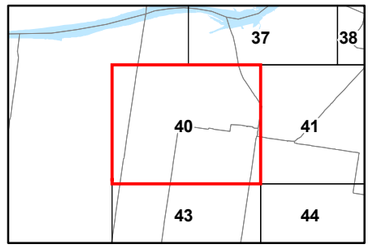
**Approx Scale @ A3 1:10000**

0 125 250 500 Metres




## Landslide Hazard Overlay Map - LH - 40

V0.9, NOVEMBER 2014, FOR ADOPTION

# Mackay Region PLANNING SCHEME

Mackay Regional Council

**Regional infrastructure Overlay Maps**

Released under RTI - DNRM

## Infrastructure

- Regional electricity infrastructure
- Proximate to regional electricity infrastructure
- Substation
- Proximate to a substation
- Railway infrastructure
- Proximate to railway infrastructure
- Regional irrigation area

## Cadastre

- Local Government Boundary
- Cadastre - October 2014 (Sourced DNRM)
- Suburb or Locality
- Waterway or Waterbody

Regional Infrastructure Corridors Overlay data was compiled by Mackay Regional Council using information provided by Powerlink Queensland, Ergon Energy and SunWater. This data is to be used as a guide for planning purposes.

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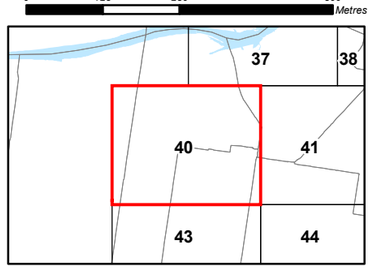
**Approx Scale @ A3 1:10000**

0 125 250 500 Metres



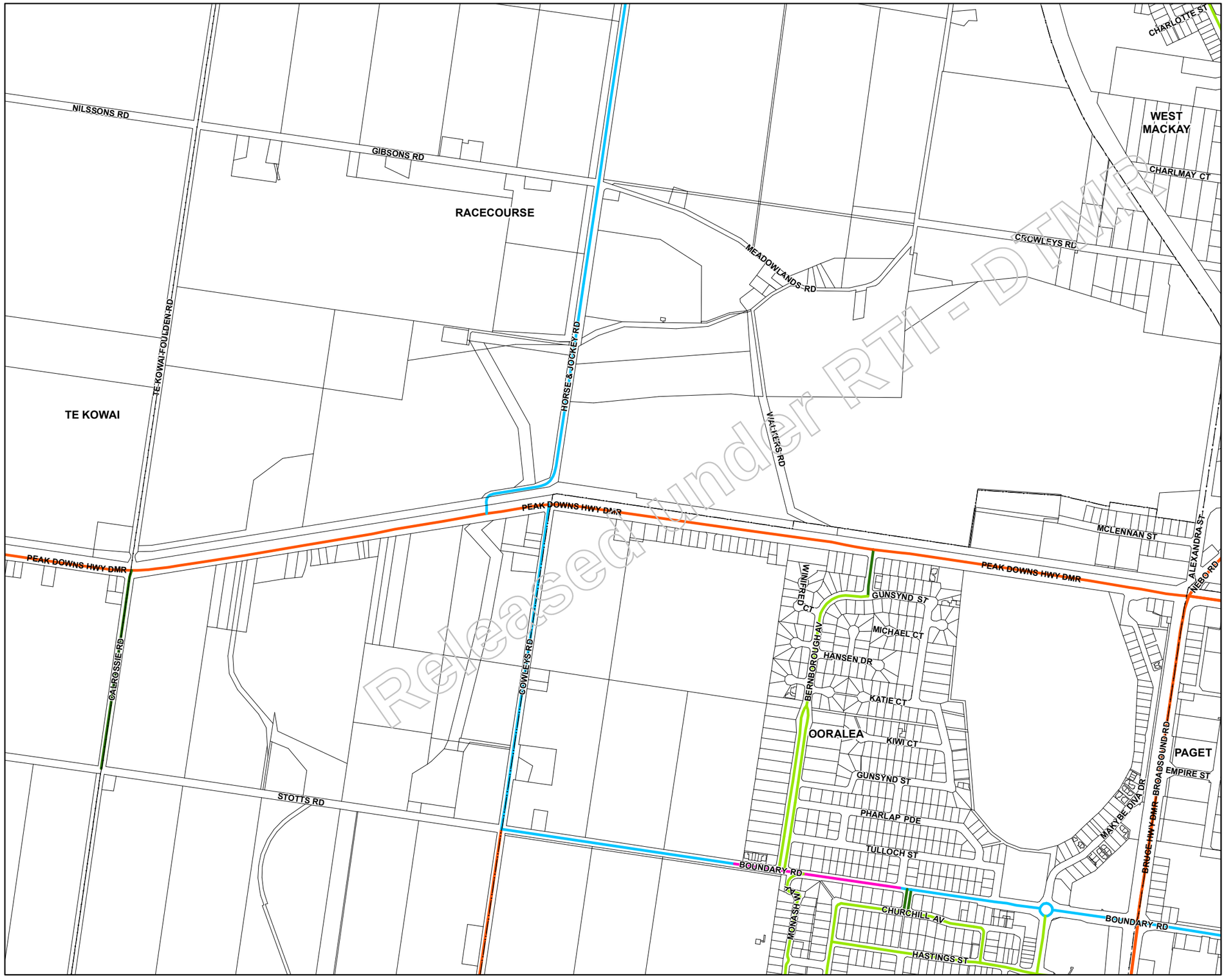

**Regional Infrastructure Overlay Map - RI - 40**

V0.9, NOVEMBER 2014, FOR ADOPTION

# Mackay Region PLANNING SCHEME

Mackay REGIONAL COUNCIL

**Road Hierarchy Overlay Maps**




## Infrastructure

### Proposed MRC Hierarchy

- Arterial (State Controlled Road)
- Arterial
- Arterial Main Street
- Controlled Distributor
- Traffic Distributor
- Sub-Arterial Main Street
- Sub-Arterial Industrial
- Major Collector
- Minor Collector
- Industrial Access Collector
- Access
- Access Place
- Laneway
- MULTIMODAL
- Proposed Arterial
- Proposed Controlled Distributor
- Proposed Traffic Distributor
- Proposed Major Collector
- Proposed Minor Collector

### Cadastre

- Local Government Boundary
- Cadastre - October 2014 (Sourced DNRM)
- Suburb or Locality
- Waterway or Waterbody

Road Hierarchy Overlay data was created by Mackay Regional Council. This data is to be used as a guide only for planning purposes.

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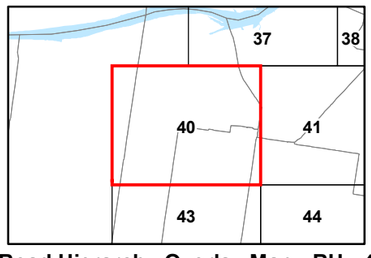
**Approx Scale @ A3 1:10000**

0 125 250 500 Metres




**Road Hierarchy Overlay Map - RH - 40**

V0.9, NOVEMBER 2014, FOR ADOPTION

# Mackay Region PLANNING SCHEME

Mackay REGIONAL COUNCIL

**Transport Noise Corridor Overlay Maps**

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## Development Constraints

**Transport Noise Corridor**

- Category 1 Noise Corridor
- Category 2 Noise Corridor
- Category 3 Noise Corridor
- Category 4 Noise Corridor
- Railway Network
- Railway Network Buffer

**Cadastre**

- Local Government Boundary
- Cadastre - October 2014 (Sourced DNRM)
- Suburb or Locality
- Waterway or Waterbody

Transport Noise Corridor Overlay data was supplied by the Department of Transport and Main Roads, with amendments made where the State Controlled road network has changed. This data is to be used as a guide only for planning purposes.

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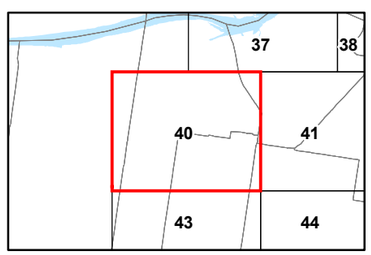


**Transport Noise Corridor Overlay Map - TN - 40**

V0.9, NOVEMBER 2014, FOR ADOPTION

## Glenroy S Dillon

**From:** Glenroy S Dillon
**Sent:** Friday, 28 July 2017 10:38 AM
**To:** [redacted]@htw.com.au'
**Subject:** Hydraulic Report

Hi [redacted]

I have sent you a link to down load the Hydraulic Report. Please note that I have not yet read it.

The password is

The department will attend to providing reports to the relevant stakeholders.

I have spoken to Tony Elgar from the MRR project team about the report. He has told me that the report has not taken into account extra culverts that will be installed that are relevant to the B properties. Tony considers that these culverts may slightly reduce the impact.

If you have any problems with the report please contact me. If I can't answer your enquiry I will pass it on to Tony.

Kind regards,

**Glen Dillon**
Principal Property Officer | Strategic Property Management / Property Acquisitions & Disposals
**Portfolio Investment & Programming** | Department of Transport and Main Roads

Floor 2 | Carseldine - GOP Building D | 532 Beams Road | Carseldine Qld 4034
GPO Box 1412 | Brisbane Qld 4001
P: (07) 30666958 | F: (07) 30668228
M:
E: glenroy.s.dillon@tmr.qld.gov.au
W: www.tmr.qld.gov.au

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TMR

## Glenroy S Dillon

**From:** Glenroy S Dillon
**Sent:** Friday, 11 August 2017 10:07 AM
**To:**
**Subject:** laim for Compensation
**Attachments:** Claim for Compensation pdf

**Categories:** DMS

Hi

I have attached the claim for compensation from the exclusive of attachments.

Kind regards,

**Glen Dillon**
Principal Property Officer | Strategic Property Management / Property Acquisitions & Disposals
**Portfolio Investment & Programming** | Department of Transport and Main Roads

Floor 2 | Carseldine - GOP Building D | 532 Beams Road | Carseldine Qld 4034
GPO Box 1412 | Brisbane Qld 4001
P: (07) 30666958 | F: (07) 30668228
M
E: glenroy.s.dillon@tmr.qld.gov.au
W: www.tmr.qld.gov.au

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# PARTICULARS OF CLAIM FOR COMPENSATION

## Acquisition of Land Act 1967 ("ALA")

**To: Chief Executive, Department of Transport and Main Roads, Queensland (the Acquiring Authority)**

**Claimants:**

**Address of Claimants: c/- Kelly Legal**
**Level 2, 65 Sydney Street (PO Box 1035)**
**Mackay Qld 4740**
**Ph: 07 4911 0500**
**Email: [redacted]@kellylegal.com.au**

## Matters Required by s19 of ALA

Description of the Land Taken [s19(1)(a)]:

An area of 3.109 hectares being part of Lot 2 on RP 732066 ("the Resumed Land"). A copy of a title search of the property is contained at page 6.

Nature and particulars of estate or interest of the Claimants [s19(1)(b)]:

Former registered proprietors of the Resumed Land whose interest in the Resumed Land has been converted to a right to claim compensation.

Whether the Claimants' interest is subject to any matter referred to in s19(1)(c):

Nil.

Itemised Statement of the Claim [s19(1)(d)]:

It is appropriate to set out the particular circumstances giving rise to the components of the claim.

***Before and After Comparison***

1. The following table sets out a summary of the above.

| Before Resumption | After Resumption |
|---|---|
| a) Loss of Land | |
| No issues. | Area of approximately 3.109 hectares taken. |
| b) Access and Egress | |
| No issues. | Very limited information has been made available to date. Only verbal information has been made available. Nothing has been put in writing. The Claimants are at |

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| | |
|---|---|
| | a loss to actually understand what the proposed access arrangements are. There is significant uncertainty concerning these issues. |
| c) Farming Operations | |
| No issues. | There will be significant impacts on the Claimants' farm and farming operations as a consequence of the Ring Road being constructed along one major boundary of the property. The Claimants will lose a substantial amount of productive land which will impact on the balance of the farm. There is a likelihood that it will be necessary to alter paddock alignments and the Schmidtke property (which is also operated by the Claimants) will be much more difficult to farm due to the presence of the road. Both farms will become much less productive. Cane delivery arrangements will be much more inefficient and tedious. This would be seen as a significant detriment by a hypothetical buyer. |
| d) Noise Impacts | |
| No issues. | The Claimants are extremely concerned about how this issue has been dealt with by DTMR. Noise amelioration may well be required. The site is suitable for industrial and service uses and there will also most likely be a buffer area required which will result in the loss of further strip of land of approximately 6 metres. |
| e) Impacts on Development Rights | |
| It was reasonable to expect that this land could have been within the urban footprint effectively any day. The site adjoins a major industrial site (Racecourse Mill) and has been earmarked in various plans as a development area of Mackay. The property across the road to the south of the site was acquired by DTMR when an approval was about to be obtained for industrial purposes. | By the road being placed through the western part of the property and the uncertainty surrounding access, drainage and noise issues, a hypothetical buyer would regard the risks in relation to the development of the property as being significantly increased. Whilst some development may still be able to occur there are now significantly more risks and challenges involved which would be regarded as a significant detriment by a hypothetical buyer. |
| f) Impacts on Services to the Property | |
| No issues. | See letter to DTMR of 13 February 2017 in the attachments. There is significant uncertainty concerning this issue. |
| g) Impacts on Transport Systems servicing the Property | |

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| | |
|---|---|
| No issues. | Again this is a major concern to the Claimants as currently access and egress is quite easy. However, following the major road system being placed where it is, it will be much more restricted and restrictive. The Claimants' farming operations will be much less efficient as a consequence. |
| h) Amenity Impacts and Impacts on Health and Future Lifestyle | |
| No issues. | There would be uncertainty in a hypothetical buyer's mind (as there is in the mind of the Claimants). |
| i) Stormwater and Drainage Impacts | |
| No issues. | You will see in the correspondence with DTMR that DTMR are treating this issue as a "work in progress". Again this would create significant uncertainty in a hypothetical buyer's mind. |

***Provision of Information by DTMR***

2. As can be seen by the attachments, the Claimants have found it impossible to get adequate information from DTMR concerning the issues referred to above. Any buyer would also have found it impossible and obviously this in itself would create significant uncertainty in a buyer's mind.

***Valuation Methodology***

3. The property prior to resumption was land located adjoining the Racecourse Mill aggregation with a frontage to the Peak Downs Highway and Te Kowai – Foulden Road.

4. The property is currently used for the growing of sugar cane and improved with a high set dwelling and two sheds. The property adjoins land zoned "Heavy Industry" and has the potential for rezoning to an industrial use.

5. Due to the Ring Road development this potential use is diminished due to:-

   (a) Restricted left in access is via a farm access road under the Peak Downs Highway overpass.

   (b) Right in access has been extinguished for semi trailers except from an access point to the western alignment over an informed road to the south of Lot 1 RP732066 owned by another.

   (c) The increased flooding along the southern third of the property of 0.225 a metre annually and up to over 0.300 of a metre in other 24 hour events.

   (d) The loss of accessibility for inbound traffic to the subject land due to the Peak Downs Highway overpass.

6. Therefore, for the reasons outlined above at paragraph 5 the value of the property "After Resumption" is reduced.

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7. A before and after resumption valuation has been assessed as follows:-

| | | |
|---|---|---|
| Before Resumption Valuation | | |
| Land | 13.97ha @ $200,000/ha | $2,794,000.00 |
| Improvements (added value) | | $100,000.00 |
| Total before value | | $2,894,000.00 |
| **Adopt** | | **$2,900,000.00** |
| | | |
| After Resumption Valuation | | |
| Land | 10.861ha @ $80,000/ha | $868,880.00 |
| Improvements (added value) | | $100,000.00 |
| Total before value | | $970,000.00 |
| **Adopt** | | **$970,000.00** |
| | | |
| Before resumption value | | $2,900,000.00 |
| After resumption value | | $970,000.00 |
| **Compensation (ex disturbance)** | | **$1,930,000.00** |

***Claim***

8. The Claimants claim compensation, calculated as follows:

| | | |
|---|---|---|
| (a) | Value of the land | $1,930,000.00 |
| (b) | Disturbance | $660,000.00 to $750,000.00 |
| (c) | **Total** | **$2,590,000.00 to $2,680,000.00** |

9. The amount of disturbance referred to at paragraph 8(b) above is calculated as follows:

| | | |
|---|---|---|
| (a) | Dust, Nuisance, Noise | $30,000.00 |
| (b) | Interruption to Farming Operations | $30,000.00 |
| (c) | Noise Amelioration and Barriers | $200,000.00 |
| (d) | Visual Pollution | $50,000.00 |
| (e) | Additional Costs of Access and Egress | $35,000.00 |
| (f) | Extra costs of Harvesting and Cartage of Cane | $30,000.00 |
| (g) | Loss of Cane Crop - $12,000.00 on a per annum basis adopting a cap rate of 7% | $170,000.00 |
| (h) | Legal costs | $27,500.00 |
| (i) | Valuation costs | $27,500.00 |
| (j) | Impacts of Project Construction | $60,000.00 to $150,000.00 |
| (k) | **Total** | **$660,000.00 to $750,000.00** |

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***Amounts Subject to Variation***

10. The amounts claimed may vary as further facts become known to the Claimants. Variations include but are not limited to the amounts contained in paragraph 9. The project is effectively a "work in progress" and therefore final impacts are unable to be assessed until further information is forthcoming from DTMR. Unfortunately to date the Claimants have been denied the information necessary in order for the Claimants to ascertain the ultimate impacts of the project.

11. The amount inserted for construction impacts is an estimate and has been inserted based on advice received from DTMR.

***Attachments***

12. Copies of the following documents are attached:-

    a) Title search;

    b) Letter from Kelly Legal to DTMR attaching correspondence between the parties up to 13 February 2017;

       (Note: the Notice of Intention to Resume appears at pages 12 to 17)

       (Note: the Gazettal Notice appears at pages 25 to 26);

    c) Letter from DTMR to Claimants dated 15 May 2017;

    d) Letter from DTMR to Kelly Legal dated 22 May 2017;

    e) Letter from Kelly Legal to DTMR dated 8 June 2017;

    f) Letter from DMTR to Claimants dated 9 June 2017; and

    g) Letter from Kelly Legal to DTMR dated 16 June 2017.

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**From:** Erin V Mulherin
**To:** maxine butler
**Cc:** MackayCommunications
**Subject:** RTI nd Ajana Park
**Date:** Monday, 30 October 2017 4:42:36 PM

---

Hi Maxine,

As discussed the hydraulics and acoustic reports were provided to Kelly Legal as per the below list:

**Hydraulics Assessment:**

not relevant

sent via email on 7/8/17 at 4.16 pm via owncloud link

not relevant

**Acoustic Report:**

sent via hard copy mail to on 12/6/17 and electronically to Kelly Legal on 12/6/17 at 4.19 pm

not relevant

I will forward the copies of the Acoustic Report and Hydraulic Assessements in separate emails.

Kind regards

**Erin Mulherin**
Senior Program Support Officer (Communication & Community Engagement) | Mackay / Whitsunday District
**Program Delivery And Operations** | Department of Transport and Main Roads

Floor 2 | Mackay Government Office Building | 44 Nelson Street | Mackay Qld 4740
PO Box 62 | Mackay Qld 4740
P: (07) 49518581 | F: (07) 49518500
E: erin.v.mulherin@tmr.qld.gov.au
W: www.tmr.qld.gov.au

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**From:** MackayCommunications
**To:** maxine butler
**Subject:** FW: Mackay Ring Road and your clients
**Date:** Monday, 30 October 2017 4:54:44 PM
**Attachments:**

---

Maxine, this is the email sent re and acoustic report.

Kind regards

**Erin Mulherin**
Senior Program Support Officer (Communication & Community Engagement) | Mackay / Whitsunday District
**Program Delivery And Operations** | Department of Transport and Main Roads

Floor 2 | Mackay Government Office Building | 44 Nelson Street | Mackay Qld 4740
PO Box 62 | Mackay Qld 4740
P: (07) 49518581 | F: (07) 49518500
E: erin.v.mulherin@tmr.qld.gov.au
W: www.tmr.qld.gov.au

---

**From:** MackayCommunications
**Sent:** Monday, 12 June 2017 4:19 PM
**T** kellylegal.com.au
**Cc:** MackayCommunications <MackayCommunications@tmr.qld.gov.au>
**Subject:** Mackay Ring Road and your clients

Dear Sean,

Please find attached correspondence sent to your clients today via mail.

Kind regards

**Erin Mulherin**
Senior Program Support Officer (Communication & Community Engagement) | Mackay / Whitsunday District
**Program Delivery And Operations** | Department of Transport and Main Roads

Floor 2 | Mackay Government Office Building | 44 Nelson Street | Mackay Qld 4740
PO Box 62 | Mackay Qld 4740
P: (07) 49518555 | F: (07) 49518500
E: mackay.office@tmr.qld.gov.au
W: www.tmr.qld.gov.au

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Queensland Government

Our ref 450/00604
Your ref
Enquiries Erin Mulherin

Department of
**Transport and Main Roads**

9 June 2017

28 Te Kowai Foulden Rd
Te Kowai QLD 4740

Dear

Lot 2 RP732066

Further to previous correspondence regarding eligibility for Exceptional Circumstances Treatment (ECT) to address noise as a result of the Mackay Ring Road, I can now advise that AECOM has completed all assessments and provided their report. Thank you to property owners for their assistance in organising these assessments.

The AECOM report confirms that your dwelling qualifies for ECT.

A copy of the AECOM noise assessment and ECT reports is enclosed with this letter for your information. For privacy reasons, only mapping and floor plan information relevant to your property has been included in the copy provided to you.

To progress implementation of treatment and to ensure compliance with TMR's *Transport Noise Management Code of Practice* the following steps are required to be undertaken:

- TMR requires your consent in writing to proceed. If you provide your consent, please complete, sign and return the attached consent form.
- Upon receipt of your written consent, TMR will engage a mechanical ventilation consultant and air-conditioning contractor to inspect the dwelling and confirm the scope of works. The contractor will be requested to provide a written quote.
- TMR will then send an Agreement Document to you, which will include the scope of works and a schematic design. This document will require your signature to indicate your satisfaction with the proposal and your consent to proceed with treatment.
- Upon receipt of your written consent and prior to installation, the contractor will undertake an existing condition survey of the building both inside and out.
- Upon completion of the works, you will be asked to sign a copy of an Acknowledgement of Installation Form and will be provided with any manufacturer's warranty details and/or architectural treatment of the building envelope installed.

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Infrastructure Management and Delivery
Program Delivery and Operations
Floor 2 Mackay Government Office Building 44 Nelson Street
Mackay QLD 4740
PO Box 62 Mackay QLD 4740

**Telephone** +61 7 4951 8555
**Facsimile** +61 7 4951 8500
**Website** www.tmr.qld.gov.au
**Email** mackay.office@tmr.qld.gov.a
ABN 39 407 690 291

If your dwelling has an existing air-condition/mechanical ventilation system that meets current appropriate suitability and functionality requirements (for example, State and Commonwealth legislation, sized correctly, energy efficiency, installed correctly and at least 60% of its warranty remaining), and your preference is to keep the existing system rather than replacement with a new one, a current equipment rebate applies. If you wish to explore this option further, please contact the Project team.

If you have any questions about this matter or any other aspects of the Mackay Ring Road Project, I encourage you to contact the Mackay Ring Road Project Communications Officer, Erin Mulherin. Erin can be contacted on (07) 4951 8555 or mackay.office@tmr.qld.gov.au and would be pleased to assist.

Yours sincerely

Patrick Aprile
**District Director (Mackay/Whitsunday)**

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9 June 2017

28 Te Kowai Foulden Rd
Te Kowai QLD 4740

**CONSENT TO PROCEED WITH EXCEPTIONAL CIRCUMSTANCES TREATMENT**

Lot 2 RP732066

I/We_____ provide consent to the Department of Transport and Main Roads to proceed to implement Exceptional Circumstances Treatment as per correspondence dated 9 June 2017, the AECOM noise assessment and ECT report and the *Transport Noise Management Code of Practice*.

Signature: _____

Name: _____

Date: _____

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**Department of Transport and Main Roads**
Program Delivery and Operations
Mackay/Whitsunday District
Floor 2 Mackay Government Office Building
44 Nelson Street Mackay
PO Box 62 Mackay QLD 4740

**Enquiries** Mackay Ring Road Project Team
**Phone** (07) 4951 8555
**Email** mackay.office@tmr.qld.gov.au

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AECOM

Mackay Ring Road Stage 1
Department of Transport and Main Roads
20-Apr-2017 DRAFT
Doc No. 60342905-REP-00058

# Mackay Ring Road Stage 1 Noise Assessment

## Exceptional Circumstances Treatment Report

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**D R A F T**

# Mackay Ring Road Stage 1 Noise Assessment

## Exceptional Circumstances Treatment Report

Client: Department of Transport and Main Roads

ABN: 39 407 690 291

Prepared by

**AECOM Australia Pty Ltd**
Level 1, 162 Victoria Street, PO Box 11176, Mackay QLD 4740, Australia
T +61 7 4965 9800 F +61 7 4957 6097 www.aecom.com
ABN 20 093 846 925

20-Apr-2017

Job No.: 60342905

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# Quality Information

Document Mackay Ring Road Stage 1 Noise Assessment

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Date 20-Apr-2017

Prepared by

Reviewed by

Revision History

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# Executive Summary

AECOM Australia Pty Ltd (AECOM) was commissioned by the Department of Transport and Main Roads (TMR) to conduct a detailed assessment of future road traffic noise impact from the proposed Mackay Ring Road Stage 1 (MRRS1) to nearby noise sensitive receptors. This assessment is contained in the AECOM report *Mackay Ring Road Stage 1 noise Assessment – Road Traffic Noise Impact Assessment*, reference 60342905-ACRP-0002-01, dated 26 May 2016 (hereafter refers to as the AECOM Traffic Noise Report).

TMR has subsequently requested that an assessment be conducted to determine the applicable level of Exceptional Circumstances Treatments (ECT) at 19 selected dwellings along the study site. This assessment comprises a visual inspection of these 19 dwellings and updates to the road traffic noise model utilised in the AECOM Traffic Noise Report. The findings of the ECT assessment are detailed in this report, and are considered an addendum to the AECOM Traffic Noise Report.

This assessment was carried out in accordance with the requirements of the Department of Transport and Main Roads (TMR) document *Transport Noise Management Code of Practice Volume 1 – Road Traffic Noise* (CoP 2013).

The AECOM Traffic Noise Report indicates that noise barriers are not an economical or efficient solution given the scattered location of dwellings along MRRS1. In this instance, noise treatments have focused on the provision of Exceptional Circumstances Treatments (ECTs) to affected buildings. Three different levels of ECT apply, based on the requirements of CoP 2013, summarised in Table 1 below.

**Table 1 Criteria for ECT (from CoP 2013 Section 3.3)**

| ECT Level | Predicted Level (rounded) | Treatments |
|---|---|---|
| - | Do not exceed criterion level | • No treatment required |
| 1 | Exceed criterion level by less than 3 dB(A) | • Mechanical ventilation<br>• Windows can remain closed or partly closed to reduce noise entering habitable rooms |
| 2 | Exceed criterion level by 3 dB(A) to 9 dB(A) | • Air-conditioning and mechanical ventilation.<br>• Windows can remain closed to reduce noise entering habitable rooms |
| 3 | Exceed criterion level by 10 dB(A) or greater | • Air-conditioning, mechanical ventilation and any necessary architectural upgrade treatments<br>• Windows can remain closed to reduce noise entering habitable rooms<br>• To ensure internal noise level is at least 10 dB(A) below the external noise criterion level. |

Based on the findings of the visual inspection, and updates to the SoundPLAN noise model, the ECT levels are summarised in Table 2 below.

**Table 2 Summary of ECT Level per Receptor**

| Receptor | Street Address | Number of Habitable Rooms assessable under CoP 2013 | Number of Rooms and Recommended ECT level | | | |
|---|---|---|---|---|---|---|
| | | | - | ECT Level 1 | ECT Level 2 | ECT Level 3 |
| | | | | | | |



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| Recep-tor | Street Address | Number of Habitable Rooms assessable under CoP 2013 | Number of Rooms and Recommended ECT level | | | |
|---|---|---|---|---|---|---|
| | | | - | ECT Level 1 | ECT Level 2 | ECT Level 3 |
| | | | | | | |
| 24 | 28 Te Kowai Foulden Road, Te Kowai | 7 | - | - | 7 | - |
| | | | | | | |
| **Total** | | **122** | **35** | **27** | **60** | **0** |

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The final number of rooms where ECT is to be provided, and the final treatment level, is dependent on community consultation, and comment from the mechanical ventilation/air-conditioning contractors.

It is noted that some habitable rooms requiring ECT Level 2 (and hence air-conditioning) comprised roller/tilt garage doors, which may not seal airtight when closed (i.e. at receptors 24 and 26). The mechanical ventilation/air-conditioning contractor is to determine whether air-conditioning is practicable at these rooms.

It is further noted that all dwellings in this assessment, except receptor 7, did not comprise mechanical ventilation. Whilst receptor 7 did comprise a ducted air-conditioning system in all habitable rooms, AECOM cannot confirm whether this system draws in fresh/outside air. The mechanical ventilation/air-conditioning contractor is to determine whether this ducted system comprises fresh air intake and therefore meets the mechanical ventilation requirement in CoP 2013.

A detailed summary of the ECT level for each habitable room at each receptor is provided in Appendix B. The indicative locations of habitable rooms at each dwelling are provided in Appendix C.

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# 1.0 Introduction

## 1.1 Project Brief

AECOM Australia Pty Ltd (AECOM) was commissioned by the Department of Transport and Main Roads (TMR) to conduct a detailed assessment of future road traffic noise impact from the proposed Mackay Ring Road Stage 1 (MRRS1) to nearby noise sensitive receptors. This assessment is contained in the AECOM report *Mackay Ring Road Stage 1 noise Assessment – Road Traffic Noise Impact Assessment,* reference 60342905-ACRP-0002-01, dated 26 May 2016 (hereafter refers to as the AECOM Traffic Noise Report).

TMR has subsequently requested that an assessment be conducted to determine the applicable level of Exceptional Circumstances Treatments (ECT) at 19 selected dwellings along the study site. This assessment comprises a visual inspection of these 19 dwellings and updates to the road traffic model utilised in the AECOM Traffic Noise Report. The findings of the ECT are comprised in this report, and are considered an addendum to the AECOM Traffic Noise Report.

This assessment was carried out in accordance with the requirements of the Department of Transport and Main Roads (TMR) document *Transport Noise Management Code of Practice Volume 1 – Road Traffic Noise* (CoP 2013).

This report is to be read in conjunction with the AECOM Traffic Noise Report.

A glossary of acoustic terminology used in this report is provided in Appendix A.

## 1.2 Scope and Limitations

The scope of this assessment comprises:

- Visual inspection of the 19 selected dwellings to determine the location of habitable rooms within the building and existing ventilation systems.
- Update the noise model used in the AECOM Traffic Noise Report to reflect the specific location of these habitable rooms within each dwelling.
- Predict the 2029 (10 years after the road is opened in 2019) road traffic noise levels at these habitable rooms.
- Determine habitable rooms where ECTs apply, and the applicable level of treatment.

The limitations of this assessment comprise:

- Only selected dwellings (discussed in Section 2.2) have been included in the current assessment.
- The advice contained herein is specifically related to acoustical issues. AECOM recommends additional advice be sought regarding non-acoustical issues associated with this project.

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# 2.0 Methodology and Assessment Receptors

## 2.1 Approach

The implementation of ECT is detailed in CoP 2013, and broadly comprises the following:

- Carry out a visual inspection at selected dwellings to determine:
  - The dwelling layout (floor plan) and orientation relative to the MRRS1. This was sketched up by AECOM staff whilst on site.
  - The location of habitable rooms located along the building facade.
  - The presence of air conditioning units, ceiling fans and mechanical ventilation (if any) in each habitable area.
  - The building façade construction.
- Update the road traffic computer noise model utilised in the AECOM Traffic Noise Report to reflect the specific location of these habitable rooms within each dwelling.
- Assess the 2029 traffic noise level predictions against the nominated noise criteria.
- Determine the highest ECT treatment level per habitable room.

It is noteworthy that the road traffic noise model noise model used for the AECOM Traffic Noise Reports was modified as follows:

- Dwellings in the model were refined based on the floor plan obtained through the visual inspection.
- Point receptors were placed at the external facade(s) of habitable rooms to predict the external noise impacts.
- Receptors 11 ad 39 have been removed from the noise model, following TMR's advice on 14 November 2016 that these buildings have been resumed for the project and are to be demolished during or following the construction of the project.

## 2.2 Assessment Receptors

Following TMR's direction on 14 November 2016, twenty one (21) dwellings were initially selected for the current ECT assessment. However, as agreed with TMR, two dwellings (receptors 15 and 28) were subsequently removed from assessment as AECOM and TMR were unable to contact the dwelling owners regarding the current assessment. As such, nineteen (19) dwellings have been ultimately assessed.

These receptors are comprised in Table 3 below. The receptor numbers have been retained from the AECOM Traffic Noise Report for consistency. The dates of the visual inspection have also been provided.

**Table 3 Summary of Assessment Receptors**

| Receptor | Street Address | Inspection Date | Comments |
|---|---|---|---|

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| Receptor | Street Address | Inspection Date | Comments |
|---|---|---|---|
| 24 | 28 Te Kowai Foulden Road, Te Kowai | 21 February 2017 | |

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# 3.0 Application of ECT

## 3.1 Criteria and ECT Level

Two assessment scenarios/noise criteria are discussed in the AECOM Traffic Noise Report, summarised in Table 4 below.

**Table 4 Summary of Assessment Scenarios and Criteria**

| Scenario | Applicable Noise Criterion |
|---|---|
| 2029 horizon, impact from MRRS1 component only. | 60/63* dB(A) $L_{A10\ (18h)}$ 1.0 m in front of the building façade |
| 2029 horizon, impact from all State-controlled roads | 68 dB(A) $L_{A10\ (18h)}$ 1.0 m in front of the building façade |

* Refer to AECOM Traffic Noise Report for the nominated "New Road" criterion applicable at each dwelling.

The AECOM Traffic Noise Report indicates that noise barriers are not an economical or efficient solution given the scattered location of dwellings along MRRS1. In this instance, noise treatments have focused on the provision of ECT to affected buildings. Three different levels of ECT apply, based on the requirements of CoP 2013, summarised in Table 5 below.

**Table 5 Criteria for ECT (from CoP2013 Section 3.3)**

| ECT Level | Predicted Level (rounded) | Treatments |
|---|---|---|
| - | Do not exceed criterion level | • No treatment required |
| 1 | Exceed criterion level by less than 3 dB(A) | • Mechanical ventilation<br>• Windows can remain closed or partly closed to reduce noise entering habitable rooms |
| 2 | Exceed criterion level by 3 dB(A) to 9 dB(A) | • Air-conditioning and mechanical ventilation.<br>• Windows can remain closed to reduce noise entering habitable rooms |
| 3 | Exceed criterion level by 10 dB(A) or greater | • Air-conditioning, mechanical ventilation and any necessary architectural upgrade treatments<br>• Windows can remain closed to reduce noise entering habitable rooms<br>• To ensure internal noise level is at least 10 dB(A) below the external noise criterion level. |

The current assessment has considered the respective ECT Level for both assessment scenarios. Conservatively, only the highest ECT Level has been reported.

## 3.2 Applicability of ECT

According to Section 6.4.1 of CoP 2013:

*"The following issues shall be noted when considering ECTs:*

- *ECTs will only be considered for access-controlled roads, where noise barriers would be a possible Noise attenuation treatment option but unsuitable because barriers:*
  - *are not cost-effective (e.g. barriers for isolated dwellings)*
  - *cause unacceptable impact upon visual amenity (e.g. required barriers too high and unsuitable for the streetscape / built environment)*

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- *affect security (e.g. for educational facilities where Crime Prevention Through Environmental Design principles needs to be considered).*

CoP 2013 defines non-access controlled roads as "*roads where direct access has been effectively restricted by various means e.g. access can only be achieved at an intersection or interchange.*"

- *If a row of dwellings is being considered for ECT, the relevant criterion level may not actually be exceeded for some of the dwellings in the row. For consistency, consideration should be given to providing at least mechanical ventilation to those dwellings.*

*The following ECT treatment options can be considered:*

- *closing windows*
- *installing a mechanical ventilation system / air-conditioning system for ventilation/comfort requirements*
- *architectural treatment of the building envelope.*

*In providing mechanical ventilations, a mechanical ventilator shall have the following characteristics:*

- *takes in outside air in accordance with the Building Code of Australia*
- *removes engine emissions*
- *low internal noise*
- *adjustable airflow*
- *absorbs airborne noise*
- *quietly provides a healthy supply of clean, fresh air.*

*The Department will not contribute to the running / maintenance costs of the treatment. These will be the responsibility of the dwelling occupier or the institution concerned."*

Based on the above, split-system air conditioning units, ceiling fans and traditional wall mounted extraction fans are not considered mechanical ventilation.

It is further noted that all dwellings in this assessment, except receptor 7, did not comprise mechanical ventilation. Whilst receptor 7 did comprise a ducted air-conditioning system in all habitable rooms, AECOM cannot confirm whether this system draws in fresh/outside air. The mechanical ventilation/air-conditioning contractor is to determine whether this ducted system comprises fresh air intake and therefore meets the mechanical ventilation requirement in CoP 2013.

## 3.3 Limitations of ECT

According to Section 6.4.2 of CoP 2013:

*ECTs do not apply to the following situations:*

- *non-access controlled road*
- *dwellings that are not permanent noise sensitive buildings (e.g. caravan park, cabin or demountable)*
- *heritage listed buildings or light weight character buildings.*

TMR clarified on 7 March 2017 that light weight character buildings include "*timber-tin houses and those having single envelope facades with fibrous cements, glass, or metal sheets*". It is noted that all 19 dwellings were observed to comprise masonry or double-leaf facades at habitable rooms (e.g. weatherboard exterior with plasterboard/timber interior). As such, no dwellings have been excluded from assessment on this basis.

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For the current assessment, AECOM clarifies that rooms without acoustically-solid external façades are excluded from assessment. An acoustically-solid façade does not have significant gaps; therefore air (and noise) does not pass through easily. Treatment to rooms without acoustically-solid facades do not meet the intent of ECT (refer to Section 3.1), as closing windows does not reduce the noise entering these rooms; as such these rooms have been excluded from assessment. These rooms are listed below:

- Receptor 8. The ground level (comprising one room) does not have acoustically-solid external walls. Some walls and doors on this level comprised timber planks spaced approximately one plank-width apart from each other (i.e. approximately 50% open area). Accordingly, the ground level of this building does not qualify for ECT.
- Receptor 32: The Pet Room (comprising an aviary) does not have an acoustically-solid external façade (wall comprises a security screen without a solid glass backing). Accordingly, this room does not qualify for ECT.

It was also noted that that Receptor 22 is a commercial /retail use building (Turfgrass Mackay). CoP 2013 states that *"ECT is applicable to residential, educational, community and health buildings"*. Accordingly, ECT does not apply to this building. The ECT level has nonetheless been provided, as requested by TMR.

## 3.4 Habitable Rooms

CoP 2013 defines habitable rooms as follows:

> *As defined in the National Construction Code, for example, can be applied to a bedroom, living room, dining room, lounge room, music room, home theatre room, kitchen, sewing room, plat room, family room, sun room and study.*

The National Construction Code defines a habitable room as follows:

> *A room used for Normal domestic activities and includes a bedroom, living room, lounge room, music room, television room, kitchen, dining room, sewing room, study, playroom, family room, home theatre, and sunroom, but excludes a bathroom, laundry, water closet, pantry, walk-in wardrobe, corridor, hallway, lobby, photographic darkroom, clothes drying room, and other spaces of a specialised nature occupied neither frequently nor for extended periods.*

For the current assessment, master bedrooms and their attached ensuites are considered collectively as one habitable room.

Concerning habitable rooms, AECOM clarified with TMR on 7 March 2017 that:

> *Habitable rooms should be based on how the rooms are used at the time of the project.*

Accordingly, determination of whether a room is habitable or not was based on the use of the room determined during the visual inspection.

AECOM further clarifies that habitable rooms without an external façade (i.e. not located along the building envelope), are excluded from assessment; as these rooms are separated from the building external façade by other rooms or hallways. These 10 rooms are listed below:

- Receptor 7: Home theatre
- Receptor 10: Memorabilia Room 1 and 2
- Receptor 23: Bedroom 2
- Receptor 29: Office, Bedroom 3 and Bedroom 4
- Receptor 30: Office
- Receptor 33: Bedroom 4
- Receptor 38: Office.

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# 4.0 ECT Level Requirement

Based on the findings of the visual inspection, and updates to the road traffic noise model, the ECT levels are summarised in Table 6 below:

**Table 6 Summary of ECT Level per Receptor**

| Recep-tor | Number of Habitable Rooms* | Number of Habitable Rooms Assessable under CoP 2013 | Number of Rooms and Recommended ECT Level | | | |
|---|---|---|---|---|---|---|
| | | | - | ECT Level 1 | ECT Level 2 | ECT Level 3 |
| 7 | 7 | 6 | 1 | - | 5 | - |
| 8 | 4 | 4 | - | 4 | - | - |
| 9 | 8 | 8 | 2 | - | 6 | - |
| 10 | 7 | 5 | 4 | 1 | - | - |
| 12 | 5 | 5 | 1 | 4 | - | - |
| 13 | 11 | 11 | - | 2 | 9 | - |
| 22 | 3 | 3 | - | - | 3 | - |
| 23 | 6 | 5 | 1 | 3 | 1 | - |
| 24 | 7 | 7 | - | - | 7 | - |
| 25 | 7 | 7 | 7 | - | - | - |
| 26 | 9 | 9 | - | - | 9 | - |
| 27 | 6 | 6 | - | - | 6 | - |
| 29 | 9 | 6 | 2 | 4 | - | - |
| 30 | 9 | 8 | 8 | - | - | - |
| 31 | 6 | 6 | 1 | 4 | 1 | - |
| 32 | 8 | 8 | 3 | 1 | 4 | - |
| 33 | 9 | 8 | 1 | 1 | 6 | - |
| 34 | 3 | 3 | - | - | 3 | - |
| 38 | 8 | 7 | 4 | 3 | - | - |
| **Total** | **132** | **122** | **35** | **27** | **60** | **0** |

* Refer to Section 3.4 concerning habitable rooms excluded from assessment.

It is noted that no ECT is predicted to be required at Receptor 25 and 30. In addition, no habitable rooms requiring ECT Level 3 is predicted to be required across all 19 dwellings.

The final number of rooms where ECT is to be provided, and the final treatment level, is dependent on community consultation and comment from the mechanical ventilation/air-conditioning contractors. It is noted that some habitable rooms requiring ECT Level 2 (and hence air-conditioning) comprise roller/tilt garage doors, which may not seal airtight when closed (i.e. at receptors 24 and 26). The mechanical ventilation/air-conditioning contractor is to determine whether air-conditioning is practicable at these rooms.

A detailed summary of the ECT level for each habitable room at each receptor is provided in Appendix B. The indicative locations of habitable rooms at each dwelling are provided in Appendix C. The predicted 2029 road noise levels at the external façade of habitable rooms are provided in Appendix D.

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# 5.0 Conclusion

AECOM Australia Pty Ltd has carried out an assessment of the 2029 road traffic noise levels from the proposed Mackay Ring Road Stage 1 project at 19 selected dwellings. This assessment was based on the findings of the detailed design noise assessment carried out by AECOM in 2016, and refined based on a visual inspection of these dwellings conducted in February and March 2017.

The recommended Exceptional Circumstance Treatment level at applicable habitable rooms within these 19 dwellings are summarised in this report.

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# Appendix A

## Glossary

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# Appendix A Glossary

| | |
|---|---|
| Ambient Sound | The totally encompassing sound in a given situation at a given time, usually composed of sound from all sources near and far. |
| Audible Range | The limits of frequency which are audible or heard as sound. The normal ear in young adults detects sound having frequencies in the region 20 Hz to 20 kHz, although it is possible for some people to detect frequencies outside these limits. |
| Decibel [dB] | The level of noise is measured objectively using a Sound Level Meter. The following are examples of the decibel readings of every day sounds:<br>30 dB(A) A quiet library or in a quiet location in the country<br>45 dB(A) Typical office space. Ambience in the city at night<br>60 dB(A) City centre at lunch time<br>70 dB(A) The sound of a car passing on the street<br>80 dB(A) Loud music played at home<br>90 dB(A) The sound of a truck passing on the street<br>100 dB(A) The sound of a rock band<br>120 dB(A) Deafening |
| dB(A) | A-weighted decibels The ear is not as effective in hearing low frequency sounds as it is hearing high frequency sounds. That is, low frequency sounds of the same dB level are not heard as loud as high frequency sounds. The sound level meter replicates the human response of the ear by using an electronic filter which is called the "A" filter. A sound level measured with this filter switched on is denoted as dB(A). Practically all noise is measured using the A filter. The sound pressure level in dB(A) gives a close indication of the subjective loudness of the noise. |
| Habitable Room | The definition of habitable rooms is taken from the TMR document *Transport Noise Management Code of Practice Volume 1 – Road Traffic Noise* dated November 2013 as follows:<br>*As defined in the National Construction Code, for example, can be applied to a bedroom, living room, dining room, lounge room, music room, home theatre room, kitchen, sewing room, plat room, family room, sun room and study.* |
| $L_{Amax}$ | The maximum sound pressure level measured over a given period. |
| $L_{A10}$ | The sound pressure level that is exceeded for 10% of the time period for which the given sound is measured. $L_{A10\ (1h)}$ is therefore the sound pressure level that is exceeded for 10% of the one hour period for which the given sound is measured. This indicator is typically used to represent noise exposure from road traffic noise. |
| $L_{A10\ (18h)}$ | The $L_{A10\ (18h)}$ level is the arithmetic average of 18 hourly $L_{10}$ levels over consecutive hours between 6am and 12 midnight. This indicator is typically used to represent noise exposure from road traffic noise. |
| $L_{Aeq}$ | The "equivalent noise level" is the summation of noise events and integrated over a selected period of time. |

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| Noise Sensitive Place / Receptor | The definition of "noise sensitive" is taken from the TMR document *Transport Noise Management Code of Practice Volume 1 – Road Traffic Noise* dated November 2013, and can be applied to:<br>• A dwelling (detached and attached) including house, townhouse, unit, reformatory institution, caravan park, or retirement village<br>• A library, childcare centre, kindergarten, school, school[playgrounds, college, university, museum, art gallery or other educational institution<br>• A community building including a place of public worship<br>• A hospital, respite care facility, nursing home, aged care facility, surgery or other medical centre.<br>• A hotel, motel or other premises which provides accommodation for the public.<br>• A protected area, or an area identified under a conservation plan as a critical habitat or an area of major interest under the Nature Conservation Act 1992.<br>• A public park or gardens that is open to the public (whether or not on payment of a fee) for use other than for sport or organised entertainment (passive recreation only) |

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# Appendix B

# ECT Assessment Results

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# Appendix B ECT Assessment Results

| Receptor | Address | Floor/External Façade Construction | Habitable Room | Window Type | Air-conditioning Type | Ceiling Fan Present? | ECT Level | Comments |
|---|---|---|---|---|---|---|---|---|

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| Receptor | Address | Floor/External Façade Construction | Habitable Room | Window Type | Air-conditioning Type | Ceiling Fan Present? | ECT Level | Comments |
|---|---|---|---|---|---|---|---|---|
| [redacted] | | | | | | | | |



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| Receptor | Address | Floor/External Façade Construction | Habitable Room | Window Type | Air-conditioning Type | Ceiling Fan Present? | ECT Level | Comments |
|---|---|---|---|---|---|---|---|---|
| 24 | 28 Te Kowai Foulden Road, Te Kowai | Upper / Weatherboard | Master Bedroom | Sliding | - | Yes | 2 | |
| | | | Bedroom 1 | Sliding | - | Yes | 2 | |
| | | | Bedroom 2 | Sliding | - | Yes | 2 | |
| | | | Playroom | Sliding | - | - | 2 | |
| | | | Kitchen/Dining | Sliding | - | - | 2 | |
| | | | Lounge | Sliding | - | Yes | 2 | |

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| Receptor | Address | Floor/External Façade Construction | Habitable Room | Window Type | Air-conditioning Type | Ceiling Fan Present? | ECT Level | Comments |
|---|---|---|---|---|---|---|---|---|
| | | Ground / Fibro | Combined Garage/Recreation | Tilt garage door + hinged doors | - | - | 2 | Room may not be completely sealed when doors are closed. Air-conditioning contractor to determine whether air-conditioning is practicable.<br><br>Storage room at SE corner not considered a habitable room. |



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| Receptor | Address | Floor/External Façade Construction | Habitable Room | Window Type | Air-conditioning Type | Ceiling Fan Present? | ECT Level | Comments |
|---|---|---|---|---|---|---|---|---|

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| Receptor | Address | Floor/External Façade Construction | Habitable Room | Window Type | Air-conditioning Type | Ceiling Fan Present? | ECT Level | Comments |
|---|---|---|---|---|---|---|---|---|

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| Receptor | Address | Floor/External Facade Construction | Habitable Room | Window Type | Air-conditioning Type | Ceiling Fan Present? | ECT Level | Comments |
|---|---|---|---|---|---|---|---|---|

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# Appendix C

## Indicative Floor Plans

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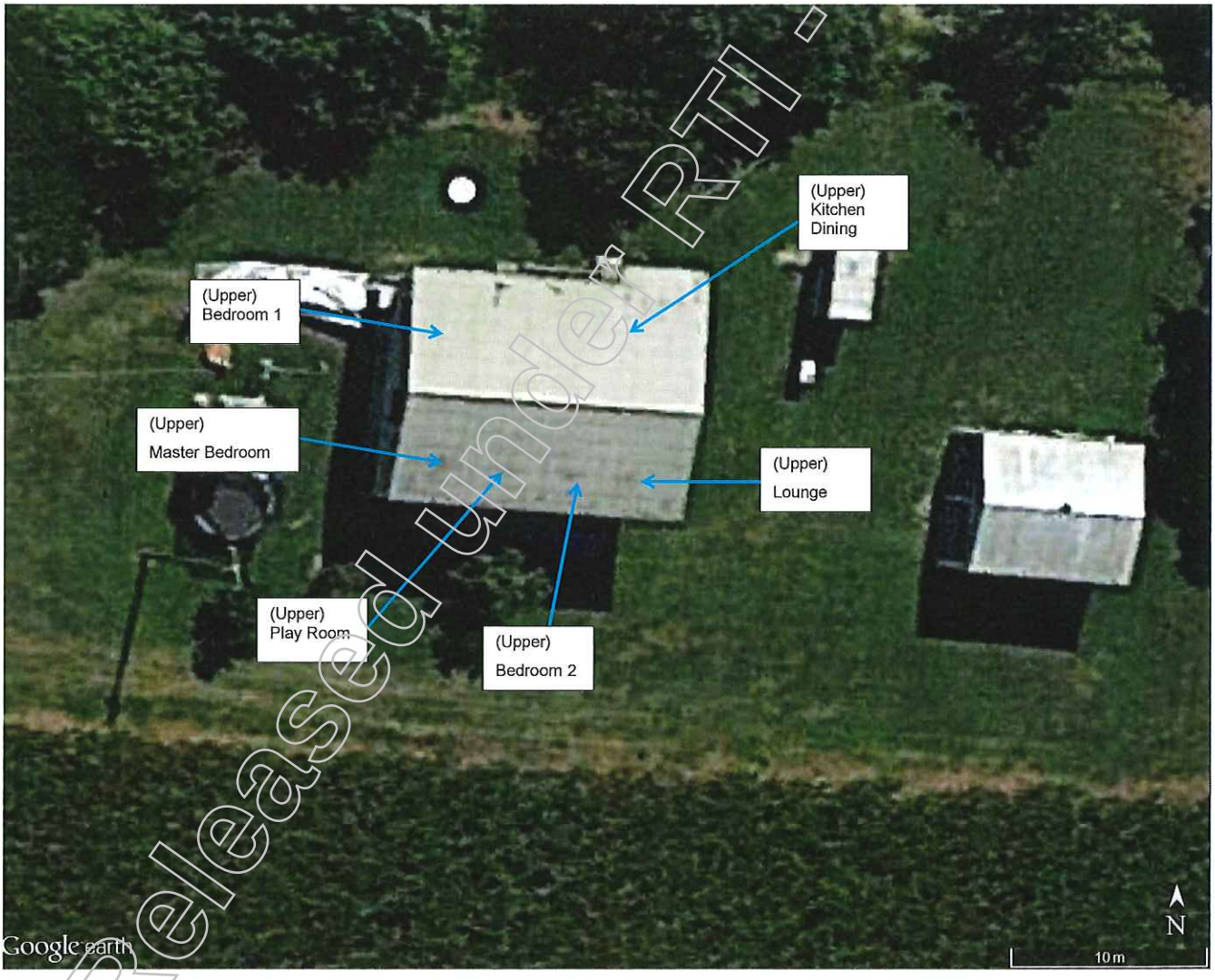
| Receptor | Address | Floor/External Façade Construction | Habitable Room | Window Type | Air-conditioning Type | Ceiling Fan Present? | ECT Level | Comments |
|---|---|---|---|---|---|---|---|---|
| 24 | 28 Te Kowai Foulden Road, Te Kowai | Upper / Weatherboard | Master bedroom | Sliding | - | Yes | 2 | |
| | | | Bedroom 1 | Sliding | - | Yes | 2 | |
| | | | Bedroom 2 | Sliding | - | Yes | 2 | |
| | | | Playroom | Sliding | - | - | 2 | |
| | | | Kitchen/Dining | Sliding | - | - | 2 | |
| | | | Lounge | Sliding | - | Yes | 2 | |
| | | Ground / Fibro | Combined Garage/Recreation (covers most of ground floor) | Tilt garage door + hinged doors | - | - | 2 | Room may not be completely sealed when doors are closed. Air-conditioning contractor to determine whether air-conditioning is practicable.<br><br>Storage room at SE corner not considered a habitable room. |

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# Appendix D

# Predicted 2029 Road Traffic Noise Levels

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# Appendix D Predicted 2029 Road Traffic Noise Levels

| Receptor | Room Name | Storey | Façade Direction | Scenario 1 - Assessment of MRRS1 Component Noise only | | | | Scenario 2 -Assessment of All State-controlled Roads | | | | Recommended ECT Level (higheer of ECT Level "A" and ECT Level "B") |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | $L_{A10\ (18h)}$ Criterion dB(A) | Predicted 2029 $L_{A10\ (18h)}$ Noise Level dB(A) | Exceedence of criterion dB(A) | ECT Level "A" | $L_{A10\ (18h)}$ Criterion dB(A) | Predicted 2029 $L_{A10\ (18h)}$ Noise Level dB(A) | Exceedence of criterion dB(A) | ECT Level "B" | |
| 7 | Bedroom 1 | Ground | W | 60 | 65 | 5 | 2 | 68 | 65 | 0 | 0 | 2 |
| 7 | Bedroom 2 | Ground | N | 60 | 60 | 0 | 0 | 68 | 60 | 0 | 0 | 0 |
| 7 | Bedroom 2 | Ground | W | 60 | 64 | 4 | 2 | 68 | 64 | 0 | 0 | 2 |
| 7 | Bedroom 3 | Ground | N | 60 | 57 | 0 | 0 | 68 | 57 | 0 | 0 | 0 |
| 7 | Dining | Ground | E | 60 | 65 | 5 | 2 | 68 | 65 | 0 | 0 | 2 |
| 7 | Lounge | Ground | E | 60 | 65 | 5 | 2 | 68 | 65 | 0 | 0 | 2 |
| 7 | Lounge | Ground | N | 60 | 56 | 0 | 0 | 68 | 57 | 0 | 0 | 0 |
| 7 | Master Bedroom | Ground | S | 60 | 68 | 8 | 2 | 68 | 68 | 0 | 0 | 2 |
| 7 | Master Bedroom | Ground | E | 60 | 66 | 6 | 2 | 68 | 66 | 0 | 0 | 2 |
| 7 | Office | Ground | S | 60 | 68 | 8 | 2 | 68 | 68 | 0 | 0 | 2 |
| 8 | Bedroom 1 | Upper | E | 60 | 61 | 1 | 1 | 68 | 61 | 0 | 0 | 1 |
| 8 | Bedroom 2 | Upper | E | 60 | 61 | 1 | 1 | 68 | 61 | 0 | 0 | 1 |
| 8 | Kitchen | Upper | E | 60 | 61 | 1 | 1 | 68 | 61 | 0 | 0 | 1 |
| 8 | Kitchen | Upper | S | 60 | 56 | 0 | 0 | 68 | 57 | 0 | 0 | 0 |
| 8 | Lounge | Upper | N | 60 | 61 | 1 | 1 | 68 | 62 | 0 | 0 | 1 |
| 8 | Lounge | Upper | W | 60 | 59 | 0 | 0 | 68 | 59 | 0 | 0 | 0 |
| 8 | Office | Upper | N | 60 | 62 | 2 | 1 | 68 | 62 | 0 | 0 | 1 |
| 8 | Office | Upper | E | 60 | 62 | 2 | 1 | 68 | 62 | 0 | 0 | 1 |
| 9 | Bedroom 1 | Ground | E | 60 | 66 | 6 | 2 | 68 | 66 | 0 | 0 | 2 |



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| Receptor | Room Name | Storey | Facade Direction | Scenario 1 - Assessment of MRRS1 Component Noise only | | | | Scenario 2 -Assessment of All State-controlled Roads | | | | Recommended ECT Level (higheer of ECT Level "A" and ECT Level "B") |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | $L_{A10\,(18h)}$ Criterion dB(A) | Predicted 2029 $L_{A10\,(18h)}$ Noise Level dB(A) | Exceedence of criterion dB(A) | ECT Level "A" | $L_{A10\,(18h)}$ Criterion dB(A) | Predicted 2029 $L_{A10\,(18h)}$ Noise Level dB(A) | Exceedence of criterion dB(A) | ECT Level "B" | |
| 9 | Bedroom 1 | Ground | S | 60 | 65 | 5 | 2 | 68 | 65 | 0 | 0 | 2 |
| 9 | Bedroom 2 | Ground | E | 60 | 66 | 6 | 2 | 68 | 66 | 0 | 0 | 2 |
| 9 | Dining | Ground | E | 60 | 66 | 6 | 2 | 68 | 66 | 0 | 0 | 2 |
| 9 | Kitchen | Ground | E | 60 | 66 | 6 | 2 | 68 | 66 | 0 | 0 | 2 |
| 9 | Kitchen | Ground | N | 60 | 64 | 4 | 2 | 68 | 65 | 0 | 0 | 2 |
| 9 | Lounge | Ground | W | 60 | 58 | 0 | 0 | 68 | 59 | 0 | 0 | 0 |
| 9 | Master Bedroom | Ground | S | 60 | 64 | 4 | 2 | 68 | 64 | 0 | 0 | 2 |
| 9 | Master Bedroom | Ground | W | 60 | 61 | 1 | 1 | 68 | 61 | 0 | 0 | 1 |
| 9 | Office | Ground | W | 60 | 58 | 0 | 0 | 68 | 59 | 0 | 0 | 0 |
| 9 | Sewing | Ground | E | 60 | 66 | 6 | 2 | 68 | 66 | 0 | 0 | 2 |
| 10 | Bedroom 1 | Ground | S | 63 | 62 | 0 | 0 | 68 | 63 | 0 | 0 | 0 |
| 10 | Bedroom 1 | Ground | W | 63 | 59 | 0 | 0 | 68 | 64 | 0 | 0 | 0 |
| 10 | Bedroom 2 | Ground | W | 63 | 59 | 0 | 0 | 68 | 64 | 0 | 0 | 0 |
| 10 | Dining | Ground | E | 63 | 64 | 1 | 1 | 68 | 65 | 0 | 0 | 1 |
| 10 | Dining | Ground | N | 63 | 63 | 0 | 0 | 68 | 64 | 0 | 0 | 0 |
| 10 | Dining | Ground | S | 63 | 63 | 0 | 0 | 68 | 63 | 0 | 0 | 0 |
| 10 | Kitchen | Ground | E | 63 | 63 | 0 | 0 | 68 | 65 | 0 | 0 | 0 |
| 10 | Master Bedroom | Ground | S | 63 | 62 | 0 | 0 | 68 | 63 | 0 | 0 | 0 |
| 12 | Bedroom 1 | Ground | S | 63 | 62 | 0 | 0 | 68 | 66 | 0 | 0 | 0 |
| 12 | Bedroom 1 | Ground | W | 63 | 59 | 0 | 0 | 68 | 68 | 0 | 0 | 0 |



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DTMR - Information Release

| Receptor | Room Name | Storey | Facade Direction | Scenario 1 - Assessment of MRRS1 Component Noise only | | | | Scenario 2 -Assessment of All State-controlled Roads | | | | Recommended ECT Level (higheer of ECT Level "A" and ECT Level "B") |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | $L_{A10\ (18h)}$ Criterion dB(A) | Predicted 2029 $L_{A10\ (18h)}$ Noise Level dB(A) | Exceedence of criterion dB(A) | ECT Level "A" | $L_{A10\ (18h)}$ Criterion dB(A) | Predicted 2029 $L_{A10\ (18h)}$ Noise Level dB(A) | Exceedence of criterion dB(A) | ECT Level "B" | |
| 12 | Bedroom 2 | Ground | N | 63 | 60 | 0 | 0 | 68 | 69 | 1 | 1 | 1 |
| 12 | Bedroom 2 | Ground | W | 63 | 60 | 0 | 0 | 68 | 69 | 1 | 1 | 1 |
| 12 | Kitchen | Ground | W | 63 | 59 | 0 | 0 | 68 | 69 | 1 | 1 | 1 |
| 12 | Lounge | Ground | E | 63 | 64 | 1 | 1 | 68 | 67 | 0 | 0 | 1 |
| 12 | Master Bedroom | Ground | E | 63 | 64 | 1 | 1 | 68 | 67 | 0 | 0 | 1 |
| 12 | Master Bedroom | Ground | E | 63 | 63 | 0 | 0 | 68 | 66 | 0 | 0 | 0 |
| 12 | Master Bedroom | Ground | S | 63 | 63 | 0 | 0 | 68 | 64 | 0 | 0 | 0 |
| 13 | Bedroom 1 | Upper | E | 63 | 66 | 3 | 2 | 68 | 71 | 3 | 2 | 2 |
| 13 | Bedroom 1 | Upper | S | 63 | 65 | 2 | 1 | 68 | 67 | 0 | 0 | 1 |
| 13 | Bedroom 2 | Upper | E | 63 | 66 | 3 | 2 | 68 | 72 | 4 | 2 | 2 |
| 13 | Bedroom 2 | Upper | N | 63 | 61 | 0 | 0 | 68 | 74 | 6 | 2 | 2 |
| 13 | Bedroom 3 | Upper | W | 63 | 55 | 0 | 0 | 68 | 72 | 4 | 2 | 2 |
| 13 | Bedroom 4 | Upper | W | 63 | 53 | 0 | 0 | 68 | 70 | 2 | 1 | 1 |
| 13 | Kitchen | Upper | S | 63 | 62 | 0 | 0 | 68 | 66 | 0 | 0 | 0 |
| 13 | Kitchen | Upper | W | 63 | 54 | 0 | 0 | 68 | 70 | 2 | 1 | 1 |
| 13 | Living Room 1 | Upper | N | 63 | 62 | 0 | 0 | 68 | 74 | 6 | 2 | 2 |
| 13 | Living Room 2 | Upper | N | 63 | 61 | 0 | 0 | 68 | 74 | 6 | 2 | 2 |
| 13 | Office | Upper | E | 63 | 66 | 3 | 2 | 68 | 73 | 5 | 2 | 2 |
| 13 | Office | Upper | N | 63 | 64 | 1 | 1 | 68 | 74 | 6 | 2 | 2 |
| 13 | Living Room 4 | Ground | E | 63 | 65 | 2 | 1 | 68 | 71 | 3 | 2 | 2 |



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| Receptor | Room Name | Storey | Facade Direction | Scenario 1 - Assessment of MRRS1 Component Noise only | | | | Scenario 2 -Assessment of All State-controlled Roads | | | | Recommended ECT Level (higheer of ECT Level "A" and ECT Level "B") |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | $L_{A10\ (18h)}$ Criterion dB(A) | Predicted 2029 $L_{A10\ (18h)}$ Noise Level dB(A) | Exceedence of criterion dB(A) | ECT Level "A" | $L_{A10\ (18h)}$ Criterion dB(A) | Predicted 2029 $L_{A10\ (18h)}$ Noise Level dB(A) | Exceedence of criterion dB(A) | ECT Level "B" | |
| 13 | Living Room 3 | Ground | N | 63 | 61 | 0 | 0 | 68 | 73 | 5 | 2 | 2 |
| 13 | Bedroom 5 | Ground | E | 63 | 65 | 2 | 1 | 68 | 72 | 4 | 2 | 2 |
| 13 | Bedroom 5 | Ground | N | 63 | 63 | 0 | 0 | 68 | 73 | 5 | 2 | 2 |
| 22 | Entrance/Reception | Ground | E | 63 | 64 | 1 | 1 | 68 | 70 | 2 | 1 | 1 |
| 22 | Entrance/Reception | Ground | S | 63 | 63 | 0 | 0 | 68 | 72 | 4 | 2 | 2 |
| 22 | Office/Kitchen | Ground | N | 63 | 62 | 0 | 0 | 68 | 64 | 0 | 0 | 0 |
| 22 | Office/Kitchen | Ground | S | 63 | 62 | 0 | 0 | 68 | 71 | 3 | 2 | 2 |
| 22 | Office 1 | Ground | S | 63 | 62 | 0 | 0 | 68 | 72 | 4 | 2 | 2 |
| 23 | Bedroom 1 | Ground | N | 63 | 64 | 1 | 1 | 68 | 65 | 0 | 0 | 1 |
| 23 | Dining | Ground | W | 63 | 58 | 0 | 0 | 68 | 64 | 0 | 0 | 0 |
| 23 | Kitchen | Ground | N | 63 | 64 | 1 | 1 | 68 | 65 | 0 | 0 | 1 |
| 23 | Lounge | Ground | E | 63 | 66 | 3 | 2 | 68 | 67 | 0 | 0 | 2 |
| 23 | Lounge | Ground | N | 63 | 65 | 2 | 1 | 68 | 65 | 0 | 0 | 1 |
| 23 | Office | Ground | N | 63 | 64 | 1 | 1 | 68 | 65 | 0 | 0 | 1 |
| 24 | Bedroom 1 | Upper | N | 60 | 66 | 6 | 2 | 68 | 66 | 0 | 0 | 2 |
| 24 | Bedroom 1 | Upper | W | 60 | 67 | 7 | 2 | 68 | 67 | 0 | 0 | 2 |
| 24 | Bedroom 2 | Upper | S | 60 | 65 | 5 | 2 | 68 | 65 | 0 | 0 | 2 |
| 24 | Dining | Upper | E | 60 | 62 | 2 | 1 | 68 | 63 | 0 | 0 | 1 |
| 24 | Dining | Upper | N | 60 | 65 | 5 | 2 | 68 | 65 | 0 | 0 | 2 |
| 24 | Lounge | Upper | S | 60 | 64 | 4 | 2 | 68 | 65 | 0 | 0 | 2 |

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DTMR Information Request

| Receptor | Room Name | Storey | Facade Direction | Scenario 1 - Assessment of MRRS1 Component Noise only | | | | Scenario 2 -Assessment of All State-controlled Roads | | | | Recommended ECT Level (higheer of ECT Level "A" and ECT Level "B") |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | $L_{A10\ (18h)}$ Criterion dB(A) | Predicted 2029 $L_{A10\ (18h)}$ Noise Level dB(A) | Exceedence of criterion dB(A) | ECT Level "A" | $L_{A10\ (18h)}$ Criterion dB(A) | Predicted 2029 $L_{A10\ (18h)}$ Noise Level dB(A) | Exceedence of criterion dB(A) | ECT Level "B" | |
| 24 | Lounge | Upper | E | 60 | 62 | 2 | 1 | 68 | 63 | 0 | 0 | 1 |
| 24 | Master Bedroom | Upper | S | 60 | 66 | 6 | 2 | 68 | 66 | 0 | 0 | 2 |
| 24 | Master Bedroom | Upper | W | 60 | 67 | 7 | 2 | 68 | 67 | 0 | 0 | 2 |
| 24 | Playroom | Upper | S | 60 | 65 | 5 | 2 | 68 | 66 | 0 | 0 | 2 |
| 24 | Combined Garage/Recreation | Ground | N | 60 | 65 | 5 | 2 | 68 | 65 | 0 | 0 | 2 |
| 24 | Combined Garage/Recreation | Ground | E | 60 | 59 | 0 | 0 | 68 | 60 | 0 | 0 | 0 |
| 24 | Combined Garage/Recreation | Ground | W | 60 | 66 | 6 | 2 | 68 | 66 | 0 | 0 | 2 |
| 24 | Combined Garage/Recreation | Ground | S | 60 | 64 | 4 | 2 | 68 | 65 | 0 | 0 | 2 |
| 25 | Bedroom 1 | Ground | E | 60 | 56 | 0 | 0 | 68 | 57 | 0 | 0 | 0 |
| 25 | Bedroom 2 | Ground | E | 60 | 58 | 0 | 0 | 68 | 58 | 0 | 0 | 0 |
| 25 | Bedroom 2 | Ground | S | 60 | 57 | 0 | 0 | 68 | 58 | 0 | 0 | 0 |
| 25 | Living | Ground | S | 60 | 59 | 0 | 0 | 68 | 59 | 0 | 0 | 0 |
| 25 | Living | Ground | W | 60 | 60 | 0 | 0 | 68 | 61 | 0 | 0 | 0 |
| 25 | Kitchen | Ground | N | 60 | 60 | 0 | 0 | 68 | 60 | 0 | 0 | 0 |
| 25 | Kitchen | Ground | W | 60 | 60 | 0 | 0 | 68 | 61 | 0 | 0 | 0 |
| 25 | Lounge | Ground | W | 60 | 60 | 0 | 0 | 68 | 60 | 0 | 0 | 0 |
| 25 | Master Bedroom | Ground | E | 60 | 57 | 0 | 0 | 68 | 58 | 0 | 0 | 0 |
| 25 | Master Bedroom | Ground | N | 60 | 60 | 0 | 0 | 68 | 60 | 0 | 0 | 0 |



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| Receptor | Room Name | Storey | Facade Direction | Scenario 1 - Assessment of MRRS1 Component Noise only | | | | Scenario 2 -Assessment of All State-controlled Roads | | | | Recommended ECT Level (higheer of ECT Level "A" and ECT Level "B") |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | $L_{A10\ (18h)}$ Criterion dB(A) | Predicted 2029 $L_{A10\ (18h)}$ Noise Level dB(A) | Exceedence of criterion dB(A) | ECT Level "A" | $L_{A10\ (18h)}$ Criterion dB(A) | Predicted 2029 $L_{A10\ (18h)}$ Noise Level dB(A) | Exceedence of criterion dB(A) | ECT Level "B" | |
| 25 | Sitting Room | Ground | N | 60 | 60 | 0 | 0 | 68 | 60 | 0 | 0 | 0 |
| 25 | Sitting Room | Ground | W | 60 | 60 | 0 | 0 | 68 | 60 | 0 | 0 | 0 |
| 26 | Bedroom 1 | Upper | N | 60 | 64 | 4 | 2 | 68 | 64 | 0 | 0 | 2 |
| 26 | Bedroom 2 | Upper | N | 60 | 64 | 4 | 2 | 68 | 64 | 0 | 0 | 2 |
| 26 | Bedroom 3 | Upper | E | 60 | 62 | 2 | 1 | 68 | 62 | 0 | 0 | 1 |
| 26 | Bedroom 3 | Upper | S | 60 | 64 | 4 | 2 | 68 | 64 | 0 | 0 | 2 |
| 26 | Dining | Upper | S | 60 | 64 | 4 | 2 | 68 | 65 | 0 | 0 | 2 |
| 26 | Dining | Upper | W | 60 | 66 | 6 | 2 | 68 | 66 | 0 | 0 | 2 |
| 26 | Lounge | Upper | N | 60 | 65 | 5 | 2 | 68 | 65 | 0 | 0 | 2 |
| 26 | Lounge | Upper | W | 60 | 66 | 6 | 2 | 68 | 66 | 0 | 0 | 2 |
| 26 | Master Bedroom | Upper | E | 60 | 62 | 2 | 1 | 68 | 62 | 0 | 0 | 1 |
| 26 | Master Bedroom | Upper | N | 60 | 64 | 4 | 2 | 68 | 64 | 0 | 0 | 2 |
| 26 | Bedroom 4 | Ground | N | 60 | 63 | 3 | 2 | 68 | 63 | 0 | 0 | 2 |
| 26 | Meeting Room | Ground | N | 60 | 63 | 3 | 2 | 68 | 63 | 0 | 0 | 2 |
| 26 | Meeting Room | Ground | E | 60 | 59 | 0 | 0 | 68 | 59 | 0 | 0 | 0 |
| 26 | Meeting Room | Ground | S | 60 | 62 | 2 | 1 | 68 | 63 | 0 | 0 | 1 |
| 26 | Office | Ground | S | 60 | 63 | 3 | 2 | 68 | 63 | 0 | 0 | 2 |
| 26 | Office | Ground | W | 60 | 65 | 5 | 2 | 68 | 65 | 0 | 0 | 2 |
| 26 | Office | Ground | N | 60 | 64 | 4 | 2 | 68 | 64 | 0 | 0 | 2 |
| 27 | Bedroom 1 | Upper | N | 60 | 65 | 5 | 2 | 68 | 65 | 0 | 0 | 2 |

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| Receptor | Room Name | Storey | Facade Direction | Scenario 1 - Assessment of MRRS1 Component Noise only | | | | Scenario 2 -Assessment of All State-controlled Roads | | | | Recom-mended ECT Level (higheer of ECT Level "A" and ECT Level "B") |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | $L_{A10\ (18h)}$ Criterion dB(A) | Predicted 2029 $L_{A10\ (18h)}$ Noise Level dB(A) | Exceed-ence of criterion dB(A) | ECT Level "A" | $L_{A10\ (18h)}$ Criterion dB(A) | Predicted 2029 $L_{A10\ (18h)}$ Noise Level dB(A) | Exceed-ence of criterion dB(A) | ECT Level "B" | |
| 27 | Bedroom 2 | Upper | S | 60 | 67 | 7 | 2 | 68 | 67 | 0 | 0 | 2 |
| 27 | Bedroom 2 | Upper | W | 60 | 69 | 9 | 2 | 68 | 69 | 1 | 1 | 2 |
| 27 | Kitchen/Dining | Upper | S | 60 | 66 | 6 | 2 | 68 | 66 | 0 | 0 | 2 |
| 27 | Kitchen/Dining | Upper | W | 60 | 69 | 9 | 2 | 68 | 69 | 1 | 1 | 2 |
| 27 | Living | Upper | E | 60 | 63 | 3 | 2 | 68 | 63 | 0 | 0 | 2 |
| 27 | Living | Upper | N | 60 | 66 | 6 | 2 | 68 | 66 | 0 | 0 | 2 |
| 27 | Lounge | Upper | N | 60 | 67 | 7 | 2 | 68 | 67 | 0 | 0 | 2 |
| 27 | Lounge | Upper | W | 60 | 69 | 9 | 2 | 68 | 69 | 1 | 1 | 2 |
| 27 | Ground Level Room | Ground | N | 60 | 64 | 4 | 2 | 68 | 64 | 0 | 0 | 2 |
| 27 | Ground Level Room | Ground | E | 60 | 60 | 0 | 0 | 68 | 60 | 0 | 0 | 0 |
| 27 | Ground Level Room | Ground | W | 60 | 68 | 8 | 2 | 68 | 68 | 0 | 0 | 2 |
| 27 | Ground Level Room | Ground | S | 60 | 66 | 6 | 2 | 68 | 66 | 0 | 0 | 2 |
| 29 | 29 (60) 185 Te Kowai Foulden Road B1 E | Ground | E | 60 | 61 | 1 | 1 | 68 | 61 | 0 | 0 | 1 |
| 29 | Bedroom 1 | Ground | N | 60 | 61 | 1 | 1 | 68 | 61 | 0 | 0 | 1 |
| 29 | Bedroom 2 | Ground | E | 60 | 62 | 2 | 1 | 68 | 62 | 0 | 0 | 1 |
| 29 | Bedroom 2 | Ground | N | 60 | 61 | 1 | 1 | 68 | 61 | 0 | 0 | 1 |
| 29 | Kitchen | Ground | S | 60 | 58 | 0 | 0 | 68 | 59 | 0 | 0 | 0 |
| 29 | Kitchen | Ground | W | 60 | 55 | 0 | 0 | 68 | 56 | 0 | 0 | 0 |
| 29 | Living Room | Ground | W | 60 | 53 | 0 | 0 | 68 | 54 | 0 | 0 | 0 |
| 29 | Lounge | Ground | E | 60 | 62 | 2 | 1 | 68 | 62 | 0 | 0 | 1 |



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| Receptor | Room Name | Storey | Facade Direction | Scenario 1 - Assessment of MRRS1 Component Noise only | | | | Scenario 2 -Assessment of All State-controlled Roads | | | | Recommended ECT Level (higheer of ECT Level "A" and ECT Level "B") |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | $L_{A10\ (18h)}$ Criterion dB(A) | Predicted 2029 $L_{A10\ (18h)}$ Noise Level dB(A) | Exceedence of criterion dB(A) | ECT Level "A" | $L_{A10\ (18h)}$ Criterion dB(A) | Predicted 2029 $L_{A10\ (18h)}$ Noise Level dB(A) | Exceedence of criterion dB(A) | ECT Level "B" | |
| 29 | Sitting Room | Ground | E | 60 | 62 | 2 | 1 | 68 | 62 | 0 | 0 | 1 |
| 29 | Sitting Room | Ground | S | 60 | 60 | 0 | 0 | 68 | 60 | 0 | 0 | 0 |
| 29 | Sitting Room | Ground | N | 60 | 61 | 1 | 1 | 68 | 61 | 0 | 0 | 1 |
| 30 | Bedroom 1 | Ground | NE | 63 | 63 | 0 | 0 | 68 | 65 | 0 | 0 | 0 |
| 30 | Bedroom 1 | Ground | SE | 63 | 63 | 0 | 0 | 68 | 67 | 0 | 0 | 0 |
| 30 | Bedroom 2 | Ground | S | 63 | 62 | 0 | 0 | 68 | 67 | 0 | 0 | 0 |
| 30 | Bedroom 2 | Ground | W | 63 | 59 | 0 | 0 | 68 | 66 | 0 | 0 | 0 |
| 30 | Bedroom 3 | Ground | NW | 63 | 53 | 0 | 0 | 68 | 59 | 0 | 0 | 0 |
| 30 | Bedroom 3 | Ground | W | 63 | 57 | 0 | 0 | 68 | 64 | 0 | 0 | 0 |
| 30 | Living Room 1 | Ground | NE | 63 | 62 | 0 | 0 | 68 | 64 | 0 | 0 | 0 |
| 30 | Living Room 2 | Ground | NE | 63 | 59 | 0 | 0 | 68 | 60 | 0 | 0 | 0 |
| 30 | Living Room 2 | Ground | NW | 63 | 59 | 0 | 0 | 68 | 60 | 0 | 0 | 0 |
| 30 | Living Room 2 | Ground | W | 63 | 54 | 0 | 0 | 68 | 61 | 0 | 0 | 0 |
| 30 | Master Bedroom | Ground | W | 63 | 58 | 0 | 0 | 68 | 65 | 0 | 0 | 0 |
| 30 | Sitting Room | Ground | SE | 63 | 62 | 0 | 0 | 68 | 67 | 0 | 0 | 0 |
| 30 | Sitting Room | Ground | S | 63 | 61 | 0 | 0 | 68 | 66 | 0 | 0 | 0 |
| 31 | Bedroom 1 | Ground | E | 63 | 66 | 3 | 2 | 68 | 66 | 0 | 0 | 2 |
| 31 | Bedroom 1 | Ground | S | 63 | 65 | 2 | 1 | 68 | 66 | 0 | 0 | 1 |
| 31 | Bedroom 2 | Ground | E | 63 | 65 | 2 | 1 | 68 | 66 | 0 | 0 | 1 |
| 31 | Bedroom 2 | Ground | N | 63 | 63 | 0 | 0 | 68 | 64 | 0 | 0 | 0 |



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DTMR - RTI - Released under Release

| Receptor | Room Name | Storey | Facade Direction | Scenario 1 - Assessment of MRRS1 Component Noise only | | | | Scenario 2 -Assessment of All State-controlled Roads | | | | Recom-mended ECT Level (higheer of ECT Level "A" and ECT Level "B") |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | $L_{A10\ (18h)}$ Criterion dB(A) | Predicted 2029 $L_{A10\ (18h)}$ Noise Level dB(A) | Exceed-ence of criterion dB(A) | ECT Level "A" | $L_{A10\ (18h)}$ Criterion dB(A) | Predicted 2029 $L_{A10\ (18h)}$ Noise Level dB(A) | Exceed-ence of criterion dB(A) | ECT Level "B" | |
| 31 | Bedroom 2 | Ground | W | 63 | 58 | 0 | 0 | 68 | 59 | 0 | 0 | 0 |
| 31 | Dining | Ground | S | 63 | 64 | 1 | 1 | 68 | 65 | 0 | 0 | 1 |
| 31 | Garage/Office | Ground | W | 63 | 60 | 0 | 0 | 68 | 62 | 0 | 0 | 0 |
| 31 | Garage/Office | Ground | S | 63 | 64 | 1 | 1 | 68 | 65 | 0 | 0 | 1 |
| 31 | Kitchen | Ground | N | 63 | 60 | 0 | 0 | 68 | 61 | 0 | 0 | 0 |
| 31 | 31 (63) 176 MYR Lounge S | Ground | S | 63 | 64 | 1 | 1 | 68 | 65 | 0 | 0 | 1 |
| 32 | Bedroom 1 | Ground | S | 63 | 66 | 3 | 2 | 68 | 66 | 0 | 0 | 2 |
| 32 | Bedroom 1 | Ground | W | 63 | 68 | 5 | 2 | 68 | 68 | 0 | 0 | 2 |
| 32 | Bedroom 2 | Ground | W | 63 | 68 | 5 | 2 | 68 | 68 | 0 | 0 | 2 |
| 32 | Bedroom 3 | Ground | E | 63 | 60 | 0 | 0 | 68 | 60 | 0 | 0 | 0 |
| 32 | Bedroom 4 | Ground | E | 63 | 61 | 0 | 0 | 68 | 61 | 0 | 0 | 0 |
| 32 | Bedroom 4 | Ground | N | 63 | 61 | 0 | 0 | 68 | 61 | 0 | 0 | 0 |
| 32 | Dining | Ground | W | 63 | 67 | 4 | 2 | 68 | 68 | 0 | 0 | 2 |
| 32 | Recreation | Ground | N | 63 | 68 | 5 | 2 | 68 | 68 | 0 | 0 | 2 |
| 32 | Recreation | Ground | S | 63 | 67 | 4 | 2 | 68 | 67 | 0 | 0 | 2 |
| 32 | Recreation | Ground | W | 63 | 69 | 6 | 2 | 68 | 69 | 1 | 1 | 2 |
| 32 | Kitchen | Ground | E | 63 | 60 | 0 | 0 | 68 | 60 | 0 | 0 | 0 |
| 32 | Lounge | Ground | E | 63 | 60 | 0 | 0 | 68 | 60 | 0 | 0 | 0 |
| 32 | Lounge | Ground | W | 63 | 66 | 3 | 2 | 68 | 67 | 0 | 0 | 2 |
| 32 | Master Bedroom | Ground | E | 63 | 61 | 0 | 0 | 68 | 61 | 0 | 0 | 0 |



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DRAFT

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| Receptor | Room Name | Storey | Facade Direction | Scenario 1 - Assessment of MRRS1 Component Noise only | | | | Scenario 2 -Assessment of All State-controlled Roads | | | | Recommended ECT Level (higheer of ECT Level "A" and ECT Level "B") |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | $L_{A10\ (18h)}$ Criterion dB(A) | Predicted 2029 $L_{A10\ (18h)}$ Noise Level dB(A) | Exceedence of criterion dB(A) | ECT Level "A" | $L_{A10\ (18h)}$ Criterion dB(A) | Predicted 2029 $L_{A10\ (18h)}$ Noise Level dB(A) | Exceedence of criterion dB(A) | ECT Level "B" | |
| 32 | Master Bedroom | Ground | S | 63 | 64 | 1 | 1 | 68 | 65 | 0 | 0 | 1 |
| 33 | Bedroom 2 | Upper | E | 63 | 70 | 7 | 2 | 68 | 70 | 2 | 1 | 2 |
| 33 | Bedroom 2 | Upper | N | 63 | 68 | 5 | 2 | 68 | 68 | 0 | 0 | 2 |
| 33 | Bedroom 2 | Upper | W | 63 | 65 | 2 | 1 | 68 | 65 | 0 | 0 | 1 |
| 33 | Bedroom 3 | Upper | E | 63 | 70 | 7 | 2 | 68 | 71 | 3 | 2 | 2 |
| 33 | Bedroom 3 | Upper | S | 63 | 69 | 6 | 2 | 68 | 70 | 2 | 1 | 2 |
| 33 | Bedroom 3 | Upper | W | 63 | 65 | 2 | 1 | 68 | 65 | 0 | 0 | 1 |
| 33 | Bedroom 1 | Ground | E | 63 | 71 | 8 | 2 | 68 | 71 | 3 | 2 | 2 |
| 33 | Lounge | Ground | E | 63 | 71 | 8 | 2 | 68 | 71 | 3 | 2 | 2 |
| 33 | Lounge | Ground | N | 63 | 69 | 6 | 2 | 68 | 70 | 2 | 1 | 2 |
| 33 | Kitchen | Ground | W | 63 | 59 | 0 | 0 | 68 | 60 | 0 | 0 | 0 |
| 33 | Living | Ground | S | 63 | 68 | 5 | 2 | 68 | 69 | 1 | 1 | 2 |
| 33 | Sitting | Ground | E | 63 | 71 | 8 | 2 | 68 | 72 | 4 | 2 | 2 |
| 33 | Sitting | Ground | S | 63 | 69 | 6 | 2 | 68 | 70 | 2 | 1 | 2 |
| 33 | Open Room | Ground | E | 63 | 65 | 2 | 1 | 68 | 65 | 0 | 0 | 1 |
| 33 | Open Room | Ground | N | 63 | 54 | 0 | 0 | 68 | 54 | 0 | 0 | 0 |
| 33 | Open Room | Ground | S | 63 | 64 | 1 | 1 | 68 | 65 | 0 | 0 | 1 |
| 33 | Open Room | Ground | W | 63 | 63 | 0 | 0 | 68 | 63 | 0 | 0 | 0 |
| 34 | Bedroom 1 | Ground | E | 63 | 68 | 5 | 2 | 68 | 68 | 0 | 0 | 2 |
| 34 | Bedroom 1 | Ground | N | 63 | 66 | 3 | 2 | 68 | 67 | 0 | 0 | 2 |



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DTMR
Information Release

| Receptor | Room Name | Storey | Facade Direction | Scenario 1 - Assessment of MRRS1 Component Noise only | | | | Scenario 2 -Assessment of All State-controlled Roads | | | | Recommended ECT Level (higheer of ECT Level "A" and ECT Level "B") |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | $L_{A10\ (18h)}$ Criterion dB(A) | Predicted 2029 $L_{A10\ (18h)}$ Noise Level dB(A) | Exceedence of criterion dB(A) | ECT Level "A" | $L_{A10\ (18h)}$ Criterion dB(A) | Predicted 2029 $L_{A10\ (18h)}$ Noise Level dB(A) | Exceedence of criterion dB(A) | ECT Level "B" | |
| 34 | Bedroom 2 | Ground | E | 63 | 68 | 5 | 2 | 68 | 68 | 0 | 0 | 2 |
| 34 | Dining | Ground | W | 63 | 58 | 0 | 0 | 68 | 58 | 0 | 0 | 0 |
| 34 | Kitchen | Ground | W | 63 | 58 | 0 | 0 | 68 | 59 | 0 | 0 | 0 |
| 34 | Lounge | Ground | E | 63 | 67 | 4 | 2 | 68 | 68 | 0 | 0 | 2 |
| 38 | Bedroom 1 | Ground | E | 63 | 64 | 1 | 1 | 68 | 65 | 0 | 0 | 1 |
| 38 | Bedroom 2 | Ground | E | 63 | 64 | 1 | 1 | 68 | 65 | 0 | 0 | 1 |
| 38 | Bedroom 3 | Ground | E | 63 | 64 | 1 | 1 | 68 | 65 | 0 | 0 | 1 |
| 38 | Bedroom 3 | Ground | S | 63 | 64 | 1 | 1 | 68 | 64 | 0 | 0 | 1 |
| 38 | Bedroom 3 | Ground | W | 63 | 53 | 0 | 0 | 68 | 62 | 0 | 0 | 0 |
| 38 | Kitchen | Ground | N | 63 | 55 | 0 | 0 | 68 | 65 | 0 | 0 | 0 |
| 38 | Living | Ground | N | 63 | 55 | 0 | 0 | 68 | 65 | 0 | 0 | 0 |
| 38 | Living | Ground | W | 63 | 51 | 0 | 0 | 68 | 64 | 0 | 0 | 0 |
| 38 | Lounge | Ground | E | 63 | 63 | 0 | 0 | 68 | 65 | 0 | 0 | 0 |
| 38 | Master Bedroom | Ground | E | 63 | 63 | 0 | 0 | 68 | 65 | 0 | 0 | 0 |
| 38 | Master Bedroom | Ground | N | 63 | 61 | 0 | 0 | 68 | 65 | 0 | 0 | 0 |



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## Glenroy S Dillon

**From:** [redacted]@htw.com.au>
**Sent:** Thursday, 10 August 2017 3:10 PM
**To:** Glenroy S Dillon
**Subject:** Assessment of Compensation - 28 Te Kowai Foulden Rd, Te Kowai - Mackay
**Attachments:** MKY065830_Report.pdf

**Categories:** DMS

Glen,

Please find our report in relation to the above matter attached below.

Thanks for your instructions in this matter.

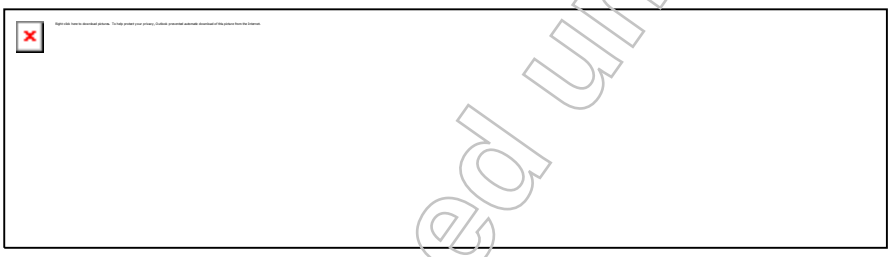
Your faithfully,

[redacted] | FAPI - Certified Practising Valuer
Director

T 07 4957 7348 | M [redacted]
E [redacted]@htw.com.au

25 River Street, Mackay, QLD, 4740
PO Box 865, Mackay, QLD, 4740

HERRON TODD WHITE | www.htw.com.au



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# Assessment of Compensation

Rural Lifestyle Property

HERRON TODD WHITE

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28 Te Kowai Foulden Road, Te Kowai Qld 4740

**As at** 12 August 2016
**Prepared for** Department of Transport and Main Roads
**Our Ref** MKY065830

**Mackay**

Herron Todd White (Central QLD) Pty Ltd
ABN 57 608 235 507

25 River Street
PO Box 865
Mackay Qld 4740

Telephone (07) 4957 7348
Wfa.centralqld@htw.com.au
htw.com.au

## EXECUTIVE SUMMARY

### Property Details

| | |
|---|---|
| **Address** | **28 Te Kowai Foulden Road, Te Kowai Qld 4740.** |
| **Instructing Party** | Mr Glen Dillon of Department of Transport and Main Roads. |
| **Prepared For** | Department of Transport and Main Roads. |
| **Basis of Assessment** | The interest being valued is the unencumbered estate in fee simple in vacant possession. |
| **Purpose of Valuation** | Our assessment of compensation has been prepared for the resumption of land by Department of Transport and Main Roads for the purpose of the Mackay Ring Road. |
| **Date of Inspection** | 3 March 2017. |
| **Date of Assessment** | 12 August 2016. |
| **Dispossessed Owner** | |
| **Real Property Description** | Lot 2 on Registered Plan 732066. |
| **Encumbrances** | No encumbrances which have any affect on our valuation.. |
| **Town Planning** | The property is zoned 'Rural' under the Mackay City Planning Scheme. |
| **Property Summary** | Situated approximately 7.5 kilometres south west of the Mackay Post Office between Te Kowai Foulden Road and Racecourse Mill. This is a 13.97 hectare irregular shaped inside parcel comprising a near level section at road level in the south. It is broken by Lagoon Creek which runs through the northern end in an easterly direction. It is improved with a highset 1970's style, 3 bedroom / 1 bathroom dwelling and sheds. |
| **Valuation Consideration** | The resumption comprises a 3.109 hectare strip inside the western boundary having a width of mostly 67.32 metres.<br>Valuation considerations include 'highest and best use', the added value of the structural improvements and injurious affection related to rural residential amenity. |
| **Compensation** (Excl. GST) | **$175,000 (One Hundred and Seventy Five Thousand Dollars)** |

[redacted]
FAPI / Certified Practising Valuer/Director
API No: 66044, QVRB No: 2004

| | |
|---|---|
| **Important:** | All data provided in this summary is wholly reliant on and must be read in conjunction with the information provided in the attached report. It is a synopsis only designed to provide a brief overview and must not be acted on in isolation. |

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## EXECUTIVE SUMMARY

### Assumptions, Conditions and Limitations

| | | |
|---|---|---|
| **Critical Assumptions** | • | This compensation assessment is provided subject to the assumptions, disclaimers, limitations and qualifications detailed within this report. Reliance on this report and extension of our liability is conditional upon the reader's acknowledgement and understanding of these statements. |

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# 1 INTRODUCTION

## 1.1 Instructions

We have been instructed by Mr Glen Dillon on behalf of Department of Transport and Main Roads, to assess the compensation payable for the resumption of land from the property located at 28 Te Kowai Foulden Road. The resumed land is required for the construction of the Mackay Ring Road (Stage 1) which is described below.

*"The Mackay Ring Road will be delivered in 2 stages. Stage 1 of this project will be constructed from Stockroute Road to Bald Hill. Stage 2 will further improve connectivity by providing direct access from the Bruce Highway north of Mackay, via a corridor south of the rail line to Harbour Road and the Mackay Port.*

*Key features of Stage 1—Highway Bypass of Mackay*

- Construction of a 2-lane rural highway with a length of approximately 11.3km.
- 80km/h and 100km/h speed limit with no traffic signals (avoiding 10 existing signalised intersections).
- Connections at Stockroute Road, the Peak Downs Highway and the Bruce Highway north.
- New river crossing over the Pioneer River and the Fursden Creek floodplain with 100 years flood immunity.
- Heavy vehicle and through traffic bypass of Mackay.
- Dual lane roundabouts (approximately 100m diameter) at each end."

Queensland Government – Department of Transport and Main Roads

## 1.2 Basis of Assessment

*Acquisition of Land Act 1967 (Amended 2009)*

The compensation for the land that has been resumed has been assessed in accordance with Section 20 of the Acquisition of Land Act.

(1) Section 20 provides that compensation is to be assessed as follows:

(a) In assessing the compensation to be paid, regard shall in every case be had not only to the value of land taken but also to the damage, if any, caused by any of the following:

(i) the severing of the land taken from other land of the claimant

(ii) the exercise of any statutory powers by the constructing authority otherwise injuriously affecting the claimant's other land mentioned in subparagraph (i); and

(b) to the claimant's costs attributable to disturbance.

(2) Compensation shall be assessed according to the value of the estate or interest of the claimant in the land taken on the date when it was taken.

(2A) However, in assessing the compensation, a contract, licence, agreement or other arrangement (a relevant instrument) entered into in relation to the land after the notice of intention to resume was served on the claimant must not be taken into consideration if the relevant instrument was entered into for the sole or dominant purpose of enabling the claimant or another person to obtain compensation for an interest in the land created under the instrument.

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## 1.2 Basis of Assessment Cont'd

(3) In assessing the compensation to be paid, there shall be taken into consideration by way of set-off or abatement, any enhancement of the value of the interest of the claimant in any land adjoining the land taken or severed therefrom by the carrying out of the works or purpose for which the land is taken.

(4) But in no case shall subsection (3) operate so as to require any payment to be made by the claimant in consideration of which enhancement of value.

(5) In this section, costs attributable to disturbance, in relation to the taking of land, means all or any of the following:

(a) Legal costs and valuation or other professional fees reasonably incurred by the claimant in relation to the preparation and filing of the claimant's claim for compensation

(b) The following costs relating to the purchase of land by a claimant to replace the land taken:

(i) stamp duty reasonably incurred or that might reasonably be incurred by the claimant, but not more than the amount of stamp duty that would be incurred for the purchase of land of equivalent value to the land taken;

(ii) financial costs reasonably incurred or that might reasonably be incurred by the claimant of that might reasonably be incurred by the claimant in relation to the discharge of a mortgage and the execution of a new mortgage, but not more than the amount that would be incurred if the new mortgage secured the repayment of the balance owing in relation to the discharged mortgage;

(iii) legal costs reasonably incurred by the claimant;

(c) Removal and storage costs reasonably incurred by the claimant in relocating from the land taken

(d) Costs reasonably incurred by the claimant to connect to any services or utilities on relocating from the land taken

(e) other financial costs that are reasonably incurred or that might reasonably be incurred by the claimant, relating to the use of the land taken, as a direct and natural consequence of the taking of the land

(f) an amount reasonably attributed to the loss of profits resulting from interruption to the claimant's business that is a direct and natural consequence of the taking of the land

(g) Other economic losses and costs reasonably incurred by the claimant that are a direct and natural consequence of the taking of the land.

## 1.3 Definitions

This valuation has been undertaken in accordance with the following definitions:

**Market Value**

*"the estimated amount for which an asset or liability should exchange on the valuation date between a willing buyer and a willing seller in an arm's length transaction, after proper marketing and where the parties had each acted knowledgeably, prudently and without compulsion".*

**Highest and Best Use**

*"the use of an asset that maximises its potential and that is physically possible, legally permissible and financially feasible".*

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## 1.4 Date of Inspection

3 March 2017

## 1.5 Date of Assessment

12 August 2016.

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# 2 TITLE AND STATUTORY DETAILS

## 2.1 Title Details

| | |
|---|---|
| **Search Date** | 12 August 2016 |
| **Title Reference** | 21087189 |
| **Real Property Description** | Lot 2 on Registered Plan 732066 |
| **Registered Proprietor** | |
| **Encumbrances** | Rights and interests reserved to the Crown by Deed of Grant No. 10089203 (POR 176) & (POR 177) |
| **Unregistered Dealings** | Nil |

| **Administrative Advices** | Dealing | Type | Lodgement Date | Status | Location |
|---|---|---|---|---|---|
| | 716751690 | NOTC INT RES ACQUISITION OF LAND ACT 1967 | 15/09/2015 08:48 | CUR | EC-GEN-00 |

A copy of our recently searched Title is annexed to this report.

*This valuation is subject to there being no encumbrances, which may have an adverse effect on our valuation. Should any such easement, encumbrance or restriction become apparent, we reserve the right to review our valuation.*

## 2.2 Encumbrances

There are no easements, encumbrances or restrictions documented on the title search.

## 2.3 Statutory Land Value

The statutory valuation of the subject lot is assessed in aggregation with adjoining and adjacent land.

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# 3 TOWN PLANNING AND APPROVALS

## 3.1 Introduction

We have been provided with Preliminary Town Planning Advice prepared for the Department of Transport and Main Roads by John Gaskell Planning Consultants which we have referred to in the sections below.

## 3.2 Town Planning Summary

| | |
|---|---|
| **Local Authority** | Mackay Regional Council |
| **Planning Scheme** | The planning scheme in effect at the date of assessment was the Mackay City Planning Scheme – Version 1 adopted 13 May 2009 |
| **Zoning** | Rural |
| **Overlays** | Bushfire Management; Image Corridors; Good Quality Agricultural Land; Airport Obstacle Limitation Surface; Airport Development Distances, Flood and Inundation |
| **Development Codes** | High Impact Areas |
| **Overall Outcomes** | According to Preliminary Town Planning Advice prepared by John Gaskell Planning Consultants :-<br><br>"The Planning Scheme includes the subject land in the Pioneer River and Southern Streams precinct of the Hinterland locality.<br><br>An overall outcome of the Mackay Hinterland Locality Code states 'Urban development occurs on land included within an urban zone…in preference to land included in non urban zones…'<br><br>An overall outcome of the Mackay Hinterland Locality Code also states 'rural areas, particularly areas of good quality agricultural land identified in the… Pioneer River & Southern Streams precinct, are protected from the constraining effect of encroaching urban development (including but not limited to residential, industrial and commercial, rural residential development) or sensitive land uses'.<br><br>An overall outcome of the Mackay Hinterland Locality Code states 'non rural activities in rural areas are limited to activities which specifically require the particular rural location and do not adversely affect the operation of rural uses or the rural landscape and character of the area'.<br><br>It is therefore understood the subject land is not intended by the Planning Scheme to be developed for urban development.<br><br>The Planning Scheme includes the subject land in the Rural zone.<br><br>The Planning Scheme statements and my understanding at Section 3.1.1 above is further supported by the overall outcomes for the Rural zone in the Mackay Hinterland Locality, such as overall outcome (a) and (c) which state: '(a) rural activities undertaken on land within the Rural Zone continue unconstrained by encroachment of incompatible land uses…(c) non-rural activities do not occur'." |
| **Permitted Uses** | In relation to the planning scheme a 'Dwelling House' is self assessable or code assessable.<br><br>The minimum lot size is 100 hectares. |

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## 3.3 Proposed Mackay Region Planning Scheme

The Proposed Mackay Region Planning Scheme, Version 8 ('Proposed Planning Scheme 2013') was publicly advertised in May 2013 and included the subject land in the Rural Zone. This version did not become effective.

The Proposed Mackay Region Planning Scheme, Version 9 ('Proposed Planning Scheme 2014') was publicly advertised in December 2014 and included the subject land in the Rural Zone. This proposed version was the most recent at the date of assessment.

In relation to the Proposed Planning Scheme 2014, the Planning Advice states the following:-

"The Planning Scheme includes the subject land in the Rural zone. The purpose of the Rural Zone Code is similar to the current zoning intent for the subject land (that is, the intent under the Planning Scheme in effect).

The local government purpose of the Rural Zone Code states: *'provide for a range of rural activities, residential uses that support rural activities and intensive rural activities and other uses that cannot be located in urban areas. The zone also contains undeveloped land providing ecological and habitat value. The zone does not accommodate development for urban purposes'* "

"The Planning Scheme identifies the following overlays may apply to development on the subject land:

- Agricultural Land Overlay (Agricultural Land Classification A and B Overlay) – Agricultural land classification (ALC) Class A and B;
- Agricultural Land Overlay (Locally Important Agricultural Areas Overlay) – Locally important agricultural areas, Locally important agricultural areas (40m buffer area);"

## 3.4 Approvals

We are not aware of any approvals impacting on this property and have not undertaken any searches in this regard.

## 3.5 Conclusions

We have been provided with a Preliminary Town Planning Advice prepared by John Gaskell Planning Consultants which concludes as follows:-.

"The Mackay planning scheme in force at the relevant date, and the draft planning schemes, all include the land in the Rural Zone. Land use activities are also restricted by the subject land's inclusion of GQAL mapping and within the high impact industry activity buffer. The intended land use is clearly for rural or rural related activities. The land is not intended for development for urban purposes, and is unable to be further subdivided into smaller lots."

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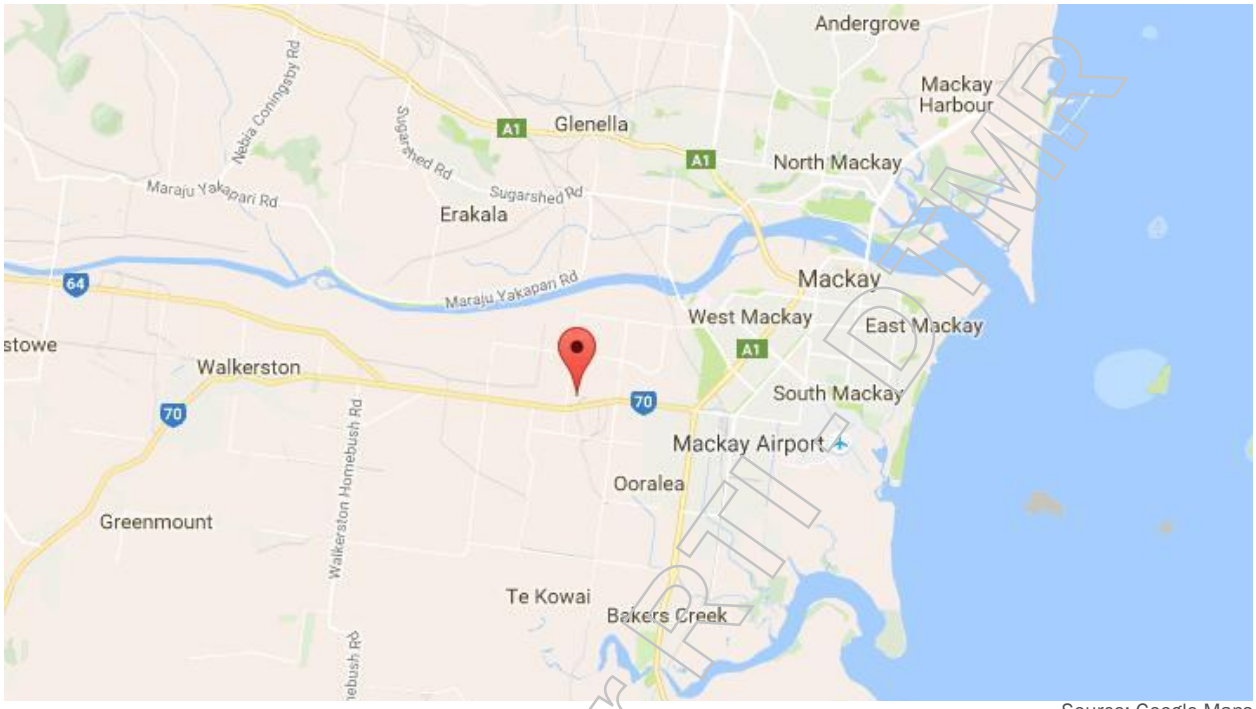
# 4 THE LAND

## 4.1 Location Details

The general location of the subject property is indicated on the maps below.




Source: Google Maps

Source: Qld Globe/Google Earth

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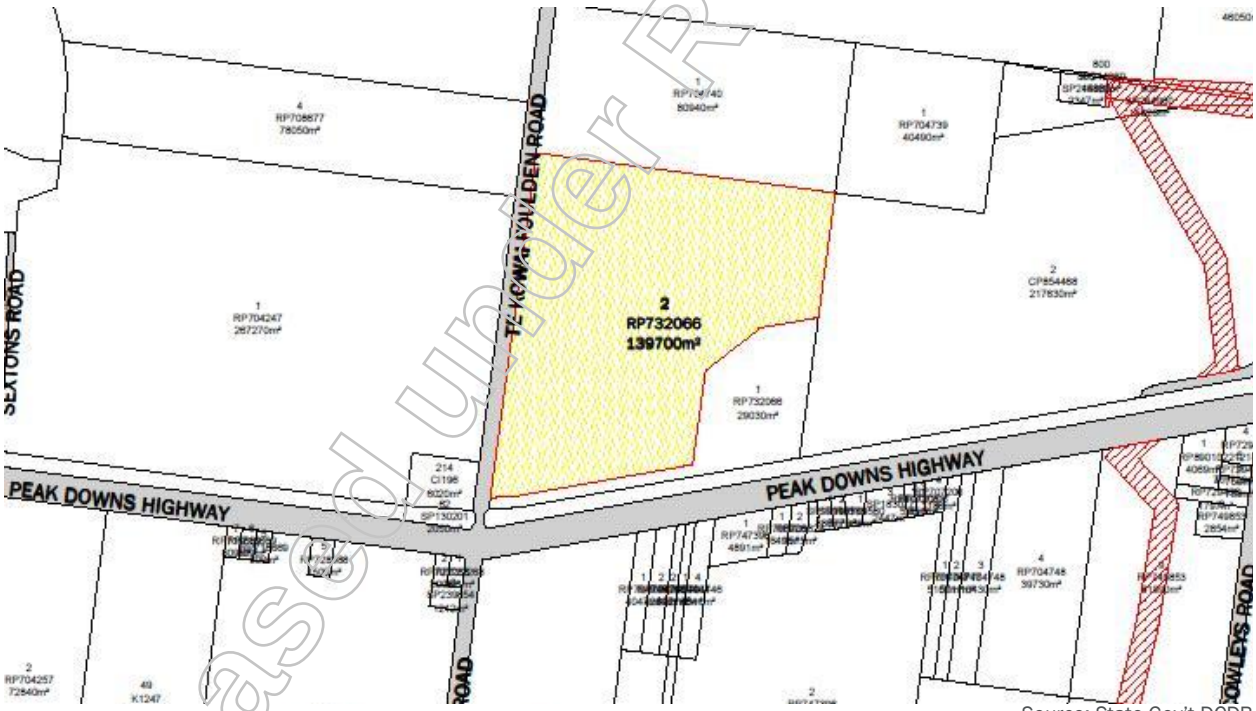
## 4.1 Location Details Cont'd

| | |
|---|---|
| **Locality** | Racecourse is sugar cane growing locality situated approximately 7 kilometres to the south west of the Mackay Central Business District. Development comprises predominantly established sugar cane farms interspersed with average quality rural residential properties of varying age. Local shops are located in the nearby suburb of Ooralea and schools are located in the nearby suburb of West Mackay.<br><br>The property is situated inside the western boundary of the Racecourse locality. |
| **Situation** | The property is situated on the eastern side of Te Kowai Foulden Road, being the second lot north of its intersection with the Peak Downs Highway and the Finch Hatton Branch Railway..<br><br>The property is situated approximately 7.5 kilometres south west of the Mackay Post Office. |
| **Surrounding Development** | Mackay Sugar Limited - Racecourse Mill adjoins to the east. Other surrounding development comprises cane farms, residential / rural residential dwellings and a service station.<br><br>The existing use is consistent with the surrounding development. |

## 4.2 Land Description




Source: State Gov't DCDB

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## 4.2 Land Description Cont'd

| | | |
|---|---|---|
| **Area** | Before Resumption | 13.9700 hectares |
| | Area Resumed | 3.1090 hectares |
| | After Resumption | 10.8610 hectares |
| **Frontage & Depth** | Its frontage to Te Kowai Foulden Road is approximately 464.2 metres. The depth of the site along the northern boundary is 403.1 metres. | |
| **Property Description** | This is an irregular shaped inside parcel comprising a near level section at road level between RL 13 – RL 14 in the south. It falls steeply to Lagoon Creek which is fairly broad and runs through the northern end in an easterly direction at RL7. Lagoon Creek is timbered along its southern frontage and is heavily grassed through its broad flood channel and easier sloping northern bank. An area inside the north western corner which rises from RL8 – RL9 is gently sloping and is available for cane growing. The remaining area in the north east is low lying and flood prone. Soils are mainly alluvial duplex. | |
| | An approximate classification is as follows:- | |

| Classification | Area (ha) |
|---|---|
| Measured Cane Land | 7.910 |
| Balance - Headlands, Creek and Curtilage | 6.060 |
| **Total** | **13.970** |

| | |
|---|---|
| **Flooding/ Hydraulic Impacts** | A review of the Local Authority's flood maps indicate the northern side of the subject property (i.e. Lagoon Creek and all of the area to the north may be affected by a 1.0% AEP (Annual Exceedance Probability). This indicates that every year, there is a 1.0% probability of the property being flooded. |
| **Services** | Electricity and telephone are connected. |

*We have physically identified the boundaries upon inspection and there do not appear to be any encroachments. However, we are not surveyors and no warranty can be given without the benefit of an identification survey.*

*To the best of the valuer's knowledge, the subject property is not affected by landslip, pest infestation or resumption matters, however, no searches have been undertaken in this regard.*

Typical Caneland

Caneland and Driveway To Te-Kowai Foulden Rd

Lagoon Creek

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## 4.3 Road System/Access/Exposure

Te Kowai Foulden Road Looking South

Te Kowai Foulden Road Looking North

**Road System**

*Before Resumption*

The property has a single road frontage to Te Kowai Foulden Road.

Te Kowai Foulden Road is a bitumen sealed country road with gravel verges and grassed table drains.

*After Resumption*

The resumption of land from the subject property has been undertaken to facilitate the Mackay Ring Road.

After completion of construction the Mackay Ring Road will run parallel to, and immediately to the east of the existing Te Kowai Road formation. According to plans provided to us, the section of the Mackay Ring Road which will pass by the subject property will be a 4 lane bitumen sealed roadway. It will be constructed upon an embankment and will ramp up to an overpass of the Bruce Highway and the Finch Hatton Branch Railway with on ramps and off ramps to the south of the highway. A culvert crossing through earth embankments will be constructed across Lagoon Creek. The designated speed limit will be 100km per hour.

Te Kowai – Foulden Road will remain open.

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## 4.3 Road System/Access/Exposure Cont'd

**Access**

*Before Resumption*

Access to the house and sheds and the caneland on the southern side of Lagoon Creek is provided from Te Kowai Foulden Road approximately 285 metres north of the Peak Downs Highway. Access to the northern part of the property is available from the Te Kowai Foulden Road inside the north western corner.

*After Resumption*

Access to house and sheds and the caneland on the southern side of Lagoon Creek will be provided by a farm access road approximately 60 metres north of the Peak Downs Highway. It will extend under the Peak Downs Highway overpass and will have a clearance height of 6.0 metres. This access road will turn sharply to the north to run parallel to the east of the Ring Road.

Left in left out access will be available to the Te Kowai – Foulden Road from the Peak Downs Highway.

West bound traffic on the Peak Downs High will not be able to turn right into Te Kowai Foulden Road. A 'U' turn lane will be available further along the Peak Downs Highway and a 'U' turn will be permitted through the signalised intersection of the Peak Downs Highway and the entry ramp. This intersection is located approximately 180 metres west of Te-Kowai Road intersection.

West bound traffic out of the Te Kowai Foulden Road will be required to proceed to the east along the Peak Downs Highway and perform a U turn through a median strip approximately 180 metres from the Te Kowai Road intersection. Signalised intersections at the on ramp and off ramps will allow breaks in the traffic to allow 'U' turns.

## 4.4 Site Contamination

The property has been used for cane farming including the storage of fuel and chemical. Our valuation assumes that there is no contamination or environmental issues impacting on the marketability or value of the property. It should be noted that environmental matters are beyond the scope of our expertise and that this valuation has been prepared without the benefit of soil tests or environmental studies. We recommend that any party relying on this valuation satisfy themselves in relation to any environmental risks or contamination issues. Should any such issues become apparent, we reserve the right to review our valuation.

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## 4.5 Improvements

Dwelling

Dwelling Kitchen

Dwelling Bathroom

New Shed

Old Shed (From East)

Old Shed (From West)

Structural improvements are detailed as follows:-

Dwelling

Main living area 137 square metres with additional verandahs of 33 square metres. Built in the 1970's. Highset, timber frame on steel pier foundations. Chamferboard externals walls. Aluminium framed sliding glass windows. Corrugated galvanised iron roof. Lined and ceiled with plasterboard. Comprises 3 bedrooms, 1 bathroom and study. Single lock up garage under. General condition is fair.

Ancillary improvements include: 57 square metre prefabricated colorbond shed with column height of 3.0 metres; 9 square metre masonry block storage shed; rotary clothes hoist; equipped bore with jet pump; 1,000 gallon water tank on high stand.

Shed

Total area 241 square metres comprising the following sections:-

Northern Side – 125 square metres, earth floor, steel web portal frame with column height of 3.4 metres, hardwood timber purlins and girts, corrugated galvanised iron roof and walls. 1 sliding door at eastern end.

South Eastern Section – 44 square metres, paved floor, timber frame with column height of 2.2 metres, corrugated galvanised iron roof and walls. 2 swing doors at eastern end.

South Western Section – 72 square metres comprising 27 square metres with concrete floor and 45 square metres with earth floor. Same construction as South Eastern Section above with 2.8 metre column height.

This is an older shed in fair condition.

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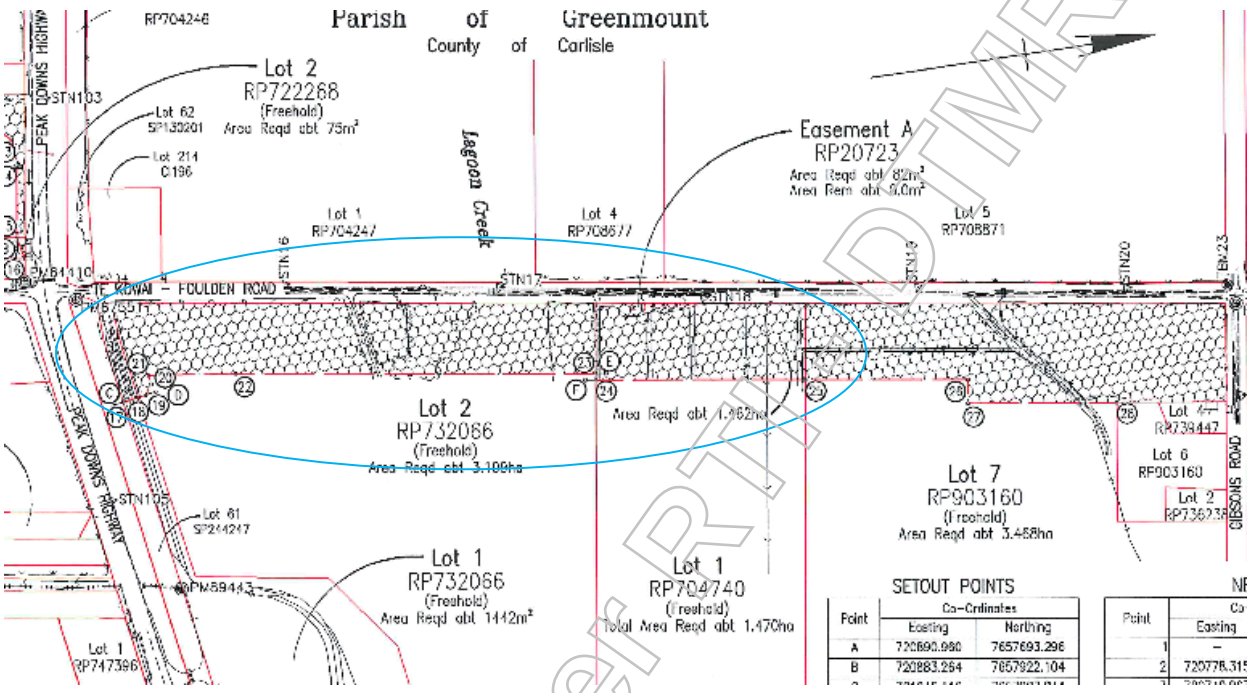
## 4.6 Resumed Area

On 12 August 2016, the Department of Transport and Main Roads resumed land from the property, totalling approximately 3.1090 hectares.

The land comprises a 67.32 metre wide strip inside the Te – Kowai Road frontage. It has a slightly broader width in the south east.

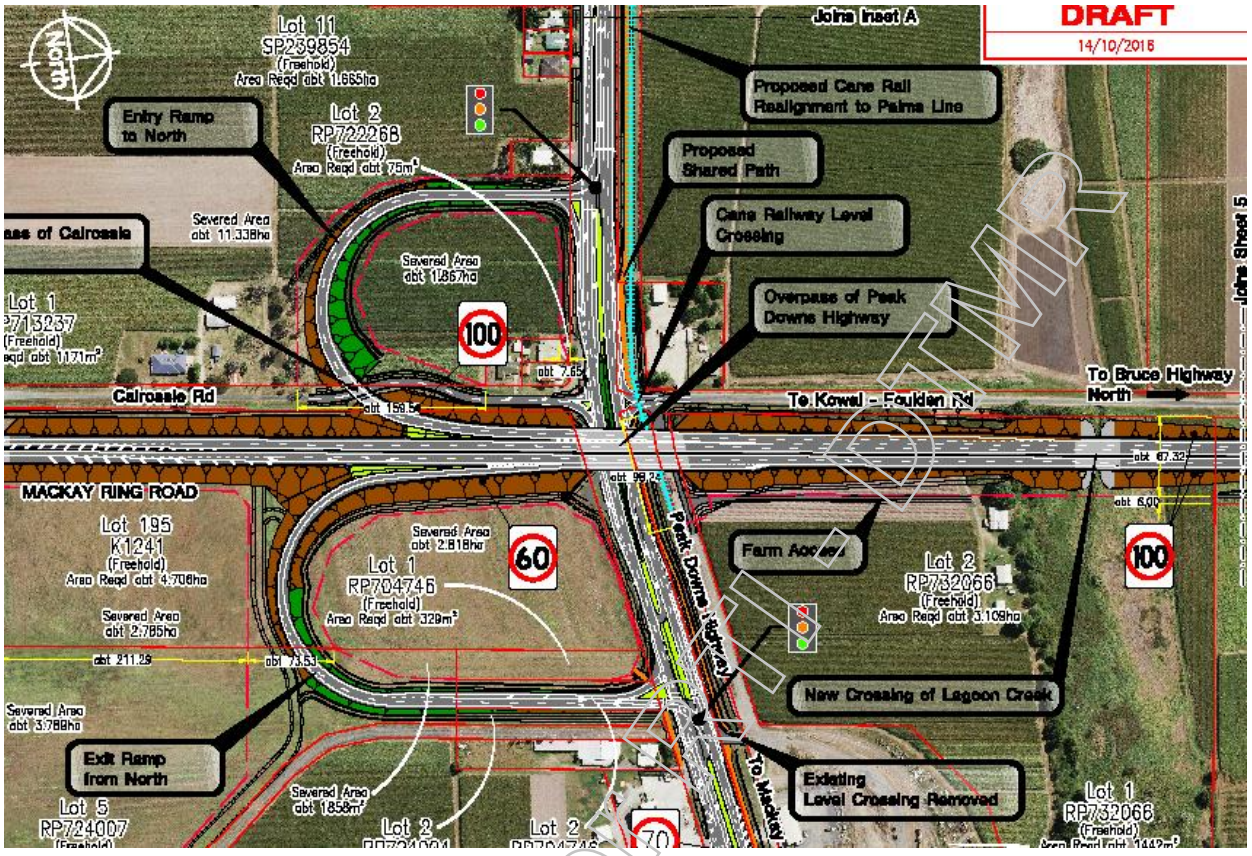
The resumed area is shown within Lot 2 on RP732066 on the plans below:




Resumption Pan R8-559 (28/07/2015)

Released under RTI DTMR

## 4.6 Resumed Area Cont'd




General Arrangement Sheet (14/10/2016)

A full copy of the Resumption Plan has been annexed to this report.

There are no structural improvements within the resumption area.

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# 5 EFFECT OF RESUMPTION

## 5.1 Introduction

In assessing the compensation payable we have considered the effects of the resumption under the following headings:

- Loss of land and improvements
- Severance
- Injurious affection
- Enhancement
- Disturbance.

## 5.2 Loss of Land and Improvements

A 3.1090 hectare parcel of land has been resumed from inside the western boundary, mostly having a width of 67.32 metres.

The pertinent details, before and after resumption, have been summarised below:

| Description | Before Resumption | After Resumption | Diminution |
|---|---|---|---|
| **Land Area** | 13.9700 ha | 10.8610 ha | 3.1090 ha |

The area taken comprises caneland, headlands and creek areas.

## 5.3 Severance

Severance can be defined as the depreciation in value of the retained portion of land, caused by the loss of the portion of the property which was resumed.

We are of the opinion that a claim for severance does not arise in this case.

## 5.4 Injurious Affection

Injurious affection can be defined as the depreciation in value of the retained land, caused by the actual or intended use of the proposed scheme.

We are of the opinion that a claim for injurious affection arises in this case for the following reasons :-

- Access – Access to and from the Peak Downs Highway will be affected. Refer Section 4.3 – Access After Resumption.
- Noise - The Ring Road will be constructed approximately 62 metres to the west of the dwelling.
- Visual Amenity - The eastern embankment of the Ring Road will rise to a height of approximately 9.0 metres. The embankment and the overpass and the 'Exit Ramp From North' will dominate views from the full length of the main verandah of the subject dwelling.
- Loss of Privacy - The dwelling, house yard and sheds will become more visible to a high volume of traffic from the overpass and its northern embankment.
- Lighting – Both the Ring Road and the Entry Ramp will be fully lit.
- Flooding / Drainage - A review of the Mackay Ring Road Hydraulics – South of Pioneer River Assessment indicates that an area inside the southern boundary may be affected by a 1.0% AEP (Annual Exceedance Probability). This does not affect the buildings site. A review of the Mackay Ring Road Hydraulics – Pioneer River Assessment indicates that the area to the northern side of the property which is presently affected by a 1.0% AEP (Annual Exceedance Probability) will be slightly less affected after construction of the ring road.
- Misshapen Farming Area – The southern end of Block 3-2 will be truncated at an acute angle in the south and will become more difficult to manage in terms of machinery manoeuvrability.

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## 5.5 Enhancement

Enhancement is described as any betterment flowing from the scheme that may be offset against the claims of the dispossessed owner.

We are of the opinion that a claim for enhancement does not arise in this case.

## 5.6 Disturbance

Disturbance can be defined to include all consequential losses suffered by the dispossessed owner as a natural reasonable consequence of the resumption.

In this process, an owner is entitled to be reimbursed for personal loss over and beyond the loss in respect of the land taken. In addition, reasonable consultant fees (legal, town planning and valuation etc.) associated with the preparation of a claim should be paid by the resuming authority.

Reasonable disturbance items would be admissible as part of the compensation claim and would be in addition to our compensation assessment.

Our assessment assumes that the farm access will be constructed by the Department of Transport and Main Roads as shown on the General Arrangement Sheet above.

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# 6 ASSESSMENT OF COMPENSATION

## 6.1 Highest and Best Use

The subject property consists of a 13.97 hectare parcel which is used as an additional cane farming area. The subject property is not considered a viable living area in its own right.

We consider the highest and best use of the site is a rural lifestyle property. In the Mackay region, it is common that smaller cane land areas (like the subject property) are share farmed by adjoining or adjacent farmers.

## 6.2 Compensation Methodology

The most appropriate method in assessing the compensation payable for a resumption matter is the 'before and after' method of valuation. This method involves assessing the value of the property both before and after the resumption.

The difference in value is equal to the compensation payable which includes the value of land lost and any severance or injurious affection resulting to the balance land. Enhancement is also taken into consideration if applicable.

We have primarily relied upon the direct comparison method to establish the market value of the subject property.

*Market data has been obtained from a range of sources, or as reported by real estate agents. As well as using such documented and generally reliable evidence or market transactions, it was also necessary to rely on hearsay evidence. Except as noted herein, a reasonable attempt has been made to verify all such information.*

## 6.3 Sales Evidence

The following sales provide a basis to valuation:-

### Improved Sales

| 1. Address | Sale Date | Sale Price | Area (ha) | Improvements Value | Land Value (Ex-Structures) |
|---|---|---|---|---|---|
| | | | | | Site Value |
| 34 Sextons Rd Te Kowai QLD 4740 | 27/05/16 | $960,000 | 14.31 | $360,000 | $600,000 |

**Land Description:** Situated approximately 8.5km south west of the Mackay Post Office. This is an elongated and irregular shaped lot situated at the end of Sextons Road which is a roadway off the Peak Downs Highway. It has a western frontage of 104 metres to Hills Road which is also a bitumen sealed road off the Peak Downs Highway. It comprises mostly near level contour and falls to a lower terrace inside the north eastern boundary. Mostly alluvial duplex soils. An approximate classification is :- 8.4 ha caneland with the balance comprising headlands, curtilage and cleared / grassed areas. No irrigation. Zoned 'Rural'.

**Improvements:** The land is improved with a circa 2005 onground 3 bedroom, 2 bathroom detached modern dwelling with rendered masonry walls, colorbond roof and 2 car built-in garage. Areas: living - 182 sqm; outdoor - 34 sqm; car - 39 sqm. The house has local views. Ancillary improvements include a gravel driveway, bitumen driveway, concrete paths, established landscaping and rain water tanks. storage shed of 72 sqm with concrete floor, metal cladding, metal frame, metal roof, 1 x roller door, 1 bay open; shed of 143 sqm with gravel floor, metal cladding, metal frame, metal roof, roller door, internally has some lining and partitioning into 2 large offices, with separate toilet and shower facilities with attached open sided skillion of 26 sqm with concrete floor, metal frame, metal roof. The property has good external condition, good internal condition and good presentation.

**Comments:** The property had been used as a truck depot and reportedly held the necessary approval for such use. It had extensive bitumen sealed parking areas. The caneland was leased to the Bureau of Sugar Experiment Stations at a monthly rental of $2,500. This lease can be terminated with 12 months notice. The property was sold at auction bare of crop, plant and equipment. Apportionment: Land (Site Value) - $600,000; Structural Improvements: $360,000.

**Comparison:** This is a similar land area with superior views. It has more extensive structural improvements. Overall it demonstrates that a lower value is applicable to the subject property both before and after resumption.

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## 6.3 Sales Evidence Cont'd

| 2. Address | Sale Date | Sale Price | Area (ha) | Improvements Value | Land Value (Ex-Structures) Site Value |
|---|---|---|---|---|---|
| 961 Homebush Road Homebush QLD 4740 | 17/03/16 | $870,000 | 20.05 | $480,000 | $390,000 |

**Land Description:** Situated approximately 22.5km south west of the Mackay Post Office. This is a rectangular shaped, near level, corner lot with a northern frontage of 340 metres to the Homebush Road which is bitumen sealed road and a western frontage of 375 metres to Zarbs Access Road. Comprises mostly duplex alluvial soils. An approximate classification is :- cane land 16.0 ha; balance headlands, drainage lines and curtilage 4.05 ha. No irrigation supply. Zoned 'Rural'.

**Improvements:** Structural improvements include ;- Main Dwelling - 1975, low set, brick and tile, 3 bedrooms, 2 bathrooms, new kitchen, 355 sq. m. under main roof (including double garage), 50 sq. m. rear verandah / pergola and 50 sq. m attached double carport; Cottage - 1960, low set, fibro and corrugated galvanised iron, 2 bedroom, 1 bathroom, 110 sq. m under main roof, 72 sq. m. prefabricated steel attached carport; Shed - concrete slab, steel frame, colorbond roof and walls, 3 bays, high clearance, 324 sq. m.: Donga Office - 18 sq. m. with detached ablution 9 sq. m.

**Comments:** Purchased by the adjoining owner who had originally sold the land. It was purchased under a pre-existing 'first right of refusal' agreement. The vendor had operated a transport business. This was a distressed sale. The buyer held a 5 year lease over the cane land with an unexpired lease term of approximately 3 years. The rental was based on share of the harvest proceeds. The lessee was able to irrigate the cane land from an irrigation source on an adjoining property. Apportionment:- Land (Site Value) - $390,000, Structures - $480,000.

**Comparison:** This is a larger land area with inferior location and superior structural improvements. Overall it demonstrates that a lower value is applicable to the subject property before and after resumption.

| 3. Address | Sale Date | Sale Price | Area (ha) | Improvements Value | Land Value (Ex-Structures) Site Value |
|---|---|---|---|---|---|
| 713 Mackay-Eungella Road Pleystowe QLD 4741 | 22/06/15 | $632,000 | 22.10 | $172,000 | $460,000 |

**Land Description:** Situated approximately 18.5 km west of the Mackay Post Office and 5.4 km north west of the Walkerston Post Office. This is a slightly irregular shaped elongated parcel with a 307 metre northern frontage to the Mackay Eungella Road which is a bitumen sealed dual road way and a 1,955 metre western frontage to the Pleystowe School Road which is a narrow bitumen sealed road. The land is near level and comprises alluvial duplex soils. An approximate classification is: - 21.5 ha cane land with the balance comprising headlands and curtilage. Irrigation is supplied from an equipped bore with 64ML allocation. Zoned 'Rural'.

**Improvements:** Structural improvements comprise: Dwelling - approximately 166 sqm under main roof, 1950, high set, fibro and colorbond, 4 bedroom, 2 bathroom, concreted and partially enclosed under, generally in fair condition; Machinery Shed: 316 sqm (earth floor 105 sqm and concrete floor 311 sqm), steel and timber frame, corrugated galvanised iron roof and walls with additional enclosed skillion of 72 sqm with earth floor.

Ancillary improvements include a gravel driveway, basic landscaping, machinery shed with earth floor, concrete floor, metal cladding, timber frame, metal frame, metal roof, equipped bore and rain water tank. The property has fair external condition, fair internal condition and fair presentation, with dated PC items of average quality. Land Area 22.09 ha. At time of inspection, the subject was planted to sugar cane. It is considered the highest and best use of the subject is as a rural lifestyle/residential property. It is not considered to be a living area for rural production. The sale includes a water allocation of 64 megalitres and licence number 81270L.

**Comments:** The cane land was subject to a share farming agreement. No crop, plant and equipment included in the sale. Apportionment:- Land (Site Value) - $460,000; Structures: $172,000.

**Comparison:** This is a larger land area with located further from Mackay City. It has marginally inferior / older house. Overall it demonstrates that a marginally higher value is applicable to the subject property before resumption and that a lower value is applicable to the subject after resumption.

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## 6.3 Sales Evidence Cont'd

### Vacant Land Sales

| 4. Address | Sale Date | Sale Price | Area (ha) | Improvements Value | Land Value (Ex-Structures) Site Value |
|---|---|---|---|---|---|
| Lot 2 Peak Downs Highway Te Kowai QLD 4740 | 29/11/16 | $650,000 | 12.82 | $0 | $650,000 |

**Land Description:** Situated approximately 7.2 kilometres south west of the Mackay Post Office. This is an irregular shaped, near level inside parcel comprising duplex alluvial soils. It is zoned 'Rural'. The property has a narrow frontage of approximately 11 metres to the Peak Downs Highway. The southern boundary is formed by a cane tramway. Approximately 10.85 hectares has been established to cane land with the balance land comprising headlands and a heavy machinery parking area. The property is not irrigated. Surrounding land uses comprise cane farms, service station, vacant lots, residential dwellings and sugar mill.

**Improvements:** We understand that a shed which is situated in the north west corner was constructed by and is used by an adjoining owner.

**Comments:** Purchased by the adjoining service station owners for expansion. Analysis shows $50,702 / ha excluding structures.

**Comparison:** This sale occurred after the date of resumption. This site has a similar land area and a narrower road frontage. It was purchased by adjoining owners for expansion of a service station. As a rural home site, the sale price is considered to be high and unsupported by the weight of evidence.

| 5. Address | Sale Date | Sale Price | Area (ha) | Improvements Value | Land Value (Ex-Structures) Site Value |
|---|---|---|---|---|---|
| L2 Sugarshed Rd Erakala QLD 4740 | 23/06/15 | $325,000 | 16.22 | $0 | $325,000 |

**Land Description:** Situated approximately 7 km north west of the Mackay Post Office. This is a near level, irregular shaped parcel with frontage of 417 metres to Sugarshed Road which is a bitumen sealed roadway. It is bounded by the North Coast Railway in the east and a section of the Mackay Sugar Limited Railway in the west. A cane railway siding known as 'Dumbleton 3' is situated in between Sugarshed Road and the subject property and access is provided through this siding by an access easement. It comprises low lying, near level cane land with self mulching, black, cracking soils. It is encumbered by 2 high voltage power line easements which run through the property in an east west direction and occupy a combined width of 71 metres. The property is zoned 'Rural". No irrigation

**Improvements:** There are no structural improvements.

**Comments:** Purchased by an adjoining owner. The sale did not include crop, plant and equipment.

**Comparison:** The rural residential amenity of this site is adversely impacted by adjacent rail and road infrastructure in addition to high voltage power lines which traverse it. It provides broad guidance to the value of the subject land in summation after the resumption. The site has inferior access to the subject property.

| 6. Address | Sale Date | Sale Price | Area (ha) | Improvements Value | Land Value (Ex-Structures) Site Value |
|---|---|---|---|---|---|
| 261 Trevaskis Road Farleigh QLD 4741 | 28/04/14 | $480,000 | 20.13 | $0 | $480,000 |

**Land Description:** Situated approximately 16.4 km north west of the Mackay Post Office. This is a slightly irregular shaped inside lot with northern frontage of approximately 410 metres to Trevaskis Road which is a bitumen sealed country road. The North Coast Railway adjoins to the rear. It has a very gentle fall to the north and comprises shallow duplex soil which was fully developed to cane land. It is broken by a drain which runs through the centre in a northerly direction and another which runs through the north western corner. The property is zoned 'Rural'. Water is supplied from an equipped bore.

**Improvements:** There are no structural improvements.

**Comments:** Purchased for rural lifestyle purposes. No crop, plant or equipment included.

**Comparison:** This is a larger property which is situated further from Mackay City. It demonstrates that a slightly lower value is attributable to the subject land in summation before the resumption.

## 6.4 Valuation Considerations

This is a rural lifestyle property which is located within relatively close proximity to Mackay City. In terms of rural residential amenity it is disadvantaged by adjoining the Racecourse Mill.

The rural residential site value of the subject lot before and after the resumption is the primary consideration in the assessment of compensation. The rate per hectare is not an appropriate valuation metric within this asset class.

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## 6.5 Compensation Calculations

After due consideration, we have assessed the compensation as follows:

| | | | |
|---|---|---|---|
| **Valuation Before** | | | |
| Land - Site Value | 13.9700 | ha | 475,000 |
| Structural Improvements | | | 200,000 |
| Total | | | **675,000** |
| | | | |
| **Valuation After** | | | |
| Land - Site Value | 10.8610 | ha | 350,000 |
| Structural Improvements | | | 150,000 |
| Total | | | **500,000** |
| | | | |
| **Loss of Land and Injurious Affection** | | | **175,000** |

## 6.6 Conclusion

Total compensation is assessed as follows:

| | |
|---|---|
| Loss of Land and Injurious Affection | $175,000 |
| Disturbance (Refer Section 5.6) | $Nil |
| **Total** | **$175,000** |

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## 7 COMPENSATION

Subject to the assumptions and qualifications contained within the body of this report, we have assessed the compensation payable for the resumption of land from the subject property (exclusive of GST) at:-

**$175,000**

**(One Hundred and Seventy Five Thousand Dollars)**

FAPI / Certified Practising Valuer/Director
API No: 66044, QVRB No: 2004

This valuation is for the use only of Department of Transport and Main Roads for compensation purposes only. No responsibility is extended to any third party who may use or rely on the whole or any part of the content of this valuation. No responsibility will be accepted for photocopied signatures.

This report has not been prepared for mortgage security lending purposes. We will not accept any responsibility or liability for reliance upon this valuation for such purposes.

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# 8 QUALIFICATIONS AND DISCLAIMERS

Please note that all specific disclaimers are indicated in italics within the relevant sections of the report.

| | |
|---|---|
| **Accuracy of Information** | We advise that any objective information, data or calculations set out in the Valuation will be accurate so far as is reasonably expected from a qualified and experienced valuer, reflecting due skill, care and diligence. However, we have not independently verified third party information, adopted it as our own, or accepted its reliability. If any of the information provided by others and referred to in the valuation report is incorrect, it may have an impact on the valuation. The valuation is provided on the proviso that the reliant party accepts this risk. |
| **Conflict of Interest** | Neither the valuer, nor to the best of their knowledge, any member of this firm, has any conflict of interest, or direct, indirect or financial interest in relation to this property that is not disclosed herein. |
| **Disturbance Items** | Any fencing, driveways or services will be reinstated by the Resuming Authority as required.<br><br>Reasonable disturbance items in accordance with the Acquisition of Land Act will be paid by the Resuming Authority as part of the compensation. |
| **Excludes Fixtures and Fittings** | The valuation assessment does not include lessee fixtures and fittings. |
| **Excluded Searches** | To the best of the valuer's knowledge, the subject property is not affected by Heritage, flooding, landslip, pest infestation, however, no searches have been undertaken in this regard. Should any person relying on the contents of this report be aware or become aware of an issue that may affect value and/or liquidity then the searches should be referred to the valuer for comment.<br><br>To the best of the valuer's knowledge, the land is not affected by unstable, hazardous, or toxic soil material, however, no searches have been undertaken in this regard. This assessment assumes that there are no problems, however, should any such issues arise, then this matter should be referred to the valuer for further comment. |
| **Goods and Services Tax (GST)** | This valuation assessment is exclusive of GST and has been completed on the basis that should GST be payable on the sale of this property, it would be recovered from the purchaser resulting in the vendor not being financially disadvantaged.<br><br>All sale prices quoted in this report are net of GST unless otherwise stated. |
| **Limited Liability** | Liability limited by a scheme approved under professional standards legislation. This scheme does not apply in Tasmania. |
| **Market Movement** | This valuation is current as at the date of valuation only. The value assessed herein may change significantly and unexpectedly over a relatively short period (including as a result of general market movements or factors specific to the particular property). We do not accept liability for losses arising from such subsequent changes in value. Without limiting the generality of the above comment, we do not assume any responsibility or accept any liability where this valuation is relied upon after the expiration of 90 days from the date of the valuation, or such earlier date if you become aware of any factors that have any effect on the valuation. However, it should be recognised that the 90 day reliance period does not guarantee the value for that period; it always remains a valuation at the date of valuation only. |
| **No Pecuniary Interest** | The valuer has no pecuniary interest in the subject property either past, present or prospective at the date of preparing this report and the opinion expressed is free of any bias in this regard. |
| **Not to be reproduced without permission** | Neither the whole nor any part of this valuation or any reference thereto may be included in any published documents, circular or statement, nor published in part or full in any way, without written approval of the form and context in which it may appear. |
| **Other Taxation Implications** | Herron Todd White are not taxation experts and we provide our valuation assessment and any associated sales, rental or feasibility analysis, independent of any consideration of income tax, capital gains tax or any other property related tax implications that may be associated directly or indirectly with the subject property. |
| **Structural Survey** | This valuation report does not purport to be a site or structural survey of the land or improvements thereon, and any advice provided is not given in the capacity as an expert. |

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QUEENSLAND GOVERNMENT

Department of
Transport and Main Roads

Our ref 495/07241; 07837 - 7863
Your ref
Enquiries Glen Dillon

6 September 2016

Herron Todd White (
PO Box 529
Townsville Qld 4810

Sent by email: @htw.com.au

**Attention:**

Dear Sir

**Mackay Region**
**Mackay Ring Road**

This department has requirements for projected works from the properties as shown shaded on departmental plans R8-552, R8-554(B), R8-555 – R8-557, R8-559 – R8-563 and R8-565. It is understood that these plans have been forwarded to you previously.

Also attached is a copy of the schedule setting out details of the resumptions, as well as copies of relevant title searches and survey plans for these properties. The subject land was taken by Taking of Land Notice (No. 3003) 2016 which gazetted on 12 August 2016. (A copy of this Taking of Land Notice is attached).

To assist this department with negotiations please provide reports and detailed assessments on the land described in the schedule. Please identify major inclusions such as bores, generators and pumps (make, capacity, serial number).

**Please note our office requires that you forward your reports and invoice via email to the address noted in the footer of this letter. Please DO NOT send any documentation via post.**

These assessments should reach this office at your earliest convenience.

If your assessment is that compensation is nominal, do not quote a figure, and advise the department that compensation is nominal.

Department of Transport and Main Roads
Property Acquisitions and Disposals
CPO Box 1412,
Brisbane Qld 4001
ABN 39 407 690 291

Telephone 07 3066 6958
Facsimile 07 3066 8228
Website www.tmr.qld.gov.au
Email glenroy.s.dillon@tmr.qld.gov.au

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Please contact the Property Officer in charge of this case prior to arranging inspections of the properties. A list of property owners and relevant contact details is also attached for your information.

This engagement is based on the terms and conditions of the Pre-qualified Professional Panel Arrangement PB012.

The following documents constitute the entire contract between the customer and supplier. Any verbal agreements or other negotiations are specifically excluded unless reflected in the documentation:

- Short Form Conditions of Contract For the Provision of Goods and/or Services, which can be located at:-
  http://www.hpw.qld.gov.au/SiteCollectionDocuments/ShortFormConditionsContract004.pdf
- Your quote dated 1 September 2016
- This letter of engagement

If you wish to clarify any valuation or property issues please contact Glen Dillon on 07 3066 6958.

Yours sincerely

Donna Brunello
**Director (Property Acquisitions and Disposals)**

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View File Return To Top

INTERNAL CURRENT TITLE SEARCH
DEPT OF NATURAL RESOURCES AND MINES, QUEENSLAND

Search Date: 12/08/2016 09:43 Title Reference: 21087189
Date Created: 19/01/1979

Previous Title: 20851159

REGISTERED OWNER Interest

Dealing No: 701450428 19/07/1996

1/2
1/2

AS TENANTS IN COMMON

ESTATE AND LAND

Estate in Fee Simple

LOT 2 REGISTERED PLAN 732066
Local Government: MACKAY

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10089203 (POR 176)
Deed of Grant No. 10089204 (POR 177)

ADMINISTRATIVE ADVICES

| Dealing | Type | Lodgement Date | Status | Location |
|---|---|---|---|---|
| 716751690 | NOTC INT RES<br>ACQUISITION OF LAND ACT 1967 | 15/09/2015 08:48 | CUR | EC-GEN -00 |

UNREGISTERED DEALINGS - NIL

CERTIFICATE OF TITLE ISSUED - Yes 30/08/1996 701498413 Certificate No. 2

** End of Current Title Search **

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Page 1/1



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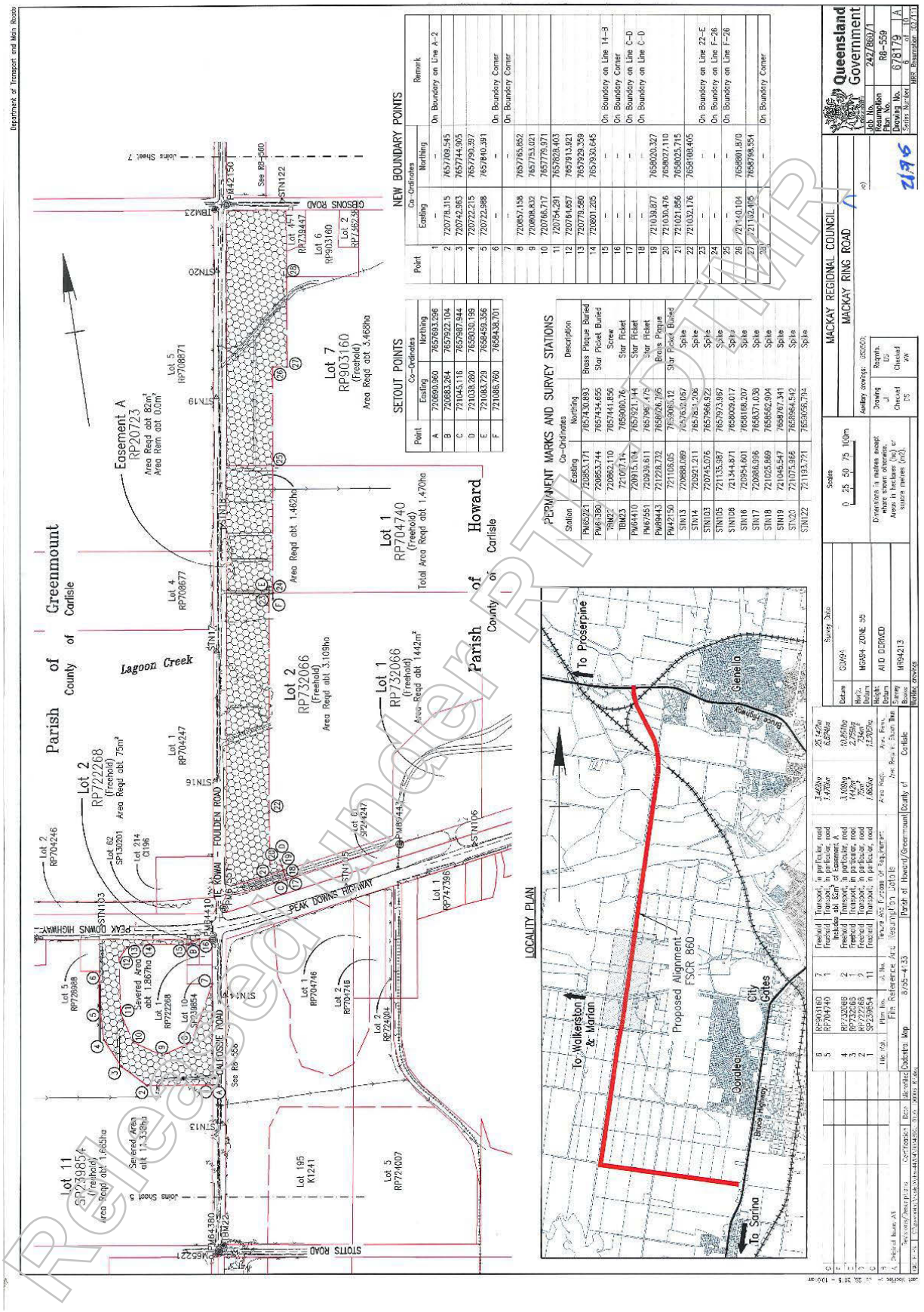


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[611]

# Queensland Government Gazette

**TRANSPORT AND MAIN ROADS**

**PUBLISHED BY AUTHORITY** ISSN 0155-9370

**VOL. 372] FRIDAY 12 AUGUST 2016 [No. 82**

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*Acquisition of Land Act 1967*
*Transport Infrastructure Act 1994*
*Transport Planning and Coordination Act 1994*

## TAKING OF LAND NOTICE (No. 3003) 2016

**Short title**

1. This notice may be cited as the *Taking of Land Notice (No. 3003) 2016*

**Land to be taken [s.9(6) of the *Acquisition of Land Act 1967*]**

2. The land described in the Schedule is taken for the purpose of transport, in particular, road purposes, and vests in the Chief Executive, Department of Transport and Main Roads, as constructing authority for the State of Queensland, for an estate in fee simple.

**SCHEDULE**

**Land Taken**

An area of 3.796 hectares (including 1321 square metres being the whole of Easement B on SP190925 and 59 square metres being the whole of Easement C on RP722533) being the whole of Lot 100 on SP190925 contained in Title Reference: 50676650.

An area of about 2.214 hectares being part of Lot 2 on RP714250 contained in Title Reference: 20486045.

An area of about 4.564 hectares (including about 17 square metres being part of Easement B on RP894737) being part of Lot 7 on RP894737 contained in Title Reference: 50125576.

An area of about 3648 square metres being part of Lot 296 on Crown Plan K1244 contained in Title Reference: 20316037.

An area of about 1193 square metres being part of Lot 297 on Crown Plan K1244 contained in Title Reference: 20316037.

An area of about 2412 square metres being part of Lot 286 on Crown Plan K1244 contained in Title Reference: 21050025.

An area of about 3618 square metres being part of Lot 287 on Crown Plan K1244 contained in Title Reference: 21050025.

An area of about 2410 square metres (including about 640 square metres being part of Easement F on SP213246) being part of Lot 284 on Crown Plan K1244 contained in Title Reference: 20142101.

An area of about 2410 square metres (including about 652 square metres being part of Easement E on SP213246) being part of Lot 285 on Crown Plan K1244 contained in Title Reference: 20142101.

An area of about 2914 square metres (including about 609 square metres being part of Easement H on SP213246) being part of Lot 87 on Crown Plan K103255 contained in Title Reference: 20285085.

An area of about 3.825 hectares being part of Lot 278 on Crown Plan K1244 contained in Title Reference: 20142101.

An area of about 4.497 hectares (including about 695 square metres being the whole of Easement G on SP213246) being part of Lot 283 on Crown Plan K1244 contained in Title Reference: 20142101.

An area of about 2.412 hectares being part of Lot 22 on SP271091 contained in Title Reference: 50971544.

An area of about 3.154 hectares (including about 251 square metres being part of Easement A on SP101552) being part of Lot 23 on SP271091 contained in Title Reference: 50971545.

An area of about 1503 square metres being part of Lot 555 on Crown Plan K124168 contained in Title Reference: 21145063.

An area of about 1.977 hectares being part of Lot 91 on Crown Plan K1247 contained in Title Reference: 20878224.

An area of about 3.946 hectares being part of Lot 249 on Crown Plan K1244 contained in Title Reference: 21077207.

An area of about 3.851 hectares being part of Lot 2 on RP713237 contained in Title Reference: 20494087.

An area of 1171 square metres being the whole of Lot 1 on RP713237 contained in Title Reference: 20494086.

An area of about 1.665 hectares being part of Lot 11 on SP239854 contained in Title Reference: 50840211.

An area of about 3.109 hectares being part of Lot 2 on RP732066 contained in Title Reference: 21087189.

An area of about 3.468 hectares being part of Lot 7 on RP903160 contained in Title Reference: 50134871.

An area of about 1.47 hectares (including 82 square metres being the whole of Easement A on RP20723) being part of Lot 1 on RP704740 contained in Title Reference: 21215119.

An area of about 4.615 hectares (including about 3383 square metres being part of Easement B on SP210129 and about 2372 square metres being part of Easement A on RP726924) being part of Lot 1 on RP736042 contained in Title Reference: 21299112.

An area of about 1442 square metres being part of Lot 1 on RP732066 contained in Title Reference: 21565208.

An area of 1134 square metres being the whole of Lot 4 on SP197309 contained in Title Reference: 50667311.

An area of about 2.425 hectares being part of Lot 183 on SP266889 contained in Title Reference: 50996624.

An area of about 2.307 hectares being part of Lot 188 on Crown Plan K1241 contained in Title Reference: 20544083.

An area of about 2.487 hectares being part of Lot 2 on RP720394 contained in Title Reference: 20739032.

An area of about 2.729 hectares being part of Lot 16 on RP855618 contained in Title Reference: 21571216.

An area of about 1.729 hectares being part of Lot 15 on RP855619 contained in Title Reference: 50008707.

An area of about 3072 square metres (including about 300 square metres being part of Easement F on SP241171) being part of Lot 1 on RP702672 contained in Title Reference: 20195120.

An area of about 4.624 hectares being part of Lot 3 on RP702672 contained in Title Reference: 20195121.

An area of about 1.479 hectares (including about 600 square metres being part of Easement G on SP241172, about 1030 square metres being part of Easement B on SP210128 and about 457 square metres being part of Easement A on RP726915) being part of Lot 2 on RP713682 contained in Title Reference: 21313192.

An area of about 6.351 hectares being part of Lot 13 on SP254859 contained in Title Reference: 50891375.

An area of about 4.358 hectares being part of Lot 12 on SP254859 contained in Title Reference: 50891374.

An area of about 3.264 hectares (including about 2879 square metres being part of Easement C on RP722533) being part of Lot 11 on SP254859 contained in Title Reference: 50891373.

An area of about 635 square metres being part of Lot 103 on SP190925 contained in Title Reference: 50676653.

An area of 3641 square metres being the whole of Lot 102 on SP190925 contained in Title Reference: 50676652.

An area of about 1.849 hectares (including about 242 square metres being part of Easement B on RP722534) being part of Lot 1 on RP736046 contained in Title Reference: 21429136.

An area of about 861 square metres being part of Lot 5 on RP728844 contained in Title Reference: 21449001.

As shown approximately on Plans R8-552, R8-554(B), R8-555, R8-556, R8-557, R8-559, R8-560, R8-561, R8-562 and R8-563 held in the office of the Chief Executive, Department of Transport and Main Roads, Brisbane.

Mackay Region
Mackay Ring Road
495/6828; 7241 and 7837 to 7862

ENDNOTES

1. Made by the Governor in Council on 11 August 2016.
2. Published in the Gazette on 12 August 2016.
3. Not required to be laid before the Legislative Assembly.
4. The administering agency is the Department of Transport and Main Roads.

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*Acquisition of Land Act 1967*
*Transport Infrastructure Act 1994*
*Transport Planning and Coordination Act 1994*

**AMENDING TAKING OF LAND NOTICE (No. 3011) 2016**

**Short title**

1. This notice may be cited as the *Amending Taking of Land Notice (No. 3011) 2016.*

**Amendment of Land to be taken [s. 11(1) and s. 11(3) of the *Acquisition of Land Act 1967*]**

2. Schedule to the Taking of Land Notice (No. 2832) 2015 dated 7 May 2015 and published in the Gazette of 15 May 2015, at page 61, relating to the taking of land by the Chief Executive, Department of Transport and Main Roads, as constructing authority for the State of Queensland, is amended as described in the Schedule.

**SCHEDULE**

Amend Schedule to the Taking of Land Notice (No. 2832) 2015 dated 7 May 2015 and published in the Gazette of 15 May 2015, at page 61, relating to the taking of land by the Chief Executive, Department of Transport and Main Roads, as constructing authority for the State of Queensland as follows -

Omit - "*County of Carlisle, Parish of St Helens* - an area of about 8518 square metres being part of Lot 3 on RP746251 contained in Title Reference: 21394102.

*County of Carlisle, Parish of St Helens* - an area of about 5310 square metres being part of Lot 3 on RP722884 contained in Title Reference: 20775250.

As shown approximately on Plan R8-549 held in the office of the Chief Executive, Department of Transport and Main Roads, Brisbane.

Mackay Region
Bruce Highway (Mackay – Proserpine)
Overtaking lane south of Careys Creek
495/7442; 7443 and 7444"

Insert - "An area of 8559 square metres being Lot 1 on SP279394 (being a plan to be registered in Queensland Land Registry, Department of Natural Resources and Mines), being part of the land contained in Title Reference: 21394102.

An area of 5344 square metres being Lot 6 on SP279394 (being a plan to be registered in Queensland Land Registry, Department of Natural Resources and Mines), being part of the land contained in Title Reference: 20775250.

Mackay Region
Bruce Highway (Mackay – Proserpine)
Overtaking lane south of Careys Creek
495/7442; 7443 and 7444"

ENDNOTES

1. Made by Acting Director (Property Acquisitions and Disposals) on 2 August 2016, pursuant to delegation for Minister for Main Roads, Road Safety and Ports and Minister for Energy, Biofuels and Water Supply under section 36B of the *Acquisition of Land Act 1967.*
2. Published in the Gazette on 12 August 2016.
3. Not required to be laid before the Legislative Assembly.
4. The administering agency is the Department of Transport and Main Roads.

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BRISBANE
12 August 2016

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AECOM

Mackay Ring Road
Department of Transport and Main Roads
26-Aug-2016

# Mackay Ring Road Hydraulics

## Pioneer River Hydraulic Assessment

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# Mackay Ring Road Hydraulics

Pioneer River Hydraulic Assessment

Client: Department of Transport and Main Roads

ABN: 39 407 690 291

Prepared by

**AECOM Australia Pty Ltd**
Level 1, 162 Victoria Street, PO Box 11176, Mackay QLD 4740, Australia
T +61 7 4965 9800 F +61 7 4957 6097 www.aecom.com
ABN 20 093 846 925

26-Aug-2016

Job No.: 60342905

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# Quality Information

Document Mackay Ring Road Hydraulics

Ref 60342905

Date 26-Aug-2016

Prepared by

Reviewed by

Revision History

| Revision | Revision Date | Details | Authorised | |
|---|---|---|---|---|
| | | | Name/Position | Signature |
| 0 | 11-Mar-2016 | For Comment | | |
| 1 | 07-Apr-2016 | Revised Draft for Comment | | |
| A | 26-Aug-2016 | Final Issue | Technical Director | |
| | | | | |

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# 1.0 Introduction

## 1.1 Project Description

The Mackay Ring Road Project (MRRP) is a limited access rural highway that bypasses the Mackay urban and central business areas. It is approximately 11.4 kilometres in length, commencing on the southern side of Mackay at the intersection of Stockroute Road and the Bruce Highway at Ch.0 (MC100) and terminating north of Mackay where it reconnects with the Bruce Highway, approximately 450 metres west of Bald Hill Road at Ch.11440 (MC100).

The MRRP will provide access to the Peak Downs Highway and Stockroute Road with a northbound on-ramp and southbound off-ramp at the Peak Downs Highway and a roundabout at the Stockroute Road intersection. There is an adjoining project, the Walkerston Bypass, which is currently awaiting funding approval and shall link onto the Stockroute Road roundabout and head west to the Peak Downs Highway.

The Mackay Ring Road will comprise new bridges over the Pioneer River, Lagoon Creek and two bridges over the Fursden Creek floodplain. Nine overpasses are proposed over existing local roads, highway and rail networks and a cutting is located at the northern end of the alignment, where the MRRP connects with the Bruce Highway.

The Department of Transport and Main Roads has completed a planning study and Business Case for the Mackay Ring Road. The aim of the Ring Road is to:

- improve freight efficiency in the Mackay area
- improve road safety
- protect and maintain the integrity of the National road network
- improve road access between industrial areas and the Mackay Port; and
- improve road access between homes and jobs.

AECOM Australia Pty Ltd (AECOM) was engaged by the Department of Transport and Main Roads (TMR) to carry out the detailed design of the MRRP.

## 1.2 Report Overview

The MRRP has now moved to the next design phase and this hydraulic assessment has been undertaken to inform the detailed design of Stage 1, including assessment of potential flood level impacts.

The MRRP crosses three catchment areas – Bakers Creek, Pioneer River/Fursden Creek and Gooseponds Creek. This report details the hydraulic assessment completed for the section of the MRRP north of the Peak Down Highway intersection which is impacted by flooding from the Pioneer River, Fursden Creek and also from the Goosepond Creek catchment. This includes the Lagoon Creek Bridge, the Pioneer River and overflow bridges, Fursden Creek Bridge and the Bald Hills area. This report details the outcomes of the hydraulic assessment and is structured as follows:

- Section 2 provides background including the previous investigation for the Business Case assessment
- Section 3 details the updates to the hydraulic model undertaken for this assessment
- Section 4 details the proposed Ring Road design, the representation of this design in the hydraulic model and design parameters extracted from the hydraulic assessment.
- Section 5 details the potential flooding impacts due to the Ring Road
- Section 5 details the scour assessment undertaken for the bridge structures.

The proposed Ring Road alignment is shown in Figure 1 including the extent of the assessment detailed in this report titled *Mackay Ring Road - Pioneer River Hydraulic Assessment*.

The hydraulic assessment for the remaining section of Stage 1 of the Ring Road is also shown on Figure 1 and this is detailed in a separate report titled *Mackay Ring Road Hydraulics - South of Pioneer River*.

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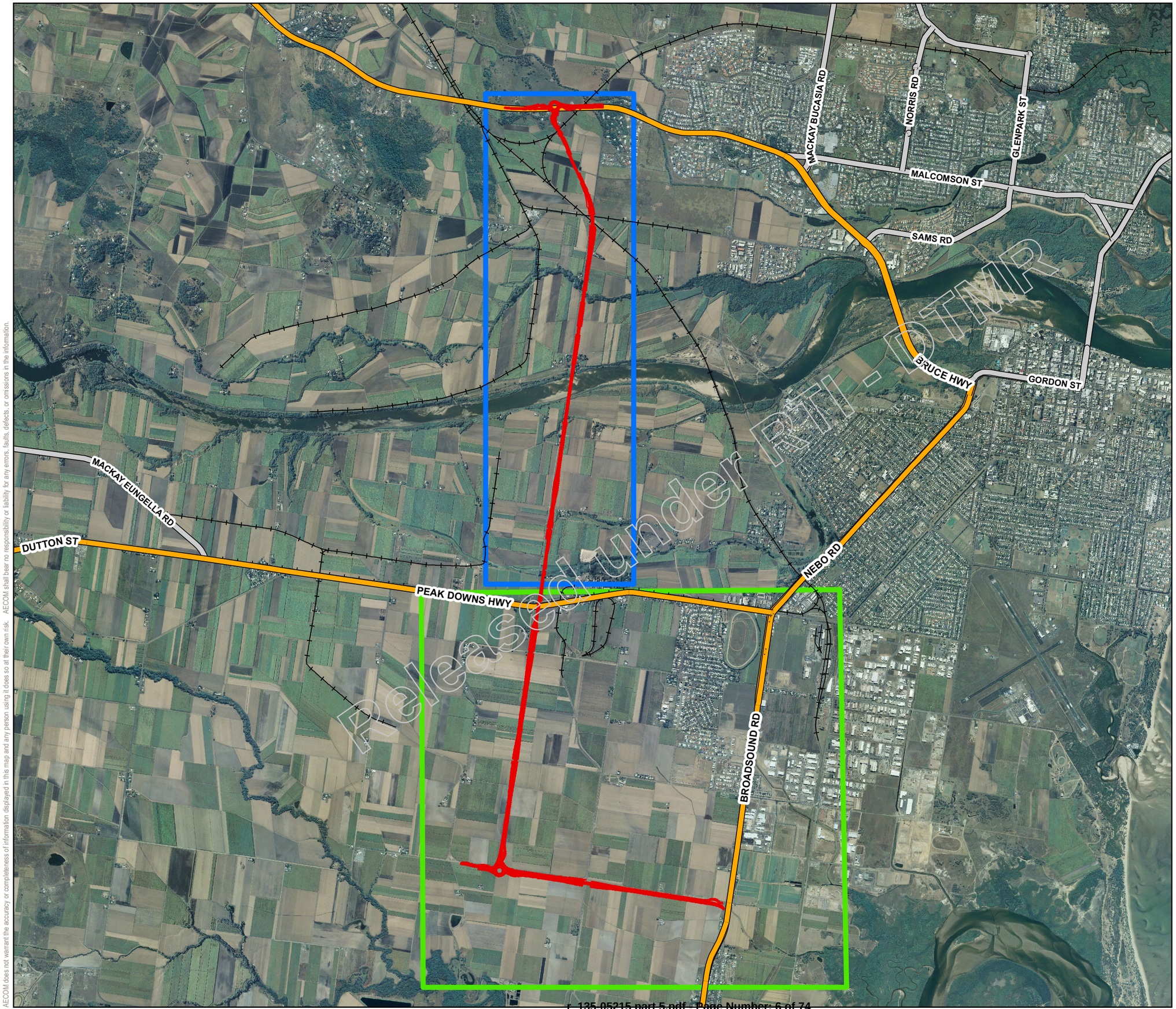


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- Alignment
- Highway
- Main Road
- Railway Line
- Pioneer River Hydraulic Assessment Extent
- South of Pioneer River Hydraulic Assessment Extent

N

DATUM GDA 1994, PROJECTION MGA ZONE 55

0 250 500 1,000

Metres

1:40,000 (when printed at A3)

Data sources:

Imagery - QLD Gov 2009
Roads, Rail, Watercourse - QLD Gov 2015

# Mackay Ring Road - Detailed Design

## Ring Road Alignment

| | |
|---|---|
| PROJECT ID | 60342905 |
| CREATED BY | astorquiaa |
| LAST MODIFIED | 23-Aug-2016 |
| VERSION | v1 |

**Figure 1**

A3 size

Filename: V:\603X\60342905 MRR\4. Tech Work Area\4.9 GIS\07_Working\Report Figures\G60342905_001_RingRoadAlignment_20160215_v1_A3.mxd

r_135-05215 part 5.pdf - Page Number: 6 of 74

# 2.0 Background

## 2.1 Drainage Characteristics

Figure 2 shows the main drainage features in the vicinity of the proposed Ring Road section addressed in this report. The Ring Road is intersected by the following water courses and drainage features:

- Lagoon Creek
- Pioneer River
- Fursden Creek; and
- Janes Creek/Goosepond Creek/Vines Creek.

A brief description of these drainage features is given below.

### 2.1.1 Lagoon Creek

Lagoon Creek exits the Pioneer River some 2 km to the west of the proposed Ring Road and re-enters some 2 kilometres to the east forming a large oxbow. The creek receives overflows from the Pioneer River at the upstream end for events greater than and including the 5% AEP but receives backwater flooding at the downstream end more frequently. The creek has very little catchment area.

### 2.1.2 Pioneer River

The main drainage feature in the vicinity of the proposed Ring Road is the Pioneer River. The Pioneer River catchment extends from the Connors Range to the west and is bordered by the Leila Creek and Murray Creek catchments to the north, the Bowen River catchment to the west and Sandy Creek, Bakers Creek and the Isaac River catchments to the south. It includes the major tributaries of Cattle Creek, Teemburra Creek, Blacks Creek, Stockyard Creek and Macgregor Creek in the upper catchment and the floodplain channels of Fursden Creek, Goosepond Creek and Lagoon Creek in the lower catchment in the vicinity of the proposed Ring Road. The total catchment area of the Pioneer River is approximately 1,560 km$^2$.

The Pioneer River consists of a main channel that is around 400m wide and 8m to 10m deep at the proposed Ring Road crossing. It has a highly mobile sandy bed and the water levels are controlled by the ocean tides during non-flood river flows. Major remnant channels of the Pioneer River exist at the location of the Ring Road with Fursden Creek located to the north and Lagoon Creek to the south. The Pioneer River overflows into these two remnant channels during the 10% AEP event and 'back flows' into the creeks during smaller events.

### 2.1.3 Fursden Creek

Fursden Creek commences near Fairleigh on the Bruce Highway to the north-west of Mackay and drains in a southerly direction mostly along constructed channels through cane fields. It then turns eastward to drain parallel to and then entering the Pioneer River just upstream of the Ron Camm Bridge (Bruce Highway). The lower sections of the creek are backwater affected by both ocean tides and Pioneer River flows. For floods greater than the 20% AEP event, the Pioneer River overflows into Fursden Creek upstream of the North Coast Rail. During large floods, the Fursden Creek channel carries a significant portion of the Pioneer River flow. The catchment area of Fursden Creek to the Pioneer River is 24.8 km$^2$.

### 2.1.4 Janes Creek/Goosepond Creek/Vines Creek

Janes Creek and Goosepond Creek are tributaries of Vines Creek, which drains into the Pioneer River downstream of Harbour Road North Mackay in an area known as the Bassett Basin. Janes Creek originates near Farleigh and (Upper) Goosepond Creek originates near Richmond both to the north-west of the Mackay CBD. These channels cross Stage 2 of the Ring Road to the north of the Bruce Highway. The channels are well defined but have a relatively low capacity overflowing onto their adjoining floodplain frequently.

The two channels converge to form Goosepond Creek at the Bruce Highway near the proposed Ring Road intersection. Goosepond Creek drains through the suburbs of Glenella and Mount Pleasant before draining into Vines Creek in North Mackay. Vines Creek crosses the Port Link section of the Ring Road in several locations in the suburb of Andergrove. It then drains along the southern side of the Port Link into the Bassett Basin. Much of Vines Creek and the lower section of Goosepond Creek are tidally affected. The combined catchment area of these three streams is approximately 35 km$^2$.

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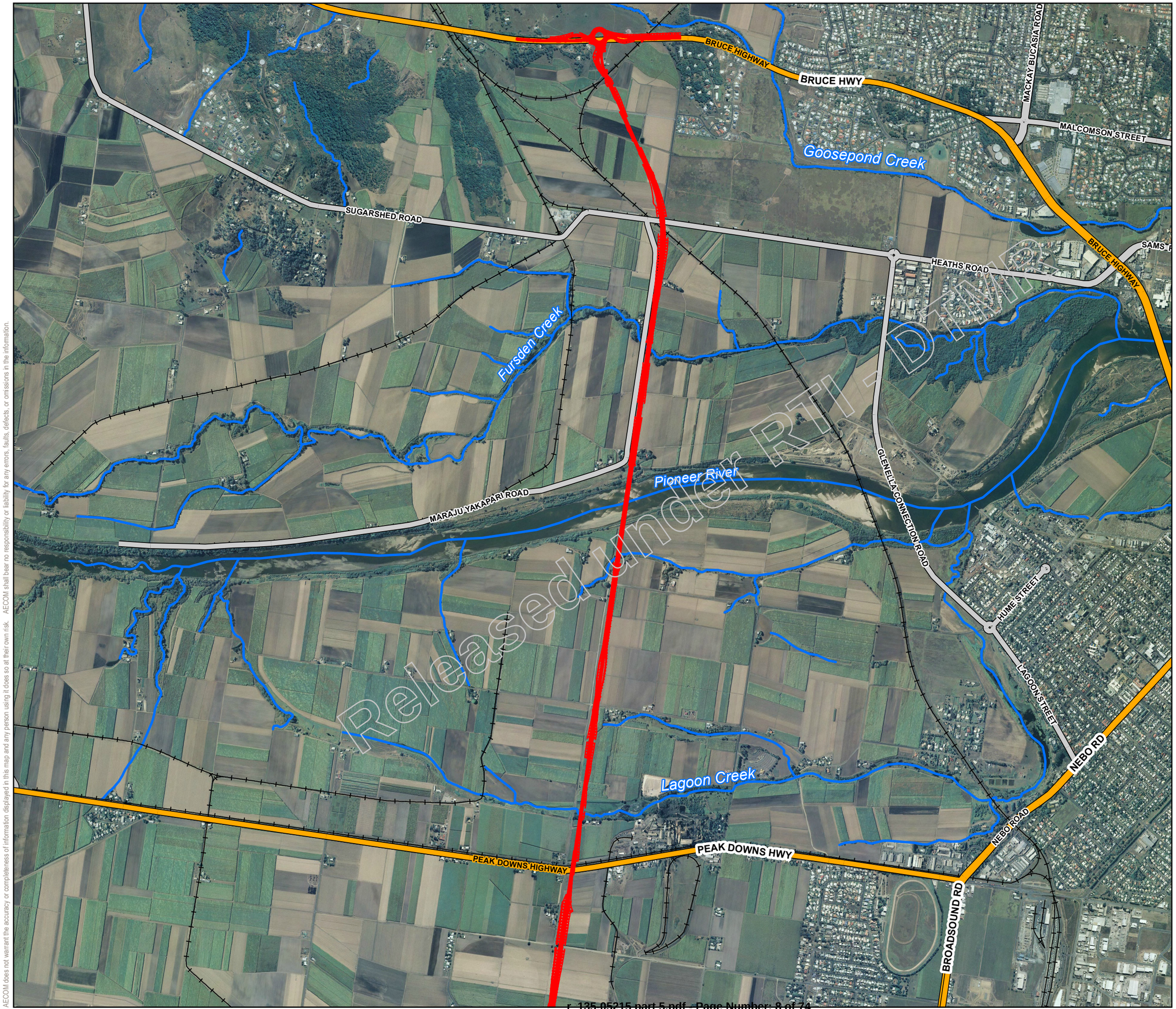


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- Ring Road Alignment
- Highway
- Main Road
- Railway Line
- Watercourses

N

DATUM GDA 1994, PROJECTION MGA ZONE 55

0 250 500 1,000

Metres

1:24,000 (when printed at A3)

Data sources:

Imagery - QLD Gov 2009
Roads, Rail, Watercourse - QLD Gov 2015

# Mackay Ring Road - Detailed Design

## Ring Road Drainage Characteristics

| | |
|---|---|
| PROJECT ID | 60342905 |
| CREATED BY | mathieu-burrym |
| LAST MODIFIED | 16-Feb-2016 |
| VERSION | v1 |

**Figure 2**

A3 size

Filename: V:\603X\60342905 MRR\4. Tech Work Area\4.9 GIS\07_Working\Report Figures\G60342905_002_RingRdDrainageCharacteristics_20160215_v1_A3.mxd

r_135-05215 part 5.pdf - Page Number: 8 of 74

## 2.2 Previous Investigations

Mackay Regional Council (MRC) has previously developed hydrological and hydraulic models of the above waterways to estimate design flood discharges and flood levels for planning and development assessment purposes. MRC collaboratively provided the models for use in the assessment of the Ring Road project. The models included the TUFLOW hydraulic model of the Pioneer River which was originally developed for the Pioneer River flood Study (WRM 2011) and refined during later studies.

### 2.2.1 Pioneer River Flood Study, WRM, 2011

The Pioneer River TUFLOW hydraulic model incorporated flows from the Pioneer River catchment, Fursden Creek catchment and the Goosepond Creek catchment. This study developed hydrologic and hydraulic models for the Pioneer River and adjacent waterways including Fursden Creek. An URBS hydrologic model was developed to determine catchment flows from the Pioneer River and Fursden Creek catchments.

Both the hydrologic and hydraulic models were calibrated and verified to historical events. These models have been used by MRC for planning and design purposes since the model was developed. The development, model setup, calibration and verification of these models is detailed in the Pioneer River Flood Study (2011) and is not repeated here.

### 2.2.2 Goosepond Creek (including Pioneer River) Flood Study, WRM, 2012

In 2012 GHD were commissioned by MRC to undertake a flood study for Goosepond Creek, Janes Creek and Vines Creek. As part of this study an XP-RAFTS hydrologic model of this catchment was developed. The GHD study assessed Goosepond Creek flooding and identified there were significant interaction of flood flows between Goosepond Creek and Pioneer River.

Therefore in 2012 the Goosepond Creek (including Pioneer River) Flood Study (WRM, 2012) was completed. The objective of this study was to assess the combination of Goosepond Creek and Pioneer River flows. As part of this assessment, the Pioneer River TUFLOW model was refined and updated to incorporate the inflows from the Goosepond Creek XP-RAFTS model. The hydrologic and hydraulic models underwent recalibration and verification.

### 2.2.3 Mackay Ring Road Business Case Scenario Flood Impact Assessment, WRM, 2013

As part of the Business Case investigations for the Mackay Ring Road a hydraulic assessment was undertaken (WRM 2013) utilising the hydrologic and hydraulic models developed during the previous investigation, detailed above.

During the Business Case the preferred alignment, determined from the options analysis/preliminary evaluation phases of the project, was developed further to provide a robust project definition, refinement of the capital works cost estimate and identification of potential impacts of the Ring Road.

The Business Case TUFLOW model has also been used as the basis for this current assessment with a number of refinements made to the Base Case model. This refined Base Case model was then updated to represent the detailed design configuration for this section of the proposed Ring Road.

It should be noted that there was some discrepancy with the model files obtained at the start of the project. The existing model setup files (*PR_100y24h_130813.tcf)* did not correlate with the provided result files (*PR_100y24h_130626_h.dat*). The setup was unable to reproduce the results, however as the model log file stated that *PR_100y24h_130813.tcf* was the existing scenario, this model setup was used as the base model for this assessment and all existing model scenarios simulated using this setup to provide baseline flood levels.

Full details of the hydraulic model development, setup and calibration can be found in the reports detailed above and is not repeated here. This report focuses on: the updates made to the Base Case model for this assessment; details of the representation of the Ring Road design in the model; and outcomes of the hydraulic investigation for this stage of the design process.

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# 3.0 Pioneer River Base Case Model Refinement

The primary updates to the Base Case models from the Business Case were, refinement of the catchment delineation, catchment inflows, drainage structures, and road and rail levels in the Bald Hills area. This was done to allow a more accurate and relevant representation of the catchments and drainage, which has enabled a more realistic representation of the impacts of the proposed highway in the Bald Hills area.

Minor changes were made elsewhere in the model to ensure the existing drainage structures were represented accurately.

## 3.1 Base Case Hydrologic Model Refinement

The Business Case catchment delineation in the Goosepond Creek XP-RAFTS model is shown in Figure 3. The catchment refinement was undertaken to better represent the catchment delineation due to the North Coast railway and to allow the catchments to be represented in the Developed Case with the Ring Road constructed.

The total flow from this catchment area was verified to the previous model with no significant change in the timing or peak flow, negating the need to re-calibrate or verify the hydraulic model.

The catchment parameters for the original and refined Base Case catchments are shown in Table 1.

The XP-RAFTS model was used to recalculate the inflows for the Goosepond Creek catchment and these flows were then applied to the TUFLOW model. No other changes to the hydrology were made for any other areas of the model.

**Table 1 Goosepond Creek catchment parameters for Business Case and Refined Base Case XP-RAFTS Model**

| | Catchment | Area (ha) | Roughness (n) | Percentage Impervious | Catchment slope (%) |
|---|---|---|---|---|---|
| Business Case | G1 (Subcatchment 1) | 109.34 | 0.07 | 0% | 1.10% |
| | G1 (Subcatchment 2) | 6.36 | 0.015 | 100% | 1.10% |
| | G2 (Subcatchment 1) | 135.20 | 0.07 | 0% | 1.91% |
| | G2 (Subcatchment 2) | 20.56 | 0.015 | 100% | 1.91% |
| Refined – Base Case | G1a | 40.32 | 0.07 | 12% | 1.70% |
| | G1b | 40.51 | 0.07 | 1% | 1.00% |
| | G1c | 27.71 | 0.07 | 4% | 1.04% |
| | G2a | 52.71 | 0.07 | 1% | 1.00% |
| | G2b | 26.92 | 0.07 | 1% | 0.22% |
| | G2c | 78.67 | 0.07 | 25% | 1.56% |

The previous modelling investigation had determined the flows for the 20 % to 0.05 % AEP events for the Pioneer River catchment. The 0.05% AEP inflows had to be calculated for the Goosepond Creek XP-RAFTS model.

The rainfall intensities for this event were obtained from CRC-Forge, consistent with the approach adopted for the Pioneer River URBS hydrologic model. The rainfall intensities for the critical duration events for Goosepond Creek are detailed in Table 2.

**Table 2 Rainfall intensities for critical duration events (mm/hr)**

| Model | 0.05 % AEP 12hr | 1% AEP 24 hr | 2% AEP 24 hr | 5% AEP 24hr | 10% AEP 36 hr | 20% AEP 36 hr |
|---|---|---|---|---|---|---|
| Goosepond Creek | 68.45 | 26.6 | 22.8 | 18.4 | 12.2 | 10.3 |

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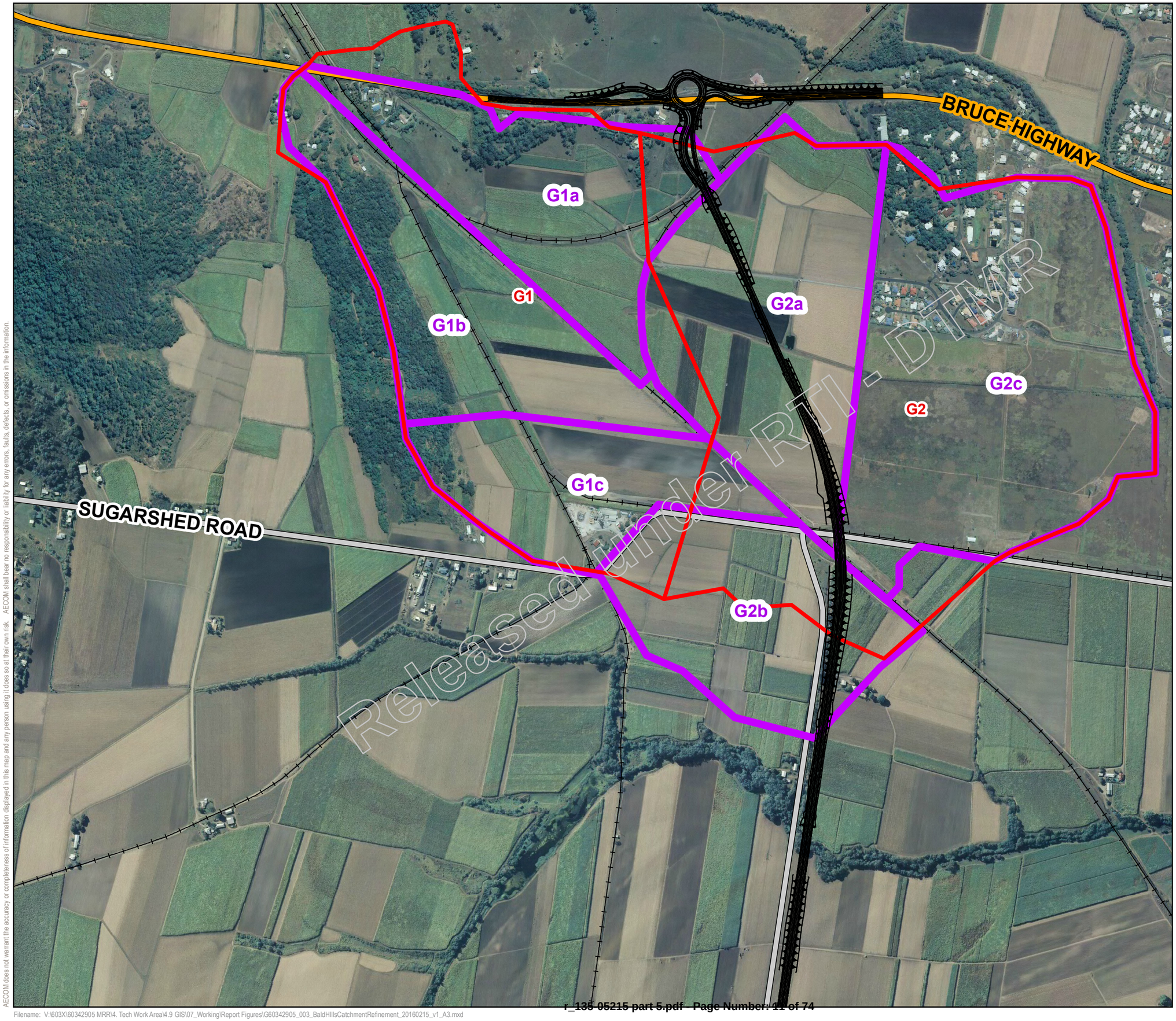


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- Railway Line
- Goosepond Creek Previous Catchment
- Goosepond Creek Refined Catchment - Existing Case

N

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0 100 200 400

Metres

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Data sources:

Imagery - QLD Gov 2009
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# Mackay Ring Road - Detailed Design

## Bald Hills Catchment Refinement

| | |
|---|---|
| PROJECT ID | 60342905 |
| CREATED BY | mathieu-burrym |
| LAST MODIFIED | 16-Feb-2016 |
| VERSION | v1 |

**Figure 3**

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## 3.2 Base Case Hydraulic Model Refinement

The primary modifications to the Base Case hydraulic model were made in the Bald Hills area. Minor modifications were made elsewhere, where inconsistencies were noted in the representation of some structures.

The Business Case assessment indicated the Ring Road would increase the 1% AEP flood level by up to 0.36 m in the Bald Hills area. This assessment was based on a relatively coarse representation of drainage in the area with coarse catchment delineation (detailed in the previous section) and no drainage structures beneath the North Coast rail line.

To better define the drainage and more accurately quantify the potential impacts a number of changes were made to the hydraulic model in the Bald Hills area. These refinements included:

- Representing the drainage structures beneath the North Coast rail line, Fursden and Sugarshed Road. The size and configuration of the North Coast rail structures was obtained through a site visit whilst survey in the vicinity of Sugarshed Road established road culvert configuration and sizes.
- Incorporating LiDAR data into the model topography for the Bald Hills area.
- Representing the North Coast rail line elevation in the hydraulic model. These levels were obtained through survey for the section of rail within 200 m of Sugarshed Road and inferred from LiDAR data for the remaining alignment.
- Representing Sugarshed Road and Fursden Road crest levels in the hydraulic model. These levels were extracted from LIDAR data for these road sections.
- Applying the Goosepond Creek catchment inflows from the refined Base Case hydrologic model.

The Base Case hydraulic model refinements in the Bald Hills area are detailed in Figure 4.

## 3.3 Design Events

The 20, 10, 5, 2, 1 and 0.05 % AEP events were simulated using the refined Base Case model. The critical duration varied between 12 hours for the 0.05% AEP event to 36 hours for events more frequent than 5% AEP (WRM, 2012).

The approximate Pioneer River discharge for each of the design events is detailed in Table 3. These flows have been extracted upstream of the Lagoon Creek breakout.

**Table 3 Pioneer River Design Flows**

| Event | Peak discharge ($m^3/s$) |
|---|---|
| 20 % AEP | 4,226 |
| 10 % AEP | 6,176 |
| 5 % AEP | 7,476 |
| 2 % AEP | 9,590 |
| 1 % AEP | 10,697 |
| 0.05 % AEP | 13,904 |

Figures showing maximum flood depth and velocity for each of these events are included in Appendix A.

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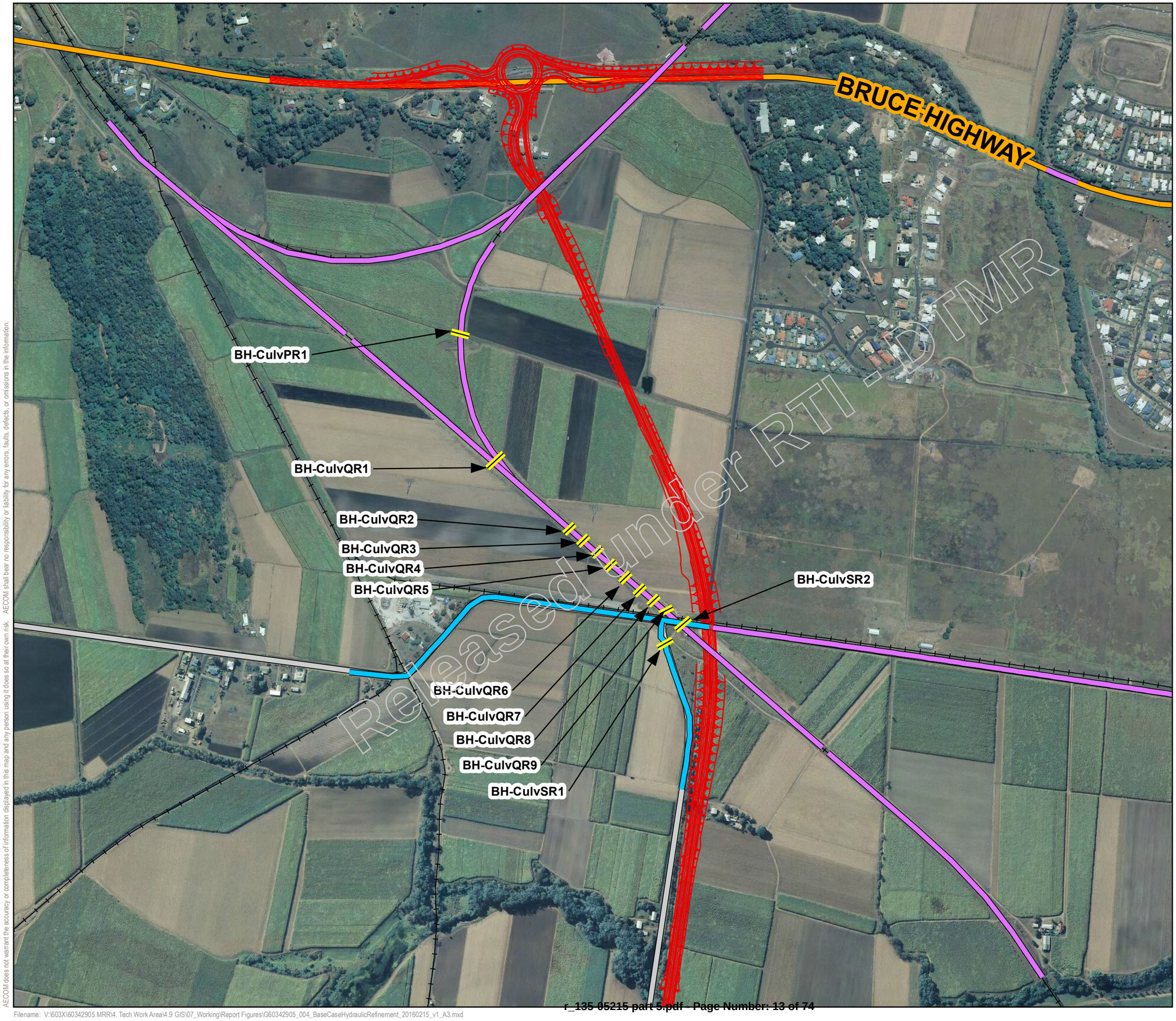


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0 100 200 400

Metres

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# Mackay Ring Road - Detailed Design

## Base Case Hydraulic Refinement

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**Figure 4**

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# 4.0 Pioneer River Developed Case Modelling

The section of the proposed Ring Road which is the subject of this study, consists of a raised embankment that extends from north of the Peak Down Highway intersection to the Bruce Highway in the Bald Hills area. The embankment height varies and has minimum 1% AEP flood immunity along the length. This section of the alignment includes four bridges, several access roads which cross beneath these bridges structures, two overpasses, entry and exit ramps in the Bald Hills area, as well as several culvert structures.

Bald Hills Road and Sugarshed Road will also be raised in the vicinity of the Sugarshed Road intersection to provide 2% AEP flood immunity. Several culvert structures will also be constructed along the raised Bald Hills Road alignment.

The Ring Road design has been represented in the TUFLOW hydraulic model and the following sections detail the individual drainage and design features that have been incorporated in to the hydrologic and hydraulic models. The following section also details the outcomes of the hydraulic assessment.

As noted in Section 3.3 the 20, 10, 5, 2, 1 and 0.05 % AEP events have been simulated to determine hydraulic parameters to inform the Ring Road design and to determine the potential impacts on flooding due to construction of the Ring Road.

## 4.1 Hydrologic Model Refinement

As detailed in Section 3.1, the Goosepond Creek catchment in the vicinity of the Bald Hills area has been refined from the previous investigation to allow a better representation of the flow regime and more accurately calculate flows to quantify the impacts of the Ring Road construction. Previously the Business Case assessment had used the same catchment delineation for the Base and Developed Case modelling and applied the catchment flows upstream of the Ring Road alignment.

The Developed Case XP-RAFTS model has been updated for this assessment with the catchment delineation refined to represent the change in catchment extents due to the Ring Road embankment. The Developed Case catchments are shown in Figure 5 and the catchment parameters are shown in Table 4..

**Table 4 Goosepond Creek Hydrologic Model - Developed Case Catchment Parameters for Bald Hills**

| Catchment | Area (ha) | Roughness (n) | Percentage Impervious | Catchment slope (%) |
|---|---|---|---|---|
| G1a | 40.32 | 0.07 | 12% | 1.70 |
| G1b | 40.51 | 0.07 | 1% | 1.00 |
| G1c | 27.71 | 0.07 | 4% | 1.04 |
| G2a1 | 25.35 | 0.07 | 1% | 1.00 |
| G2b1 | 30.58 | 0.07 | 1% | 0.22 |
| G2c | 78.67 | 0.07 | 25% | 1.56 |
| G2b2 | 5.56 | 0.07 | 1% | 0.22 |
| G2a2 | 27.36 | 0.07 | 1% | 1.00 |

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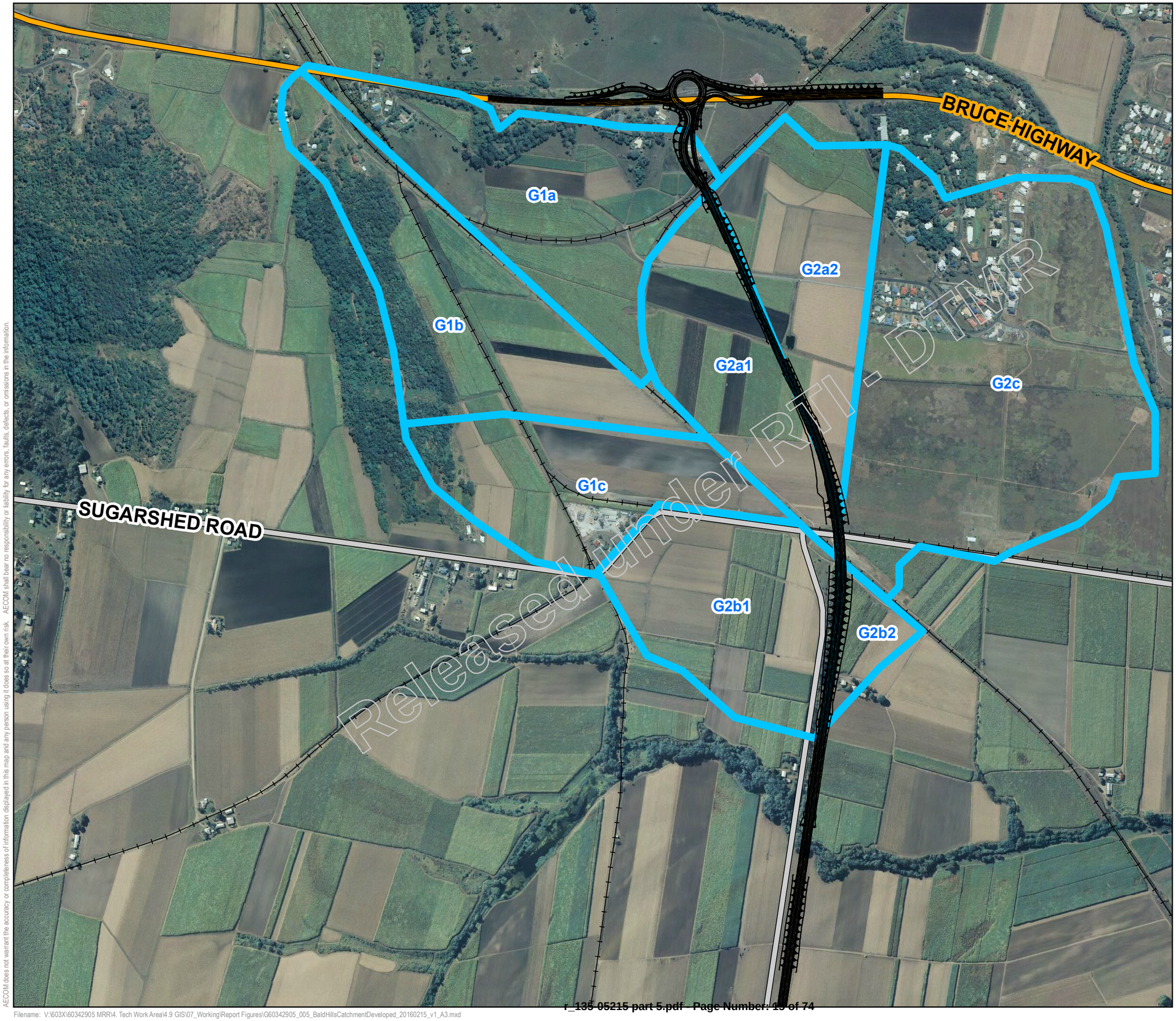


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Imagery - QLD Gov 2009
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# Mackay Ring Road - Detailed Design

## Bald Hills Catchment

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|---|---|
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**Figure 5**

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## 4.2 Road Embankment

The Ring Road embankment varies in height and is designed to have a minimum 1% AEP immunity along its length. The road embankment has been included as a varying width z-shape in the TUFLOW hydraulic model.

## 4.3 Drainage Structures

### 4.3.1 Bridges

Four bridges will be constructed across Lagoon Creek, Pioneer River, Fursden Overflow and Fursden Creek. The location of these bridge structures is shown in Figure 6. Bridge Plans have been included in Appendix B. All bridges were represented in TUFLOW as layered flow constrictions with individual bridge parameters summarised in The head loss and afflux for each of the bridges was verified using HEC-RAS with TUFLOW model parameters adjusted ensure a reasonable match between the two model approaches.

Verification to HEC-RAS by varying the blockage factors in the TUFLOW model was particularly important for Lagoon Creek given the 25m length of the bridge is similar to the resolution of the hydraulic model and results were particularly sensitive to the factor used. Results were generally within 0.01m.

Given the high velocities and skew of the Pioneer River, the model was considered a reasonable match to HEC-RAS when results where within 0.01 m for the Pioneer River.

The TUFLOW results for the Fursden Creek Bridge tended to over predict the head loss compared to HEC-RAS, however the 2D interaction between Fursden Creek and Fursden Creek overflow made it difficult to justify altering the model setup further for these structures.

Table 5. The peak flood level and velocity at each of the bridge location is summarised in Table 6.

#### 4.3.1.1 Lagoon Creek

The Lagoon Creek bridge is a single 25m span bridge constructed downstream of Te Kowai Foulden Road. The bridge soffit level varies between 12.94 m AHD at the southern abutment to 12.71 m AHD at the northern abutment. The 0.05% AEP flood level is approximately 12.72 m AHD at the bridge location at approximately the same level as the northern soffit while the remainder of the superstructure in above the 0.05 % AEP flood level.

A HEC-RAS model of the bridge crossing was developed to verify the head loss across the bridge. The blockage factor within the TUFLOW model was altered until the head loss in the TUFLOW hydraulic model matched the HEC-RAS values.

#### 4.3.1.2 Pioneer River

The Pioneer River Bridge is a 670 m long bridge consisting of 2 x 20m spans and 18x35m spans. The bridge will be supported by a series of 3 x 1.5 m diameter piers which will be constructed perpendicular to the road alignment and at a 22 degree skew to the Pioneer River flow.

During the initial design phase there was discussion regarding constructing the piers perpendicular to the Pioneer River flow to reduce the potential scour. A scour assessment indicated the potential scour depth could increase from 6.4 to 11.4 metres with the piers skewed to the flow. A memorandum detailing this assessment was circulated and discussed and it was decided in consultation with TMR that the increased scour should be addressed during the bridge design with the piers to be constructed skewed to the Pioneer River flow and perpendicular to the road alignment. This memorandum is included in Appendix C.

The vertical road alignment varies over the length of the bridge with the soffit level at the crest of the bridge peaking at 11.51 m AHD. The soffit levels at the abutments are at approximately 12 m AHD however the deck thickness varies, with the two 20 metre end spans approximately 1.1 m thick and the 35 m spans approximately 2.15 m thick. Therefore the soffit level at the 35m span ends is approximately 11 m AHD.

The peak 1% AEP Pioneer River flood level at the bridge location is approximately 10.98 m AHD which indicates the bridge soffit level has 1% AEP immunity along the length. The 0.05% AEP peak flood level is approximately 11.96 m AHD which is 0.45 m above the soffit level at the crest of the bridge.

Access roads are to be constructed at the north and south abutments to allow access to adjacent farms.

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#### 4.3.1.3 Fursden Creek Overflow

The Fursden Creek Overflow Bridge is a 100m long bridge consisting of 5 x 20 m spans supported by 4 x1.2 m diameter piers. The piers will be perpendicular to the road alignment and skewed to the flow direction. The skew angle varies along the length of the bridge due to the flow patterns in the overflow area however the peak angle is approximately 35 degrees.

The soffit level is approximately 12.26 m AHD at the bridge abutments which is 0.44 m above the 0.05 % AEP flood level. The deck thickness is approximately 1.1 m along the bridge length. A farm access road is to be constructed under this bridge, which has been represented in the hydraulic model.

#### 4.3.1.4 Fursden Creek

Fursden Creek Bridge is a 140m long bridge consisting of 4 x 35 m spans supported by 4 x1.5 m diameter piers. The soffit level of the bridge varies from 10.69 m AHD at the southern abutment to 10.41 m AHD at the northern abutment. The deck thickness is approximately 2.15 m along the bridge length. The peak 1% AEP level at the bridge location is 10.48 m AHD, indicating the soffit at the northern end of the bridge is inundated in a 1% AEP event. The peak 0.05% AEP flood level is approximately 11.84 m AHD which is above the soffit level for the length of the bridge.

#### 4.3.1.5 Summary

The head loss and afflux for each of the bridges was verified using HEC-RAS with TUFLOW model parameters adjusted ensure a reasonable match between the two model approaches.

Verification to HEC-RAS by varying the blockage factors in the TUFLOW model was particularly important for Lagoon Creek given the 25m length of the bridge is similar to the resolution of the hydraulic model and results were particularly sensitive to the factor used. Results were generally within 0.01m.

Given the high velocities and skew of the Pioneer River, the model was considered a reasonable match to HEC-RAS when results where within 0.01 m for the Pioneer River.

The TUFLOW results for the Fursden Creek Bridge tended to over predict the head loss compared to HEC-RAS, however the 2D interaction between Fursden Creek and Fursden Creek overflow made it difficult to justify altering the model setup further for these structures.

**Table 5 Bridge Configuration and TUFLOW Parameters**

| Bridge | Spans | Piers | Skew (deg) | Blockage Factor (%) | Location | Soffit Level (m AHD) |
|---|---|---|---|---|---|---|
| Lagoon Creek | 1 x 25 m | - | 0 | 52 | South | 12.94 |
| | | | | | North | 12.71 |
| Pioneer River | 2 x 20m<br>18 x 35 m | 3 x 1.5m diameter | 22 | 12 | South | 10.97 |
| | | | | | Crest | 11.51 |
| | | | | | North | 11.00 |
| Fursden Overflow | 5 x 20m | 4 x 1.2 m diameter | 35 (maximum) | 25 | South | 12.26 |
| | | | | | North | 12.27 |
| Fursden Creek | 4 x 35 m | 4 x 1.5 m diameter | 0 | 8 | South | 10.69 |
| | | | | | North | 10.41 |

**Table 6 Peak Flood Level and Velocity at Bridge Locations**

| Bridge | 5% AEP | | 2% AEP | | 1% AEP | | 0.05% AEP | |
|---|---|---|---|---|---|---|---|---|
| | Flood Level (m AHD) | Velocity (m/s) | Flood Level (m AHD) | Velocity (m/s) | Flood Level (m AHD) | Velocity (m/s) | Flood Level (m AHD) | Velocity (m/s) |
| Lagoon Creek | 8.74 | 0.45 | 9.67 | 0.37 | 10.22 | 0.99 | 12.72 | 3.32 |

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| Bridge | 5% AEP | | 2% AEP | | 1% AEP | | 0.05% AEP | |
|---|---|---|---|---|---|---|---|---|
| | Flood Level (m AHD) | Velocity (m/s) | Flood Level (m AHD) | Velocity (m/s) | Flood Level (m AHD) | Velocity (m/s) | Flood Level (m AHD) | Velocity (m/s) |
| Pioneer River | 9.88 | 3.73 | 10.63 | 4.22 | 10.98 | 4.43 | 11.96 | 4.90 |
| Fursden Overflow | 8.24 | 0.44 | 9.85 | 0.79 | 10.49 | 0.96 | 11.82 | 1.72 |
| Fursden Creek | 8.29 | 1.10 | 9.82 | 1.22 | 10.48 | 1.22 | 11.84 | 1.76 |

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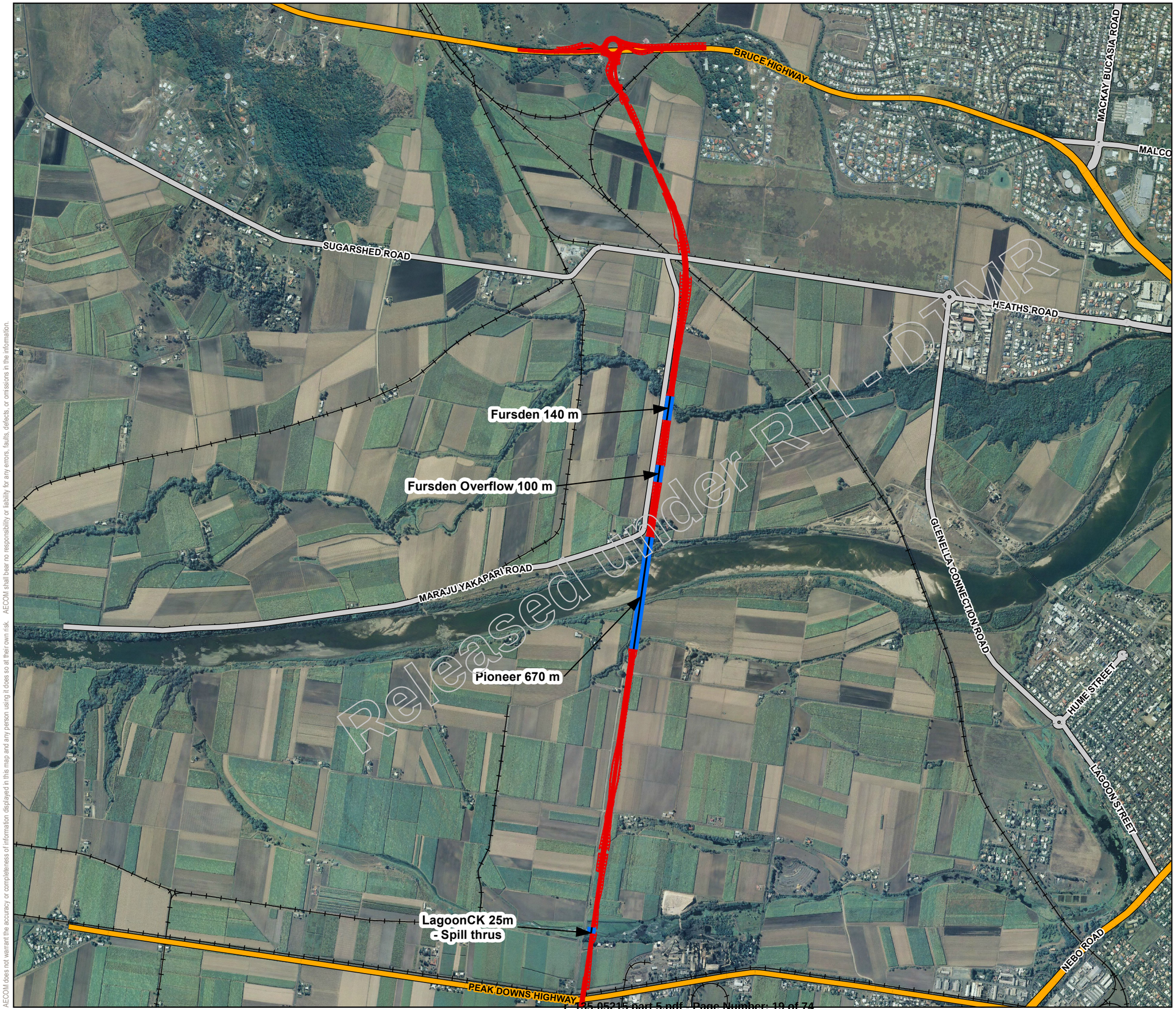


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# Mackay Ring Road - Detailed Design

## Bridge Structures

| | |
|---|---|
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**Figure 6**

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#### 4.3.1.6 Culverts

Several culvert structures will be constructed along the alignment to allow drainage through the road embankment, the majority of which are in the Bald Hills area. The location of these culverts is shown in Figure 7. The details of these culverts are presented in Table 7 along with the 1% AEP peak discharge and structure velocities. These culverts have been represented as 1-dimensional components in the TUFLOW hydraulic model.

**Table 7 Ring Road Culverts**

| Culvert | Configuration | Upstream Invert Level (m AHD) | Downstream Invert Level (m MAHD) | 1% AEP Peak Discharge ($m^3/s$) | 1% AEP Peak Velocity (m/s) |
|---|---|---|---|---|---|
| BaldHill_1 | 10/1500 RCP | 9.5 | 9.4 | 6.5 | 1.5 |
| BaldHill_2 | 12/600 RCP | 10.35 | 10.18 | 2.8 | 1.2 |
| BaldHill_3 | 12/600 RCP | 10.11 | 10.05 | 3 | 1 |
| BaldHill_4 | 12/600 RCP | 10.15 | 9.9 | 2.5 | 1 |
| BHRd_culv1 | 7/1200x450 RCBC | 9.74 | 9.71 | 1.8 | 0.6 |
| BHRd_culv2 | 7/1200x450 RCBC | 9.89 | 9.86 | 2 | 0.7 |
| BHRd_culv3 | 5/1200x450 RCBC | 9.93 | 9.9 | 1.7 | 0.7 |
| BHRd_culv4 | 4/1200 x 450 RCBC | 9.8 | 9.79 | 0.4 | 0.5 |

#### 4.3.1.7 Culvert Blockage

The catchment upstream of the Bald Hills culverts is predominantly cane paddocks, therefore any blockage of these culverts is likely to be due to cane trash or sediment buildup.

The likelihood of blockage at a particular structure depends on whether or not debris is able to bridge across the structure's inlet or become trapped within the structure. Cane trash will not cause this type of blockage, and will only cause blockage due to collecting at the entrance between adjacent culvert barrells. Floating debris potential at these culverts is considered Low.

While cane trash is relatively mobile the low flow velocities which generally occur through cane paddocks reduces the availability of this debris. The QR rail line upstream of the Ring Road also reduces the availability of debris that may cause blockage of the culvert structures.

Due to the low potential for blockage of these culverts, no blockage has been included in the design of these structures. It is noted that a regular maintenance regime will also reduce the impacts of blockage, particularly with regards to sediment buildup over subsequent wet seasons.

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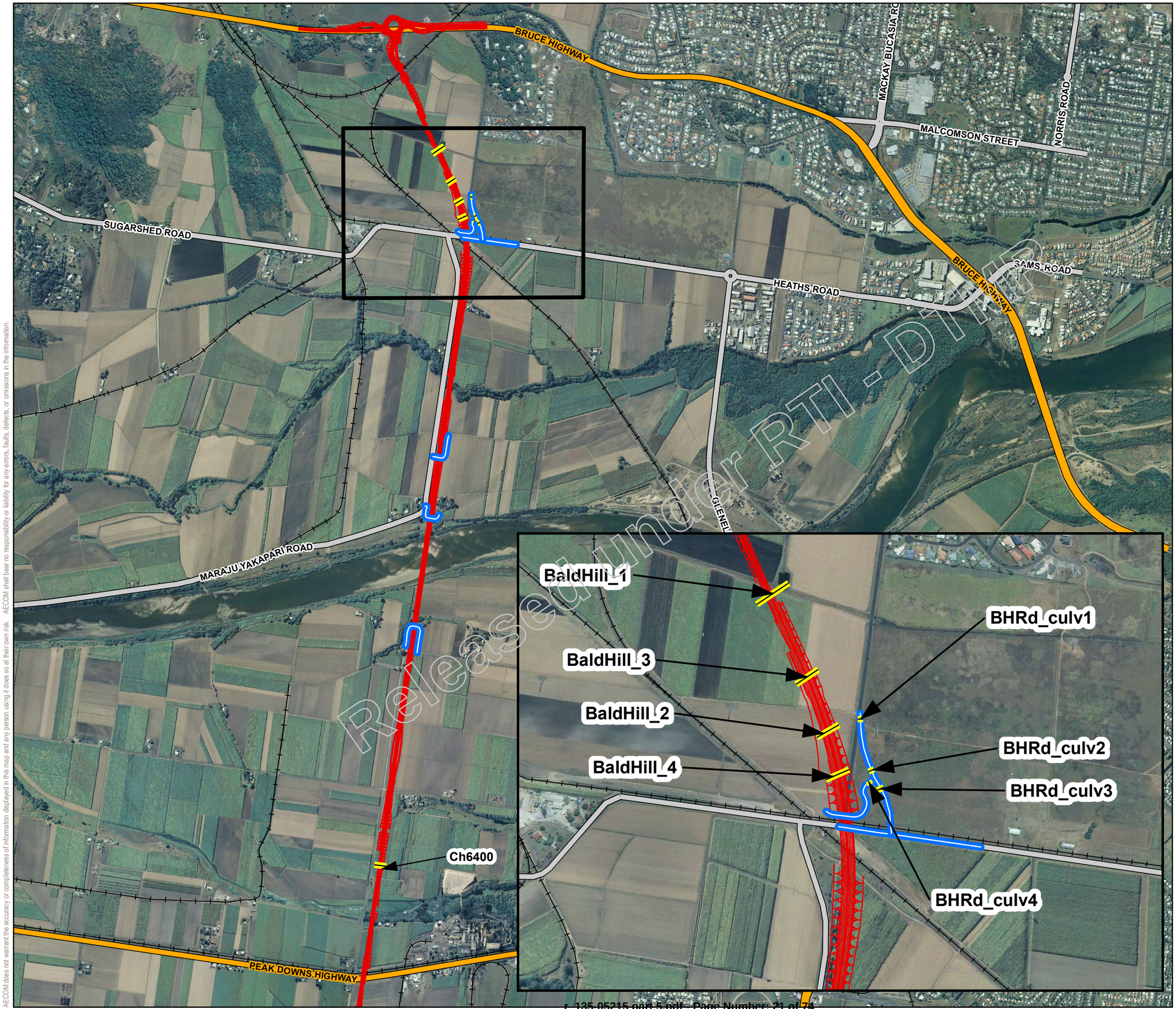


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# Mackay Ring Road - Detailed Design

## Culvert Structures

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**Figure 7**

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## 4.4 Overpasses and Local Access Roads

### 4.4.1 Overpasses

The Ring Road will include construction of two overpasses, one approximately 460 m north of the Lagoon Creek Bridge to maintain connectivity between Gibson and Nillsons Road, with the other over the North Coast rail line and Sugarshed Road.

The overpass near Lagoon Creek has been represented in the model as a layered flow constriction and the modelling indicates flow will only occur through this overpass during the 0.05 % AEP event due to overflow from Lagoon Creek. The soffit level will be constructed well above the 0.05% AEP peak flood level.

The North Coast Rail overpass has been represented in the hydraulic model as a gap in the embankment.

Under existing conditions the catchment to the west of Fursden Road drains to the east through the culvert (black line in Figure 8) in smaller events and over the road in larger events. Water is then conveyed northeast through the culvert beneath the railway line and Sugarshed Road (black line in Figure 8) in smaller events. In larger events Fursden Road is overtopped for a significant distance to the south, with water flowing to the southeast.

Construction of the Ring Road embankment and access road as shown in Figure 8, limits the overland flow to the southeast. Preliminary modelling indicated this may have an impact on flood levels both at the railway line and extending west of Fursden Road. Therefore the area between the access road beneath the southern overpass and the rail line, will be graded to a maximum of 10.9 m AHD to allow flow to the southeast to occur, once the capacity of the North Coast Rail and Sugarshed Road culverts is exceeded. This flowpath is indicated by the blue line Figure 8.

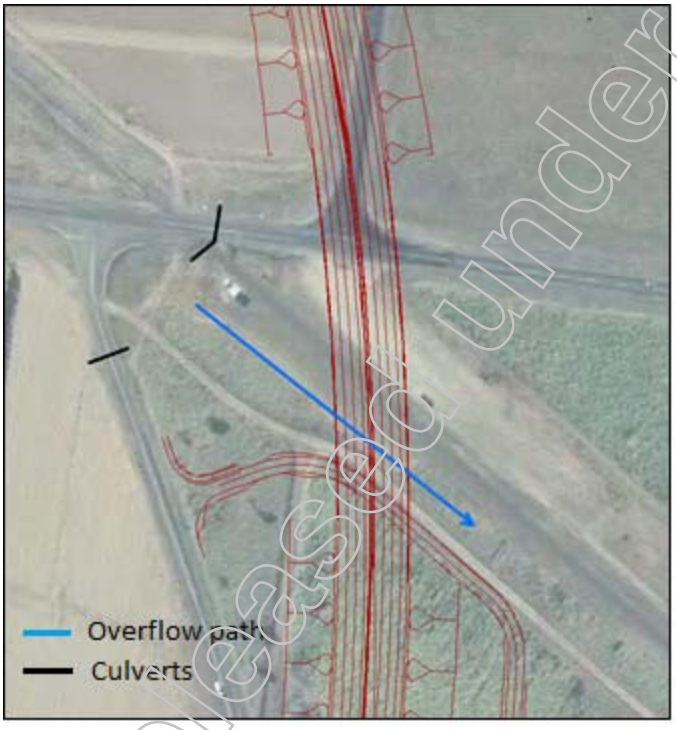


**Figure 8 Drainage through North Coast Rail overpass**

### 4.4.2 Local Access Roads

A number of access roads will be constructed which pass through bridge openings in the embankment, to maintain access for farms adjacent to the Ring Road alignment. These roads are to be located at the overpass north of Lagoon Creek, at the southern and northern abutments of the Pioneer River Bridge, through the Fursden Overflow Bridge, and at the North Coast Rail overpass. These access roads have been represented as z-shapes in the TUFLOW hydraulic model and are shown in Figure 9.

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Bald Hills Road will also be raised in the vicinity of the Sugarshed Road intersection, as part of the Ring Road construction, to provide 2% AEP flood immunity for this section. A number of culvert structures will be constructed as part of this upgrade and Sugarshed Road will also be raised. There is also a 5m wide table drain that flows from west to east, south of the northern highway abutment. Discharge from the rail line and Sugarshed Road culvert west of the Ring Road, discharges through this drain to the culverts beneath the revised Bald Hills alignment. Table drains adjacent to Bald Hills Road then drain along Bald Hills Road to the north. These table drains have been represented in the model with a combination of 1D components and z-shapes. The extent of these works is shown in Figure 10.

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Metres

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Data sources:

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# Mackay Ring Road - Detailed Design

## Overpasses and Access Roads

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**Figure 9**

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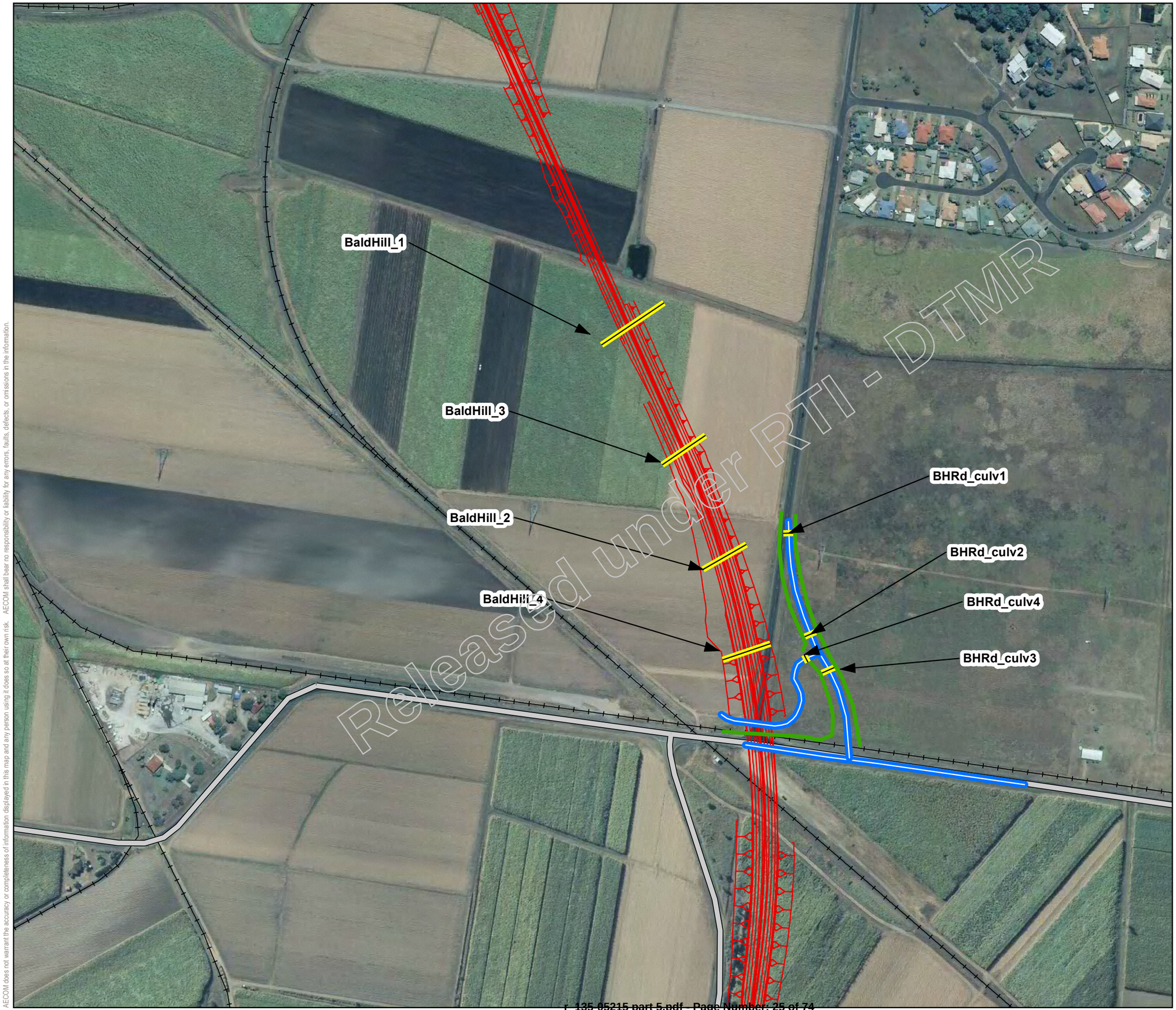


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- Alignment
- Highway
- Main Road
- Railway Line
- Culverts
- Bald Hills Road Upgrade
- Table Drains

N

DATUM GDA 1994, PROJECTION MGA ZONE 55

0 50 100 200

Metres

1:4,000 (when printed at A3)

Data sources:

Imagery - QLD Gov 2009
Roads, Rail, Watercourse - QLD Gov 2015

# Mackay Ring Road - Detailed Design

## Bald Hills - Sugarshed Road Intersection

| | |
|---|---|
| PROJECT ID | 60342905 |
| CREATED BY | astorquiaa |
| LAST MODIFIED | 18-Aug-2016 |
| VERSION | v1 |

**Figure 10**

A3 size

Filename: V:\603X\60342905 MRR\4. Tech Work Area\4.9 GIS\07_Working\Report Figures\G60342905_010_BaldHillsSugarshedRdIntersection_20160215_v2_A3.mxd

r_135-05215 part 5.pdf - Page Number: 25 of 74

# 5.0 Ring Road Flood Impacts

## 5.1 Environmental Setting

The Ring Road alignment traverses predominantly cane farm land with various farm houses and sheds in the vicinity of the alignment. The northern section of the road near the Bald Hills area also crosses the North Coast Rail line as well as a number of local roads, including Bald Hills and Sugarshed Road.

Due to the widespread flooding from the Pioneer River and other watercourses in the area, the Ring Road alignment may potentially impact the flood levels at any of these features. One of the objectives of this hydraulic assessment was to quantify these flood level impacts and limit the impact on the rail line formation through refinement of the Ring Road design. The following section details the flooding impacts due to construction of the Ring Road.

## 5.2 Flood Impact on Properties

Under existing conditions large areas of cane land and a number of house and shed structures are impacted by flooding. Floor level survey of all structures affected during the 1% AEP event was undertaken to quantify the existing flood impact at these locations.

To determine the flooding impact due to the Ring Road at these properties, a range of design events were simulated using the Developed Case model. The Developed Case flood levels were extracted at the structures locations and these were compared to the surveyed floor levels and Base Case flood levels. Table 9 shows the flood levels for all events at affected structures.

Table 8 shows the change in flood level at affected properties for all events. This table also indicates whether the flood level at the property is higher than the floor level for both the Base and Developed Cases. Grey highlights indicate flood level increases less than 0.02 m with darker grey indicating increases between 0.01 and 0.02 m. Yellow highlights indicate flood level increases between 0.02 m and 0.1 m and orange indicates flood level increase greater than 0.1 m.

To summarise:

- For the 2% AEP and more frequent events, flood levels increases are less than 0.02 m at all structures. The flood level is increased by between 0.01 m and 0.02 m at eleven structures. All of these structures are currently impacted above floor level with above floor inundation depths shown in Table 8. No additional structures are inundated above floor level due to the Ring Road construction.
- For the 1% AEP event, flood level increases are between 0.01 m and 0.02 m for twelve structures, all of which are currently impacted above floor level in the Base Case and above floor inundation depths are shown in the table. Flood level increases greater 0.02 m impact three properties.
    - Of these three structures with increases greater than 0.02 m, two locations are currently inundated above floor level.
        - Structure 234037, a pump shed currently inundated by 1.6 m, has the flood level increased by 0.04 m
        - Structure 66695, a steel shed currently inundated by 1.1 m has the flood level is increased by 0.03 m.
    - For one of these structures (234014 - pump shed) the flood level has increased by 0.1 m which has resulted in a flood level approximately 0.01 m above floor level.
- Property locations and the afflux for the 1% AEP event are shown in Figure 11. For the 0.2% AEP events, flood level increases are between 0.04 and 0.1 m at 15 locations, with four location impacted by flood level increase up to 0.5 m. All of these structures are currently inundated above floor level in the Base Case.

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**Table 8 Flood Impact at Properties**

| Point No. | Easting | Northing | Description | 5% AEP | | | 2% AEP | | | | 1% AEP | | | | 0.2% AEP | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Flood above floor level | | | Flood above floor level | | | | Flood above floor level | | | | Flood above floor level | | |
| | | | | Change in Flood Level (m) | Base | Developed | Change in Flood Level (m) | Base | Developed | Depth Above Floor (m) | Change in Flood Level (m) | Base | Developed | Depth Above Floor (m) | Change in Flood Level (m) | Base | Developed | Depth Above Floor (m) |

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| | |
|---|---|
| 0.01 | Afflux <10mm |
| 0.02 | 10mm< Afflux <20 mm |
| 0.03 | 20mm > Afflux > 100mm |
| 0.1 | Afflux > 100mm |

**Table 9 Flood Level at Properties**

| Point No. | Easting | Northing | Description | Elevation (m AHD) | Existing Flood Level (m AHD) | | | | | | Ring Road Flood Level (m AHD) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 20% AEP | 10% AEP | 5% AEP | 2% AEP | 1% AEP | 0.2% AEP | 20% AEP | 10% AEP | 5% AEP | 2% AEP | 1% AEP | 0.2% AEP |

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Figure 11 shows the flood level impacts for the 1% AEP event, from Fursden Creek to the south. The results indicate the maximum increase in flood level occurs along the Lagoon Creek waterway, with a maximum increase of approximately 0.11 m. The peak flood level also shows minor increases across the area upstream of the Pioneer River, Fursden Overflow and Fursden Creek Bridges, with a maximum increase in flood level of less than 0.05 m.

Afflux plots for other design events are included in Appendix D. The afflux impacts are equivalent to or less than those derived during the Business Case design

## 5.3 Flood Impacts North of Fursden Creek

The area north of Fursden Creek is part of the Goosepond Creek catchment. The main feature susceptible to flooding in this area is the North Coast Rail line. The Base Case hydraulic modelling indicated the rail line has 1% AEP flood immunity in this area. Previous sections of this report have detailed the changes to the catchment hydrology due to the road alignment and also detailed the drainage structures which have been incorporated into the Ring Road design to manage the flood impacts in this area and in particular, to minimise the flooding impacts on the rail line.

Figure 12 shows the change in the 1% AEP flood level with the Ring Road constructed. This figure indicates that upstream of the Ring Road alignment the flood level is generally increased by up to 0.12 m between the Ring Road and rail line, by up to 0.07 m upstream of the rail line and by up to 0.06 m south of Sugarshed Road. This figure also shows a minor increase in flood extent, with extents increased by approximately 20 – 40 m in some areas.

The upgrade of the Bald Hills Road intersection downstream of the alignment has also resulted in a minor increase in flood levels downstream of the Ring Road, however this is limited to the area around the Bald Hills intersection. The flood level is also decreased in several areas downstream of the Ring Road alignment. Afflux plots for other design events are included in Appendix D.

It is important to accurately quantify the impacts on the North Coast rail line and Figure 12 includes an inset figure which compares the 1% AEP flood level along the rail line from North to South. This figure includes the top of rail and formation levels taken from field survey and LiDAR, and shows that the flood level is increased by a maximum of 0.7 m north of the Sugarshed Road crossing, and 0.6 m to the south.

The 1% AEP afflux impacts at the rail line are less than those derived during the Business Case and show that the rail line is not overtopped and the formation level is only exceeded for a 25 m section immediately north of Sugarshed Road. Timeseries of 1% AEP flood levels at this location indicate the formation level is exceeded for approximately 1.5 hours by a maximum of 0.04 m. Similar plots are included in Appendix E for the 2% and 5% AEP Events.

The flood levels upstream of the rail line are shown in Table 10 for the 1%, 2% and 5% AEP events, which show that the flood levels remains below the formation level for events less than the 1% AEP.

**Table 10 Flood Levels at Rail Line**

| Location | Top of Rail (AHD) | Formation Level (m AHD) | 1% AEP Flood Level (m AHD | | 2% AEP Flood Level (m AHD) | | 5% AEP Flood Level (m AHD) | |
|---|---|---|---|---|---|---|---|---|
| | | | Ring Road | Existing | Ring Road | Existing | Ring Road | Existing |
| 1 | 11.77 | 11.6 | 11.29 | 11.25 | 11.19 | 11.17 | 11.14 | 11.13 |
| 2 | 11.66 | 11.45 | 11.28 | 11.24 | 11.19 | 11.16 | 11.13 | 11.11 |
| 3 | 11.65 | 11.43 | 11.28 | 11.24 | 11.19 | 11.16 | 11.13 | 11.11 |
| 4 | 11.53 | 11.38 | 11.28 | 11.24 | 11.18 | 11.15 | 11.12 | 11.10 |
| 5 | 11.50 | 11.30 | 11.27 | 11.22 | 11.17 | 11.13 | 11.11 | 11.08 |
| 6 | 11.55 | 11.35 | 11.26 | 11.21 | 11.16 | 11.11 | 11.09 | 11.06 |
| 7 | 11.40 | 11.20 | 11.24 | 11.17 | 11.13 | 11.05 | 11.03 | 10.94 |
| 8 | 11.39 | 11.15 | 11.07 | 11.01 | 11.04 | 11.00 | 11.03 | 11.00 |

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A3 size

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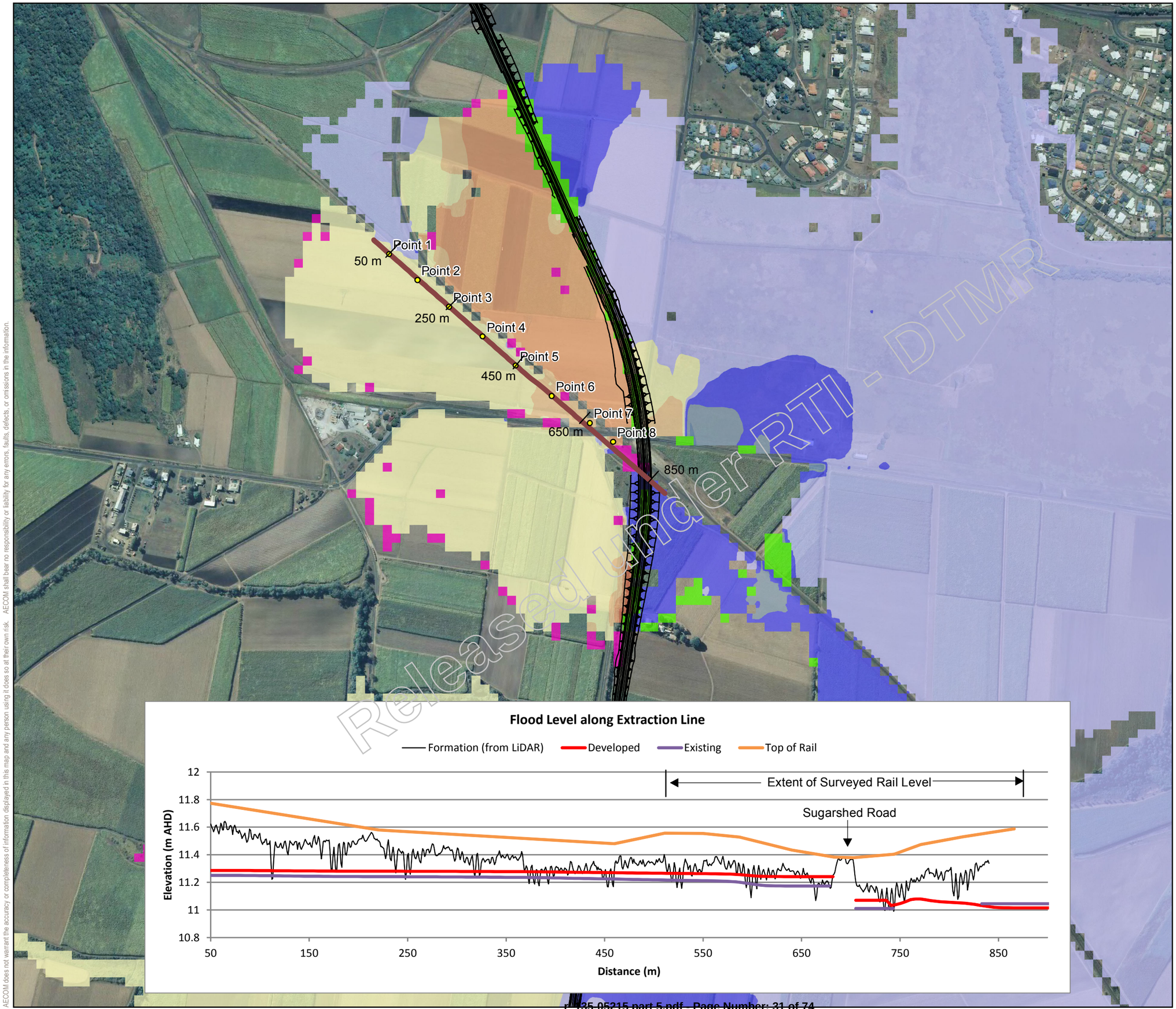





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- Extract QR Flood Levels
- QR Data Extraction Points
- Alignment
- Was Wet Now Dry
- Was Dry Now Wet

**Afflux**

(m)

- -4 - -0.3
- -0.3 - -0.1
- -0.1 - -0.05
- -0.05 - -0.01
- -0.01 - 0.01
- 0.01 - 0.05
- 0.05 - 0.1
- 0.11 - 0.15
- 0.15 - 0.2
- 0.2 - 0.3
- 0.3 - 0.4

N

DATUM GDA 1994, PROJECTION MGA ZONE 55

0 100 200 400

Metres

1:8,000 (when printed at A3)

Data sources:

Imagery - ESRI 2015
Afflux - AECOM 2015

# Mackay Ring Road - Detailed Design

## Bald Hills Flood Impacts
## 1% AEP Event

| | |
|---|---|
| PROJECT ID | 60342905 |
| CREATED BY | astorquiaa |
| LAST MODIFIED | 23-Aug-2016 |
| VERSION | v1 |

**Figure 12**

A3 size

Filename: V:\603X\60342905 MRR\4. Tech Work Area\4.9 GIS\07_Working\Report Figures\G60342905_012_afflux_100y_MRRB10BaldHills_20160818_v1_A3_annotated_figure.mxd

r_135-05215 part 5.pdf - Page Number: 31 of 74

## 5.4 Additional Road Runoff

The construction of the Ring Road will result in an impervious road surface where there were previously cane fields. This impervious surface has the potential to increase runoff locally from the road surface. To handle this localised increase in runoff, table drains will be constructed at relevant locations adjacent to the road alignment to collect this runoff from the road surface, with sufficient capacity to direct this flow to the nearest drainage path.

## 5.5 Time of Inundation for Cane Farms

The impact of the time of inundation for the cane farms in the Bald Hills Area has been assessed. Table 10 shows the increase in inundation times at four locations as shown in Figure 17. The time of submergence for the 20% and 1% AEP events have been tabulated with submergence assumed when the depth exceeds 0.15m. The results indicate a minor increase in inundation times with times of inundation increased by up to 3 hours in the 20% AEP event and up to 4 hours in the 1% AEP event at location 1. Figures showing the timeseries of flood depths and changes in submergence times at these locations are included in Figures 13-16.

**Table 11 Cane Farm Inundation Times**

| | Time of Submergence > 0.15m (hours) | | | |
|---|---|---|---|---|
| | 20% AEP | | 1% AEP | |
| | Base Case | Ring Road | Base Case | Ring Road |
| Point 1 | 26.8 | 29.8 | 28 | 32 |
| Point 2 | 23.3 | 23.5 | 24.3 | 25 |
| Point 3 | 21.3 | 22.8 | 23.5 | 24.8 |
| Point 4 | 8 | 7.3 | 23 | 25.8 |

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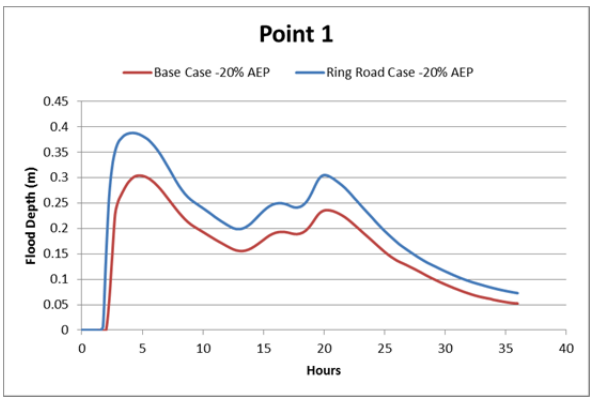


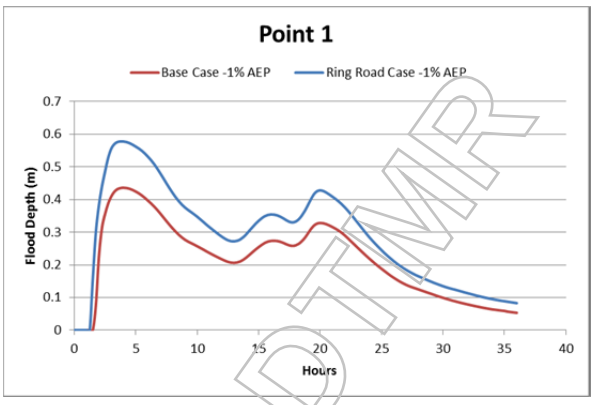
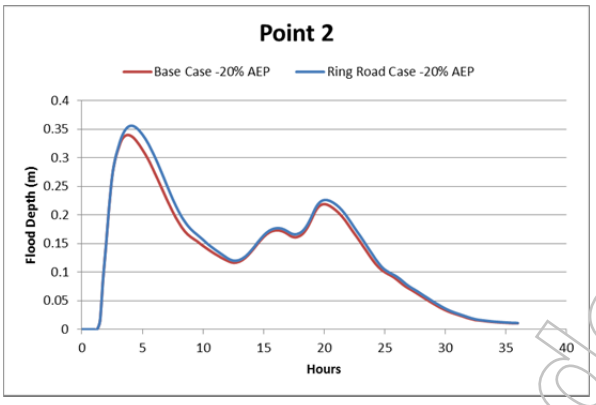




**Figure 13 Timeseries of Inundation for 20% and 1% AEP events**



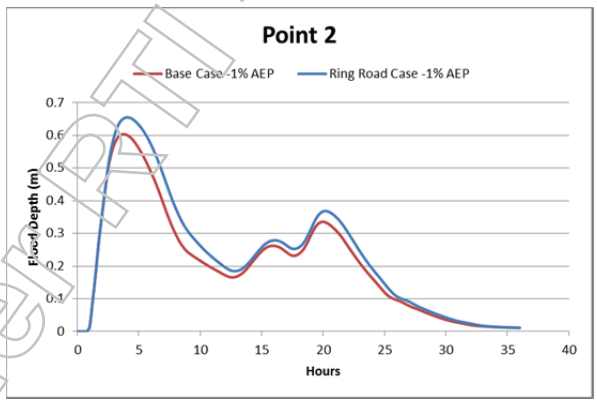
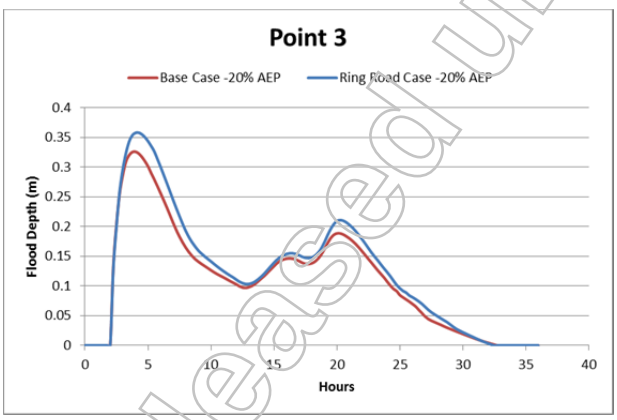




**Figure 14 Timeseries of Inundation for 20% and 1% AEP events**



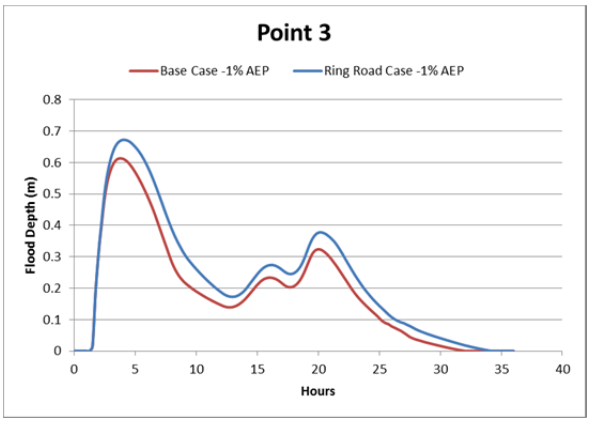




**Figure 15 Timeseries of Inundation for 20% and 1% AEP events**

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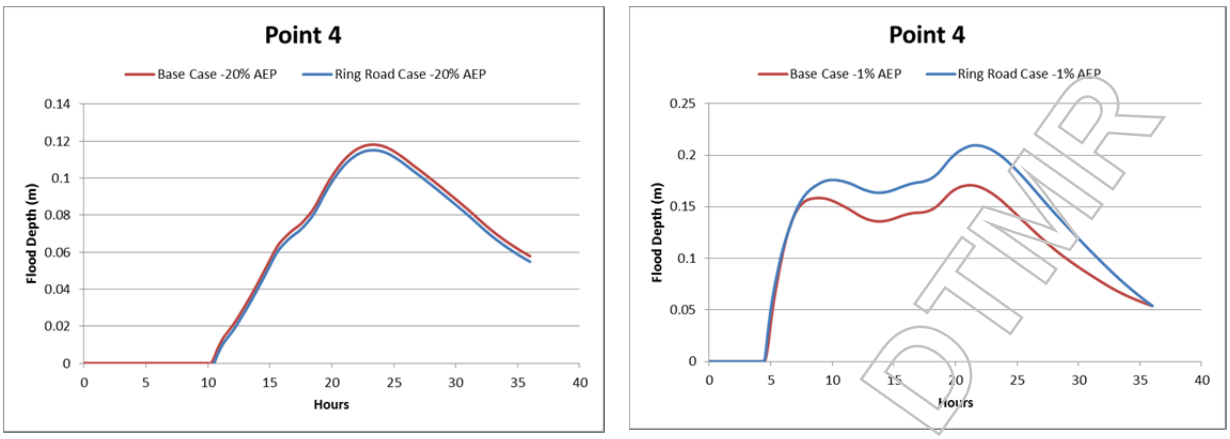


**Figure 16 Timeseries of Inundation for 20% and 1% AEP events**

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# 6.0 Bridge Scour Assessment

To undertake the assessment of scour at the proposed bridge location the hydraulic model results were used to identify the relevant parameters for design. The hydraulic model results were assessed for all events to determine the event which causes the peak velocity, including the 0.05 % AEP event which is regarded as the extreme flood event that should be considered for the evaluation of bridge foundations (Bridge Scour Manual, TMR, March 2013).

The design procedures and calculations set out in the Bridge Scour Manual have been used to assess the potential scour for the proposed bridges. The scour depth calculations were undertaken using equations derived from experimental methods and field measurements based on a series of assumptions and therefore they should only be regarded as estimates.

Bridge scour is a complex problem and although much laboratory research has been carried out on scour at particular types of structures, such as bridge piers, there are still significant gaps in knowledge and general understanding. Given the difficulty in accurately measuring scour during flood events, it is difficult to verify predictions of scour from small scale laboratory tests and it is likely that the resulting equations over-simplify the complex nature of scour.

As a result engineering judgement should be applied to interpret the individual circumstances of the bridge taking into consideration the results of detailed geotechnical investigation and the proposed construction method.

The potential scour depths for a range of design events has been assessed and the derivation of these scour depths is described below.

## 6.1 Assessment Parameters

The following data was available to inform the estimation of scour depths for the Bridges:

- Results for the 0.05 %, 0.2% and 1% AEP event for water depths, flow discharges and velocities at the bridge structures

Bridge layouts for all structures. Plans are detailed in Appendix B and summarised in The head loss and afflux for each of the bridges was verified using HEC-RAS with TUFLOW model parameters adjusted ensure a reasonable match between the two model approaches.

Verification to HEC-RAS by varying the blockage factors in the TUFLOW model was particularly important for Lagoon Creek given the 25m length of the bridge is similar to the resolution of the hydraulic model and results were particularly sensitive to the factor used. Results were generally within 0.01m.

Given the high velocities and skew of the Pioneer River, the model was considered a reasonable match to HEC-RAS when results where within 0.01 m for the Pioneer River.

The TUFLOW results for the Fursden Creek Bridge tended to over predict the head loss compared to HEC-RAS, however the 2D interaction between Fursden Creek and Fursden Creek overflow made it difficult to justify altering the model setup further for these structures.

- Table 5
- Digital terrain model for the area (including LiDAR data as well as topographical survey, where available).

## 6.2 Geotechnical Parameters

The soil parameters used for the scour assessment were taken from the preliminary investigation and for the purposes of the assessment the key parameters adopted are shown in Table 12.

**Table 12 Soil parameters**

| | Particle Size (mm) |
|---|---|
| D50 | 0.5 |
| D90 | 1 |

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## 6.3 Scour Assessment

Total scour at bridge crossings is formed by three primary components:

- Contraction scour at the bridge
- Local scour at piers and abutments
- Long-term degradation of the river bed.

### 6.3.1 Contraction Scour

Contraction scour at infrastructure occurs when the flow area of a stream is reduced, either by a bridge or when overbank flow is confined by roadway embankments. This reduction results in an increase in average velocity and bed shear stress which increases erosive forces and lowers the natural bed elevation.

A modified version of Laursen's 1960 equation was adopted for the assessment and the results are summarised in Table 13.

### 6.3.2 Local Scour at Piers and Abutments

Local scour involves removal of material from around piers, abutments, spurs, and embankments. It is caused by an acceleration of flow and resulting vortices induced by obstructions to the flow.

#### 6.3.2.1 Pier Scour

The estimation of pier scour depth was based on the following methods:

- Colorado State University (CSU)
- HEC-18 Equations
- Froehlich Design Equation.

The results of the assessment are summarised in Table 13. The Pioneer River Bridge includes values for the overbank areas as the velocity is reduced in this area compared to the river channel.

The scour depth may vary from pier to pier but the calculation undertaken seeks to identify the worst possible scour depth and therefore provides the most conservative results to be used for the rest of the piers.

Scour depth estimates for piers are generalised and aim to present the worst case scenario based on predicted flow velocities, water depth and angle of attack. For the Pioneer River the pier scour calculation reference suggests a maximum pier scour depth of 2.4 times the pier width for round nose piers aligned with the flow. Given the presence of such high stream velocities and depth of foundations on similar bridges downstream, this limitation has not been considered in this assessment.

#### 6.3.2.2 Abutment Scour

The estimation of localised abutment scour depth was based on the following methods:

- Froehlich Abutment Scour Equation
- HIRE Abutment Scour Equation.

Both of these methods are recommended in the Bridge Scour Manual, TMR, March 2013. However, it is noted that these methods were derived empirically with high uncertainty and a known tendency to over predict the abutment scour depth. Froehlich equation is used when the ratio of length of abutment normal to flow and upstream depth of flow at the toe of embankment is less than 25 as recommended in the *HEC-RAS River System Analysis System Hydraulic Reference Manual Version 4.0, Chapter 10 Estimating Scour at Bridges, US Army Corps of Engineers* (2008)

A spill-through arrangement was assumed for the purposes of the calculation for the abutments of both bridges. The results of the assessment are summarised in Table 13.

## 6.4 Total Scour

The total potential scour depth estimated for the bridge structures is summarised in in Table 13. The Left abutment is looking downstream and the total scour takes into account local as well as contraction scour but

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makes no allowance for long-term degradation of river bed. This is however expected to be relatively small in comparison.

**Table 13 Potential Scour Depths**

| Bridge | Total Pier Scour (m) | Total Abutment Scour - Left | Total Abutment Scour - Right | Contraction Scour |
|---|---|---|---|---|
| Lagoon Creek | | | | |
| 0.05% AEP | - | 20.5 | 20.5 | 11.6 |
| 0.2% AEP | - | 13 | 13 | 6.2 |
| 1% AEP | - | 6.5 | 6.5 | 2 |
| Pioneer River Channel | | | | |
| 0.05% AEP | 11.8 | - | - | 1.8 |
| 0.2% AEP | 10.4 | - | - | 1 |
| 1% AEP | 9.3 | - | - | 0.9 |
| Pioneer River – Overbank | | | | |
| 0.05% AEP | 8.9 | 13.2 | 12.8 | 1.8 |
| 0.2% AEP | 7.3 | 11 | 10.6 | 1 |
| 1% AEP | 6.6 | 7 | 7 | 0.9 |
| Fursden Creek Overflow | | | | |
| 0.05% AEP | 7.8* | 13.3 | 13.3 | 2.9 |
| 0.2% AEP | 6.9 | 10.2 | 10.3 | 2.8 |
| 1% AEP | 5.8 | 9.6 | 9.6 | 1.5 |
| Fursden Creek | | | | |
| 0.05% AEP | 4.3 | 13.7 | 13.7 | 2.4 |
| 0.2% AEP | 4.2 | 11.4 | 11.4 | 2.3 |
| 1% AEP | 4.1 | 9.6 | 9.6 | 2.2 |

## 6.5 Comments on Potential Scour Depths

Calculation of potential scour depths detailed above, were undertaken using equations derived from experimental methods and field measurements based on a series of assumptions. These calculations do not take into account the increase in waterway area or reduction in stream velocity that is likely to occur as scour holes evolve.

The depths above are considered a starting point for the determination of actual scour depths that may occur. Total potential scour depths in Table 13 have been calculated assuming no scour protection and have not taken into account the nature or composition of the soil profile and its ability to resist scouring.

## 6.6 Scour Protection and Effect of Geotechnical Profile on Scour Depths

The soil profile at the bridge locations varies in composition and stiffness. The geotechnical parameters at each of the abutment and pier locations have been assessed as part of the bridge design process and the potential scour depths detailed above have been assessed against this soil profile, to determine likely scour depths for structural design. The potential scour depths in this report have been rationalised by the bridge design and geotechnical team through this process. These rationalised scour depths have been used to design appropriate scour protection measures where necessary, and to incorporate the likely scour depths in the bridge design.

For details of this rationalisation process and details of scour depths used in the bridge design, refer to the Bridge Design Report.

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Appendix A

# Base Case Flood Depth and Velocity

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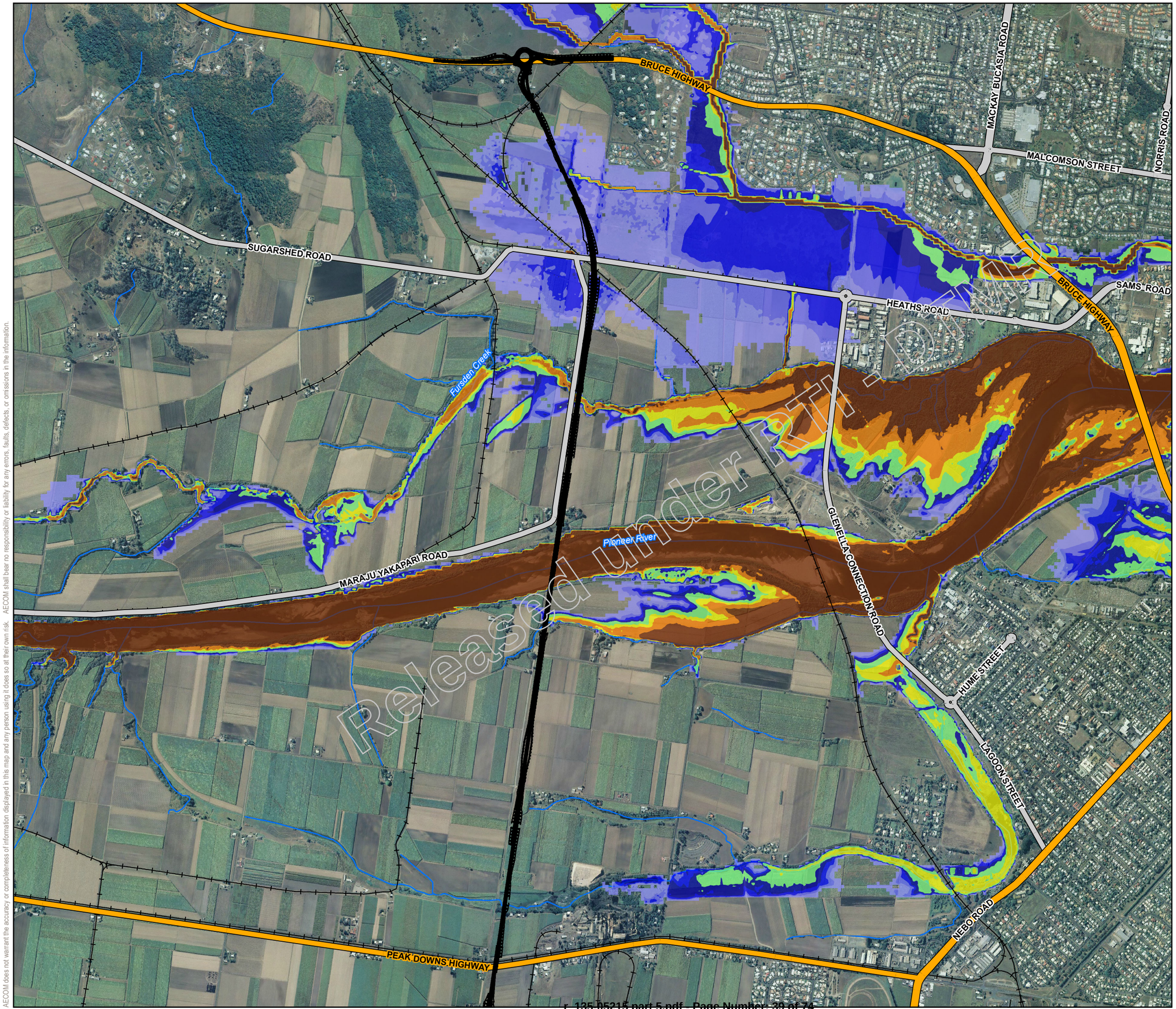


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- Railway Line
- Watercourses

**Maximum Flood Depth (m)**

- 0 - 0.3
- 0.3 - 0.5
- 0.5 - 0.75
- 0.75 - 1
- 1 - 1.5
- 1.5 - 2
- 2 - 3
- > 3

N

DATUM GDA 1994, PROJECTION MGA ZONE 55

0 250 500 1,000

Metres

1:22,000 (when printed at A3)

Data sources:

Imagery - QLD Gov 2009
Roads, Rail, Watercourse - QLD Gov 2015

# Mackay Ring Road - Detailed Design

## Existing Case
## 20% AEP Event
## Maximum Water Depth

| | |
|---|---|
| PROJECT ID | 60342905 |
| CREATED BY | mathieu-burrym |
| LAST MODIFIED | 16-Aug-2016 |
| VERSION | v3 |

**Appendix A1**

A3 size

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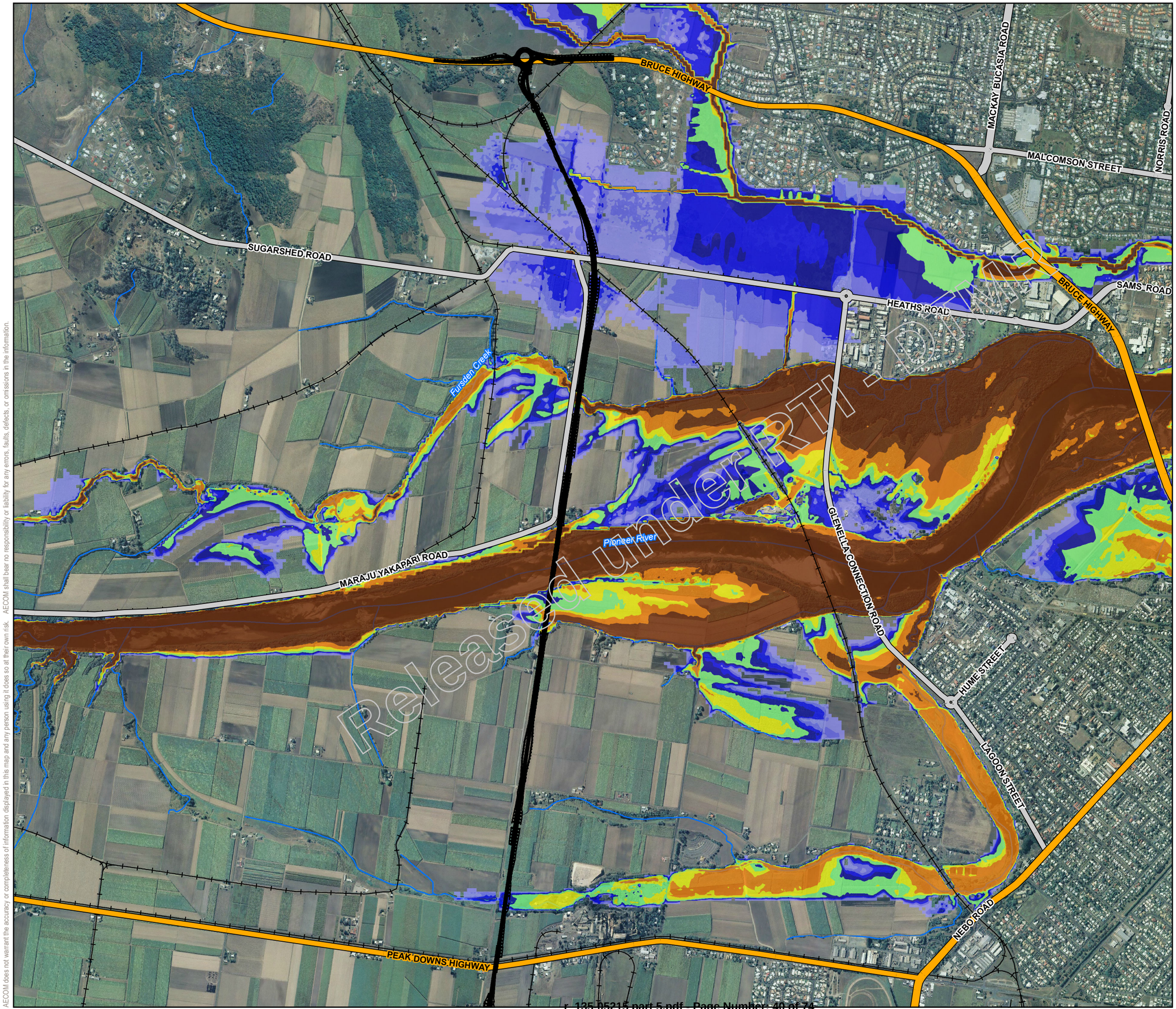


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- Alignment
- Highway
- Main Road
- Railway Line
- Watercourses

**Maximum Flood Depth (m)**

- 0 - 0.3
- 0.3 - 0.5
- 0.5 - 0.75
- 0.75 - 1
- 1 - 1.5
- 1.5 - 2
- 2 - 3
- > 3

N

DATUM GDA 1994, PROJECTION MGA ZONE 55

0 250 500 1,000

Metres

1:22,000 (when printed at A3)

Data sources:

Imagery - QLD Gov 2009
Roads, Rail, Watercourse - QLD Gov 2015

# Mackay Ring Road - Detailed Design

## Existing Case
## 10% AEP Event
## Maximum Water Depth

| | |
|---|---|
| PROJECT ID | 60342905 |
| CREATED BY | mathieu-burrym |
| LAST MODIFIED | 16-Aug-2016 |
| VERSION | v3 |

**Appendix A2**

A3 size

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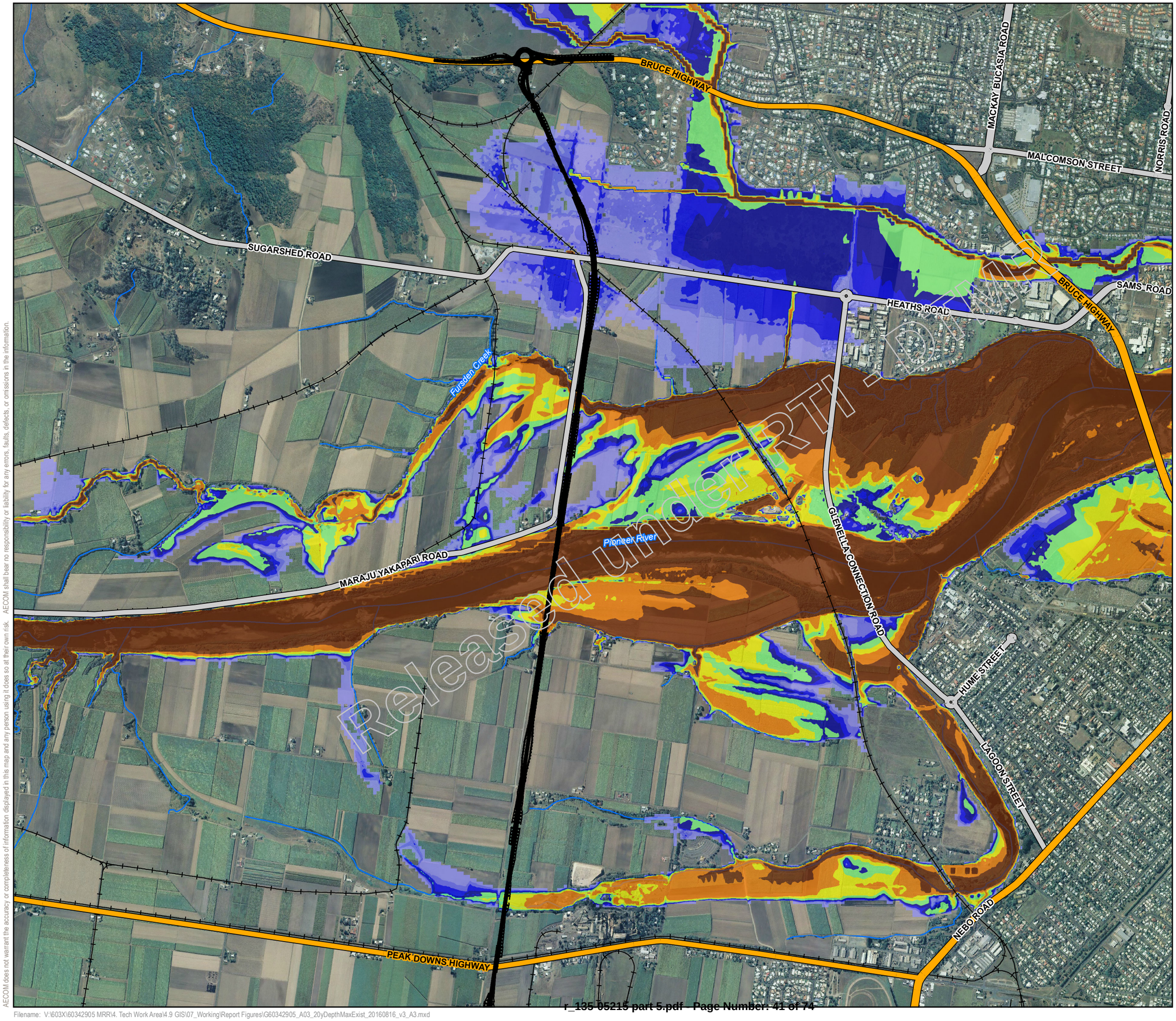
r_135-05215 part 5.pdf Page Number: 40 of 74

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- Alignment
- Highway
- Main Road
- Railway Line
- Watercourses

**Maximum Flood Depth (m)**

- 0 - 0.3
- 0.3 - 0.5
- 0.5 - 0.75
- 0.75 - 1
- 1 - 1.5
- 1.5 - 2
- 2 - 3
- > 3

N

DATUM GDA 1994, PROJECTION MGA ZONE 55

0 250 500 1,000

Metres

1:22,000 (when printed at A3)

Data sources:

Imagery - QLD Gov 2009
Roads, Rail, Watercourse - QLD Gov 2015

# Mackay Ring Road - Detailed Design

## Existing Case
## 5% AEP Event
## Maximum Water Depth

| | |
|---|---|
| PROJECT ID | 60342905 |
| CREATED BY | mathieu-burrym |
| LAST MODIFIED | 16-Aug-2016 |
| VERSION | v3 |

**Appendix A3**

A3 size

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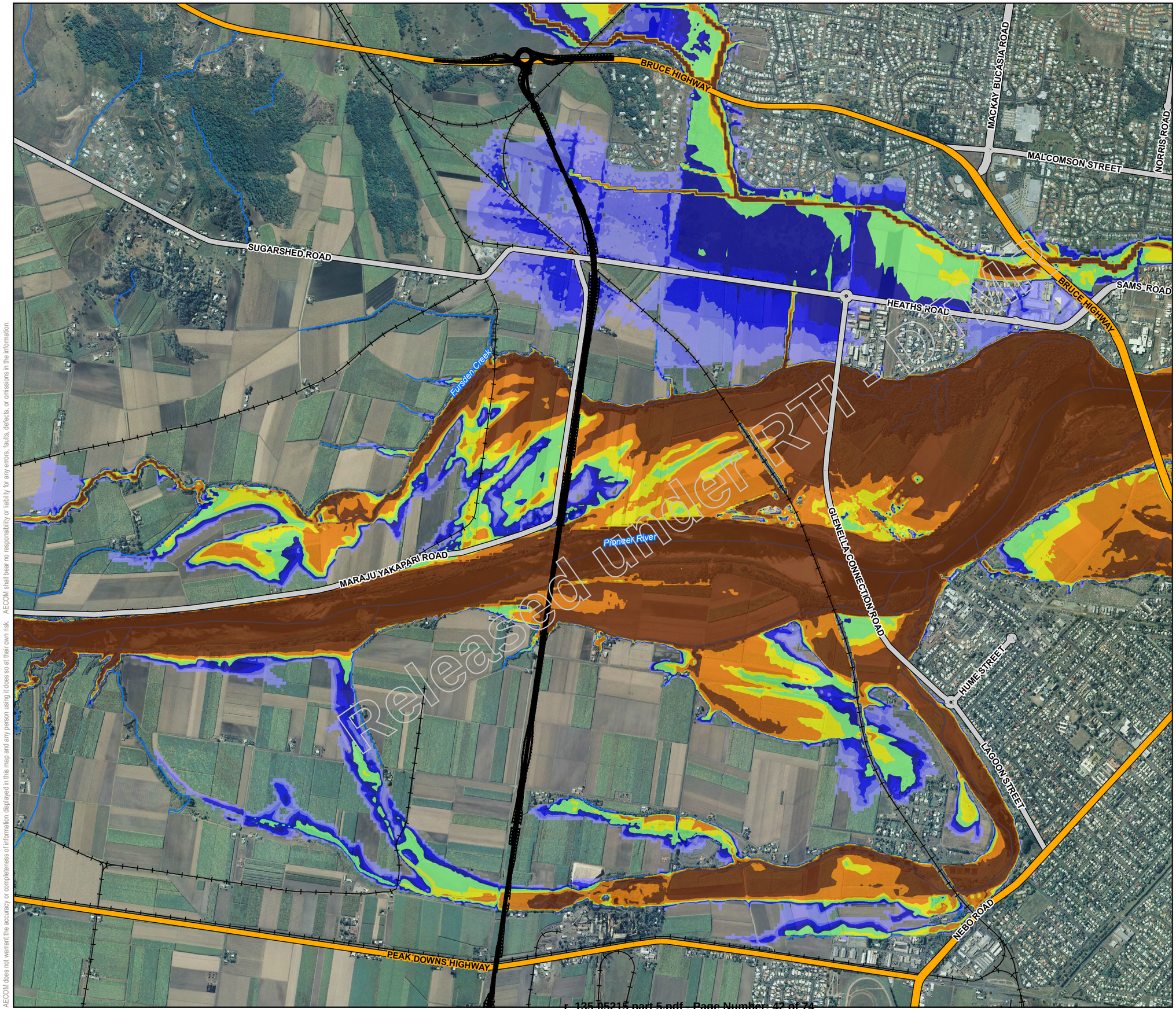
r_135-05215 part 5.pdf Page Number: 41 of 74

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- Alignment
- Highway
- Main Road
- Railway Line
- Watercourses

**Maximum Flood Depth (m)**

- 0 - 0.3
- 0.3 - 0.5
- 0.5 - 0.75
- 0.75 - 1
- 1 - 1.5
- 1.5 - 2
- 2 - 3
- > 3

N

DATUM GDA 1994, PROJECTION MGA ZONE 55

0 250 500 1,000

Metres

1:22,000 (when printed at A3)

Data sources:

Imagery - QLD Gov 2009
Roads, Rail, Watercourse - QLD Gov 2015

# Mackay Ring Road - Detailed Design

## Existing Case
## 2% AEP Event
## Maximum Water Depth

| | |
|---|---|
| PROJECT ID | 60342905 |
| CREATED BY | mathieu-burrym |
| LAST MODIFIED | 16-Aug-2016 |
| VERSION | v3 |

**Appendix A4**

A3 size

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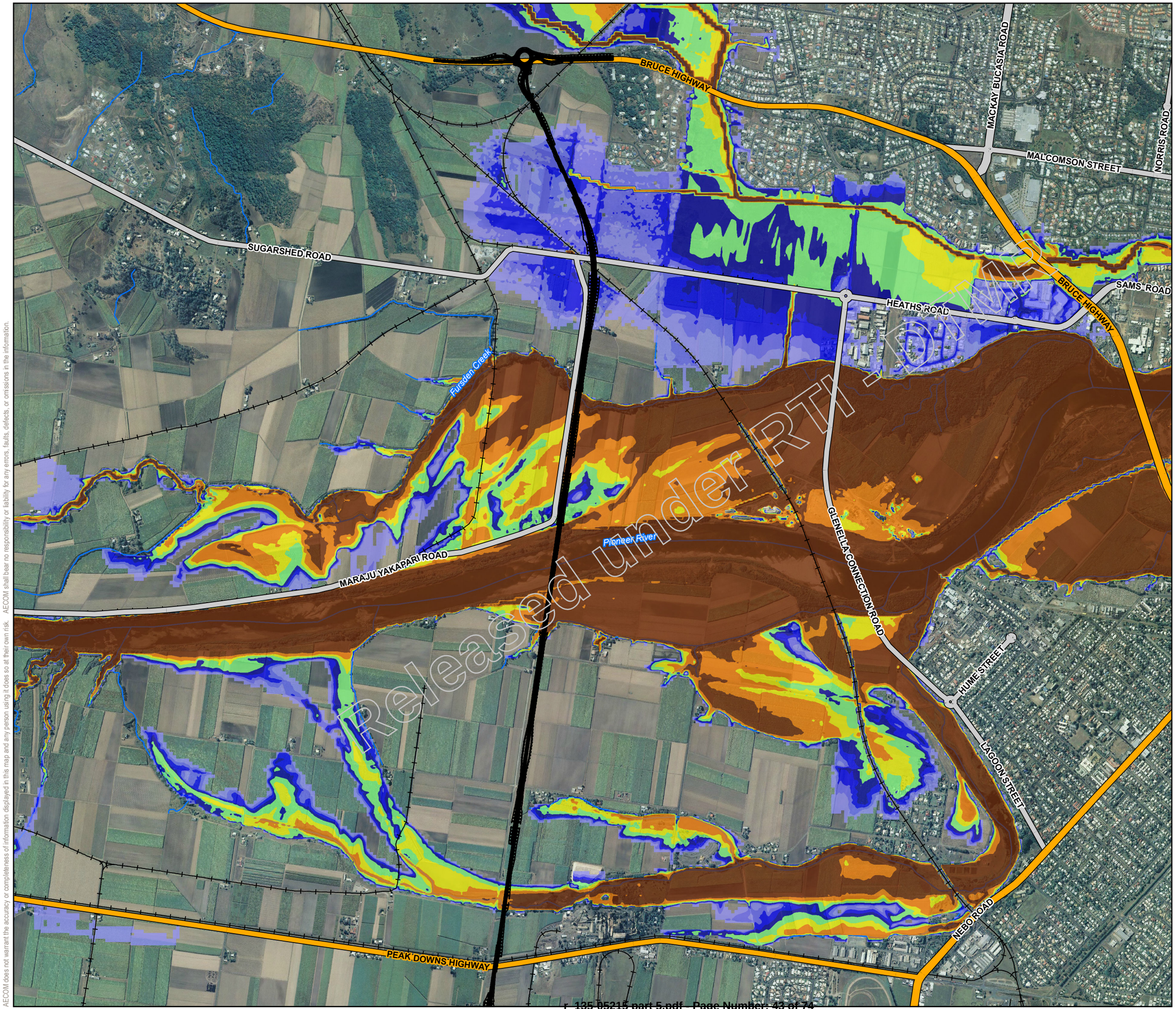


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- Alignment
- Highway
- Main Road
- Railway Line
- Watercourses

**Maximum Flood Depth (m)**

- 0 - 0.3
- 0.3 - 0.5
- 0.5 - 0.75
- 0.75 - 1
- 1 - 1.5
- 1.5 - 2
- 2 - 3
- > 3

N

DATUM GDA 1994, PROJECTION MGA ZONE 55

0 250 500 1,000

Metres

1:22,000 (when printed at A3)

Data sources:

Imagery - QLD Gov 2009
Roads, Rail, Watercourse - QLD Gov 2015

# Mackay Ring Road - Detailed Design

## Existing Case
## 1% AEP Event
## Maximum Water Depth

| | |
|---|---|
| PROJECT ID | 60342905 |
| CREATED BY | mathieu-burrym |
| LAST MODIFIED | 16-Aug-2016 |
| VERSION | v3 |

**Appendix A5**

A3 size

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r_135-05215 part 5.pdf - Page Number: 43 of 74

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BRUCE HIGHWAY
MACKAY BUCASIA ROAD
NORRIS ROAD
MALCOMSON STREET
SUGARSHED ROAD
HEATHS ROAD
SAMS ROAD
BRUCE HIGHWAY
Fursden Creek
GLENELLA CONNECTION ROAD
Pioneer River
MARAJU YAKAPARI ROAD
HUME STREET
LAGOON STREET
NEBO ROAD
PEAK DOWNS HIGHWAY

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- Alignment
- Highway
- Main Road
- Railway Line
- Watercourses

**Velocity (m/s)**

- 0 - 0.25
- 0.25 - 0.5
- 0.5 - 0.75
- 0.75 - 1
- 1 - 1.25
- 1.25 - 1.5
- 1.5 - 1.75
- 1.75 - 2
- Above 2

N

DATUM GDA 1994, PROJECTION MGA ZONE 55

0 250 500 1,000

Metres

1:22,000 (when printed at A3)

Data sources:

Imagery - QLD Gov 2009
Roads, Rail, Watercourse - QLD Gov 2015

# Mackay Ring Road - Detailed Design

## Existing Case
## 20% AEP Event
## Maximum Water Velocity

| | |
|---|---|
| PROJECT ID | 60342905 |
| CREATED BY | mathieu-burrym |
| LAST MODIFIED | 16-Aug-2016 |
| VERSION | v3 |

**Appendix A6**

A3 size

Filename: V:\603X\60342905 MRR\4. Tech Work Area\4.9 GIS\07_Working\Report Figures\G60342905_A06_5yVelMaxExist_20160816_v3_A3.mxd

r_135-05215 part 5.pdf Page Number: 44 of 74

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BRUCE HIGHWAY
MACKAY BUCASIA ROAD
NORRIS ROAD
MALCOMSON STREET
SUGARSHED ROAD
HEATHS ROAD
SAMS ROAD
BRUCE HIGHWAY
Fursden Creek
GLENELLA CONNECTION ROAD
Pioneer River
MARAJU YAKAPARI ROAD
HUME STREET
LAGOON STREET
NEBO ROAD
PEAK DOWNS HIGHWAY

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- Alignment
- Highway
- Main Road
- Railway Line
- Watercourses

**Velocity (m/s)**

- 0 - 0.25
- 0.25 - 0.5
- 0.5 - 0.75
- 0.75 - 1
- 1 - 1.25
- 1.25 - 1.5
- 1.5 - 1.75
- 1.75 - 2
- Above 2

N

DATUM GDA 1994, PROJECTION MGA ZONE 55

0 250 500 1,000

Metres

1:22,000 (when printed at A3)

Data sources:

Imagery - QLD Gov 2009
Roads, Rail, Watercourse - QLD Gov 2015

# Mackay Ring Road - Detailed Design

## Existing Case
## 10% AEP Event
## Maximum Water Velocity

| | |
|---|---|
| PROJECT ID | 60342905 |
| CREATED BY | mathieu-burrym |
| LAST MODIFIED | 16-Aug-2016 |
| VERSION | v3 |

**Appendix A7**

A3 size

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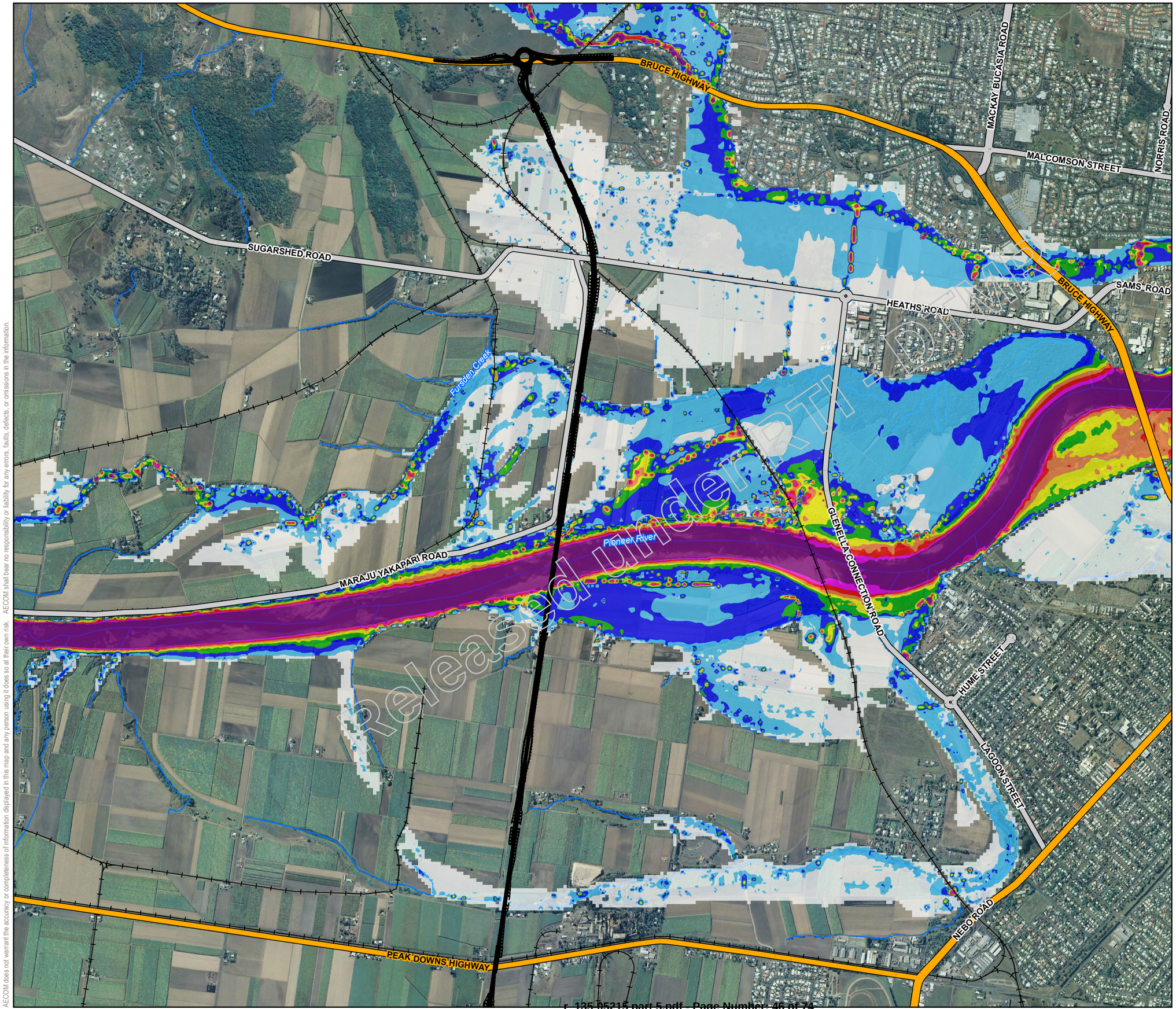


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Alignment
Highway
Main Road
Railway Line
Watercourses

**Velocity (m/s)**

0 - 0.25
0.25 - 0.5
0.5 - 0.75
0.75 - 1
1 - 1.25
1.25 - 1.5
1.5 - 1.75
1.75 - 2
Above 2

N

DATUM GDA 1994, PROJECTION MGA ZONE 55

0 250 500 1,000
Metres

1:22,000 (when printed at A3)

Data sources:

Imagery - QLD Gov 2009
Roads, Rail, Watercourse - QLD Gov 2015

## Mackay Ring Road - Detailed Design

## Existing Case
## 5% AEP Event
## Maximum Water Velocity

| | |
|---|---|
| PROJECT ID | 60342905 |
| CREATED BY | mathieu-burrym |
| LAST MODIFIED | 16-Aug-2016 |
| VERSION | v3 |

**Appendix A8**

A3 size

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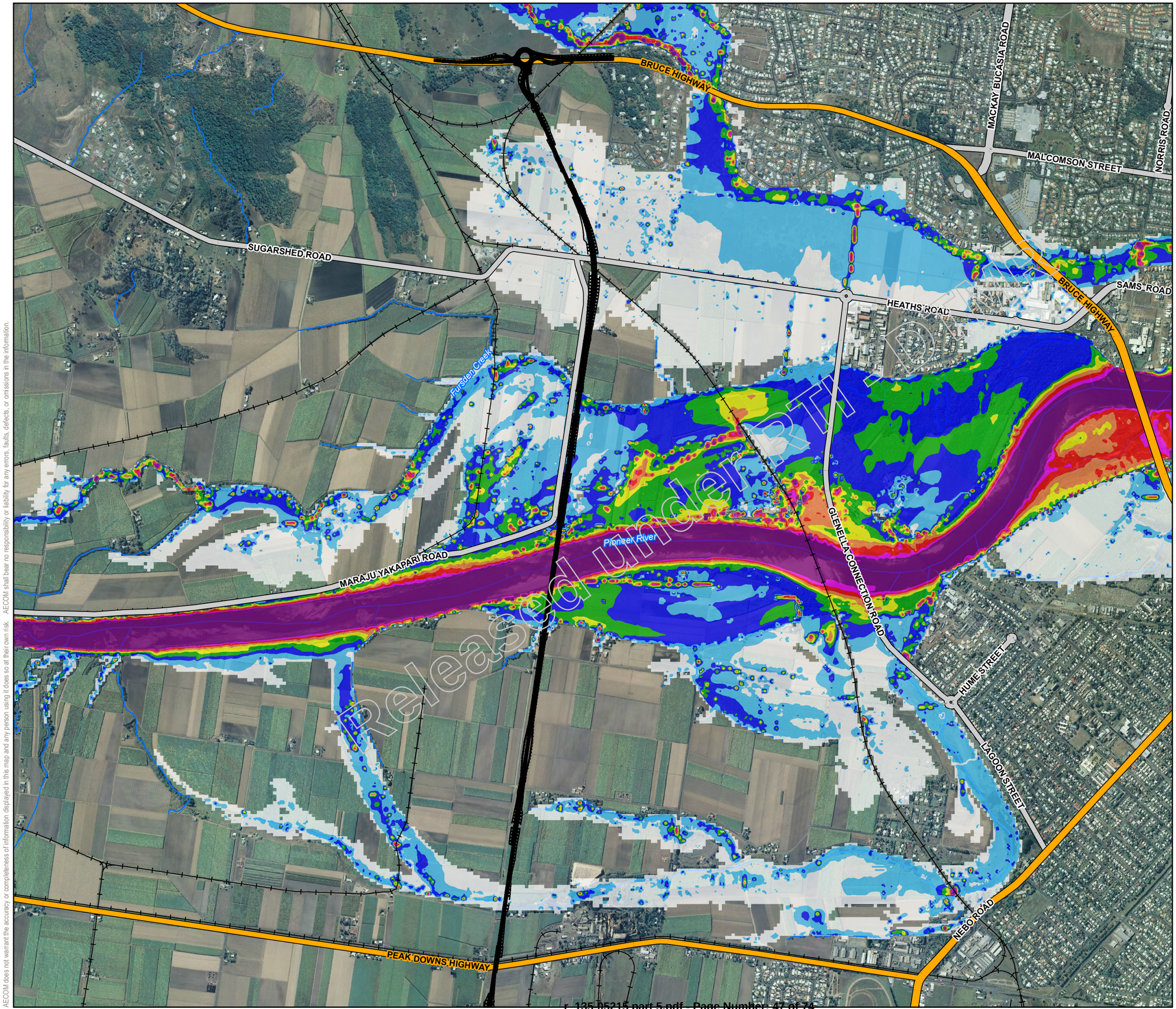


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Alignment
Highway
Main Road
Railway Line
Watercourses

**Velocity (m/s)**

0 - 0.25
0.25 - 0.5
0.5 - 0.75
0.75 - 1
1 - 1.25
1.25 - 1.5
1.5 - 1.75
1.75 - 2
Above 2

N

DATUM GDA 1994, PROJECTION MGA ZONE 55

0 250 500 1,000
Metres

1:22,000 (when printed at A3)

Data sources:

Imagery - QLD Gov 2009
Roads, Rail, Watercourse - QLD Gov 2015

## Mackay Ring Road - Detailed Design

## Existing Case
## 2% AEP Event
## Maximum Water Velocity

| | |
|---|---|
| PROJECT ID | 60342905 |
| CREATED BY | mathieu-burrym |
| LAST MODIFIED | 16-Aug-2016 |
| VERSION | v3 |

**Appendix A9**

A3 size

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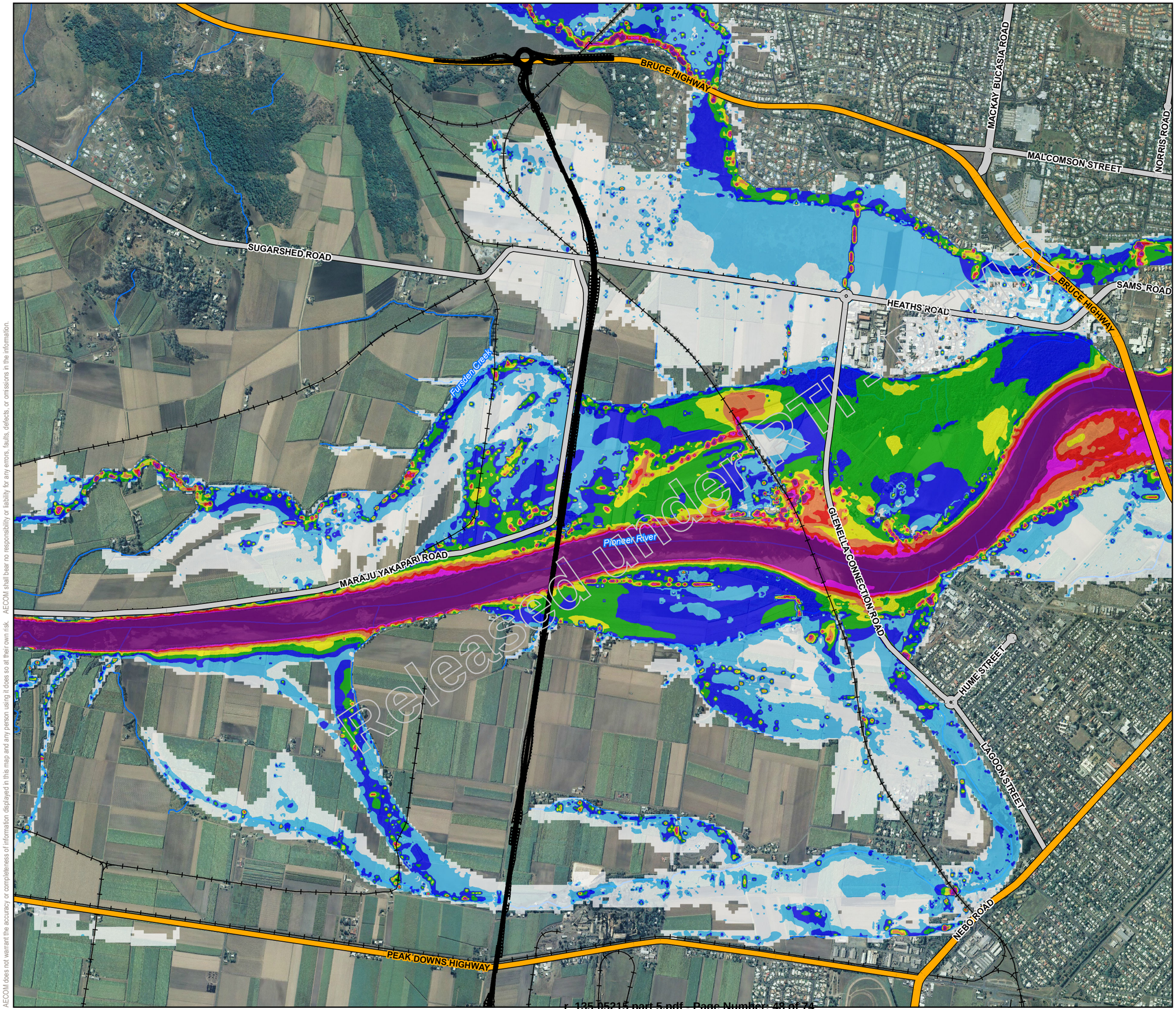


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- Alignment
- Highway
- Main Road
- Railway Line
- Watercourses

**Velocity (m/s)**

- 0 - 0.25
- 0.25 - 0.5
- 0.5 - 0.75
- 0.75 - 1
- 1 - 1.25
- 1.25 - 1.5
- 1.5 - 1.75
- 1.75 - 2
- Above 2

N

DATUM GDA 1994, PROJECTION MGA ZONE 55

0 250 500 1,000

Metres

1:22,000 (when printed at A3)

Data sources:

Imagery - QLD Gov 2009
Roads, Rail, Watercourse - QLD Gov 2015

# Mackay Ring Road - Detailed Design

## Existing Case
## 1% AEP Event
## Maximum Water Velocity

| | |
|---|---|
| PROJECT ID | 60342905 |
| CREATED BY | mathieu-burrym |
| LAST MODIFIED | 16-Aug-2016 |
| VERSION | v3 |

**Appendix A10**

A3 size

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Appendix B

# Bridge Plans

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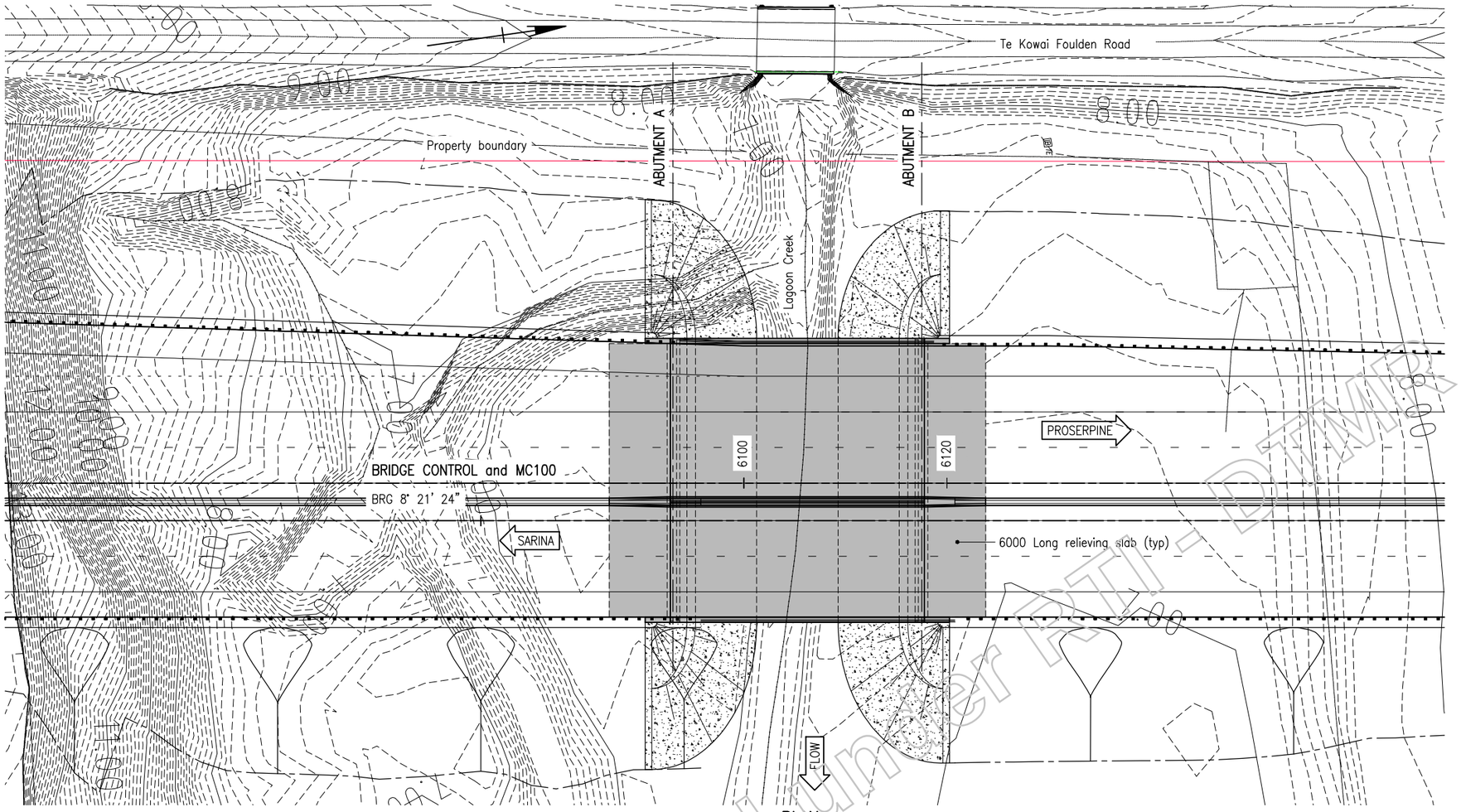
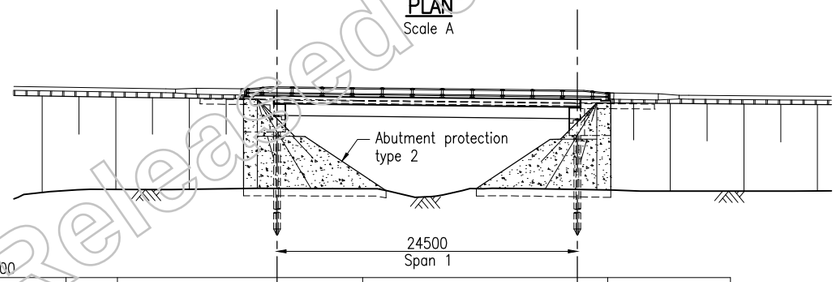


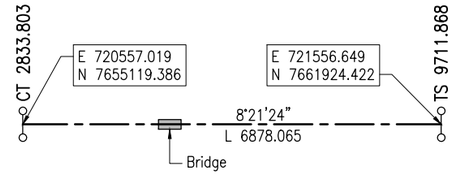

PLAN
Scale A



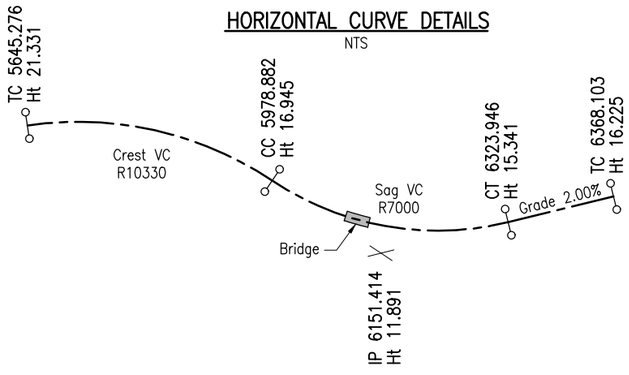

Datum Ht 0.000

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| GRADE HEIGHT | 14.713 | 14.537 | | 14.445 | | 14.257 | 14.234 | 14.149 |
| SURFACE HEIGHT | 7.195 | 7.271 | | 7.247 | | 7.189 | 7.150 | 7.053 |
| CHAINAGE | 6080 | 6093.025 | ABUT A | 6100 | | 6117.525 | ABUT B | 6120 | 6130 |

ELEVATION
Scale A




HORIZONTAL CURVE DETAILS
NTS




VERTICAL CURVE DETAILS
NTS

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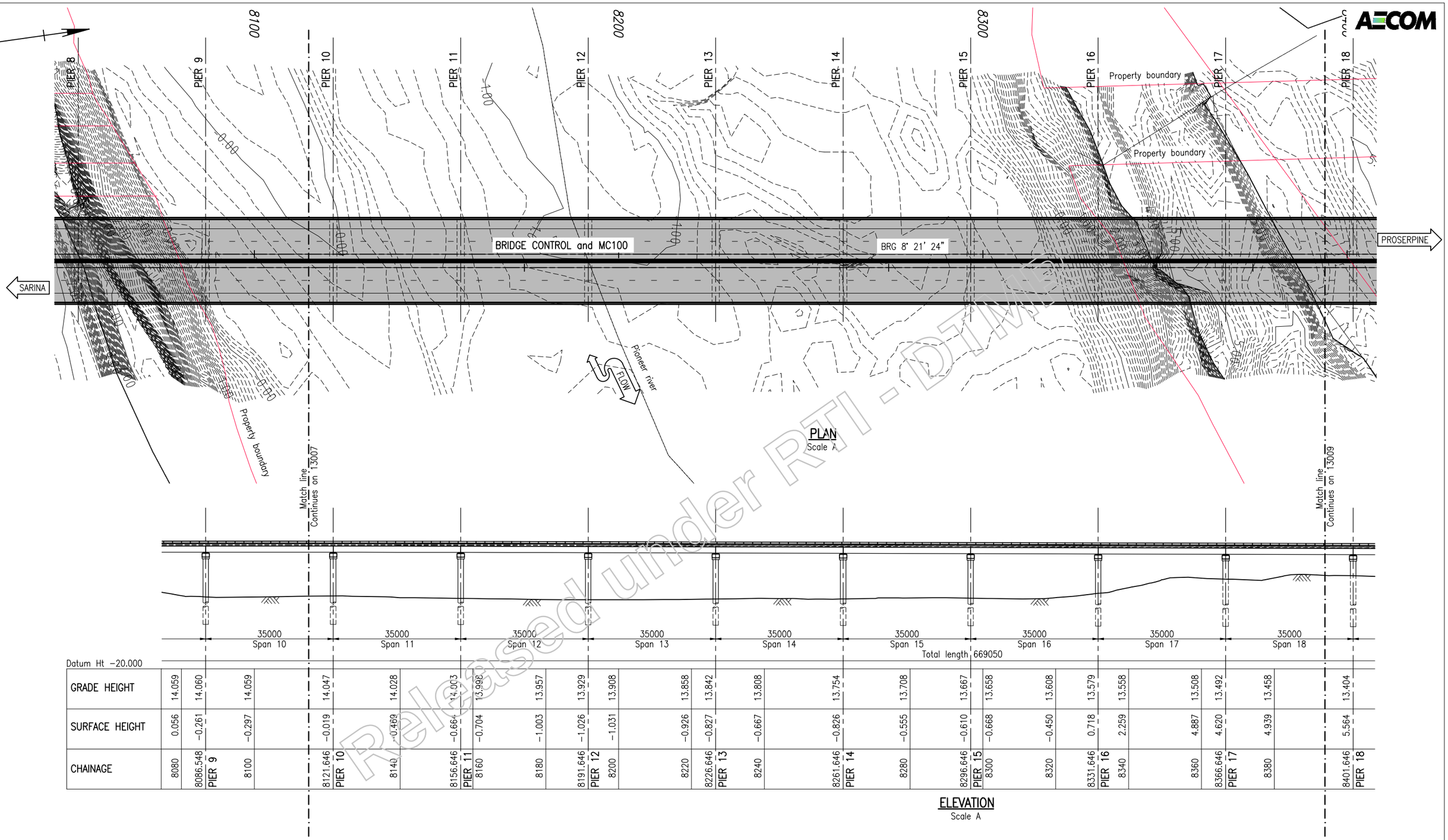
29 May 15 - 08:24
SK-60342905-13004.dwg

60342905
0

A 0 2 4 6 8 10m

MACKAY RING ROAD
BR01 - LAGOON CREEK BRIDGE
GENERAL ARRANGEMENT - PLAN AND ELEVATION
SK-60342905-13004

AECOM

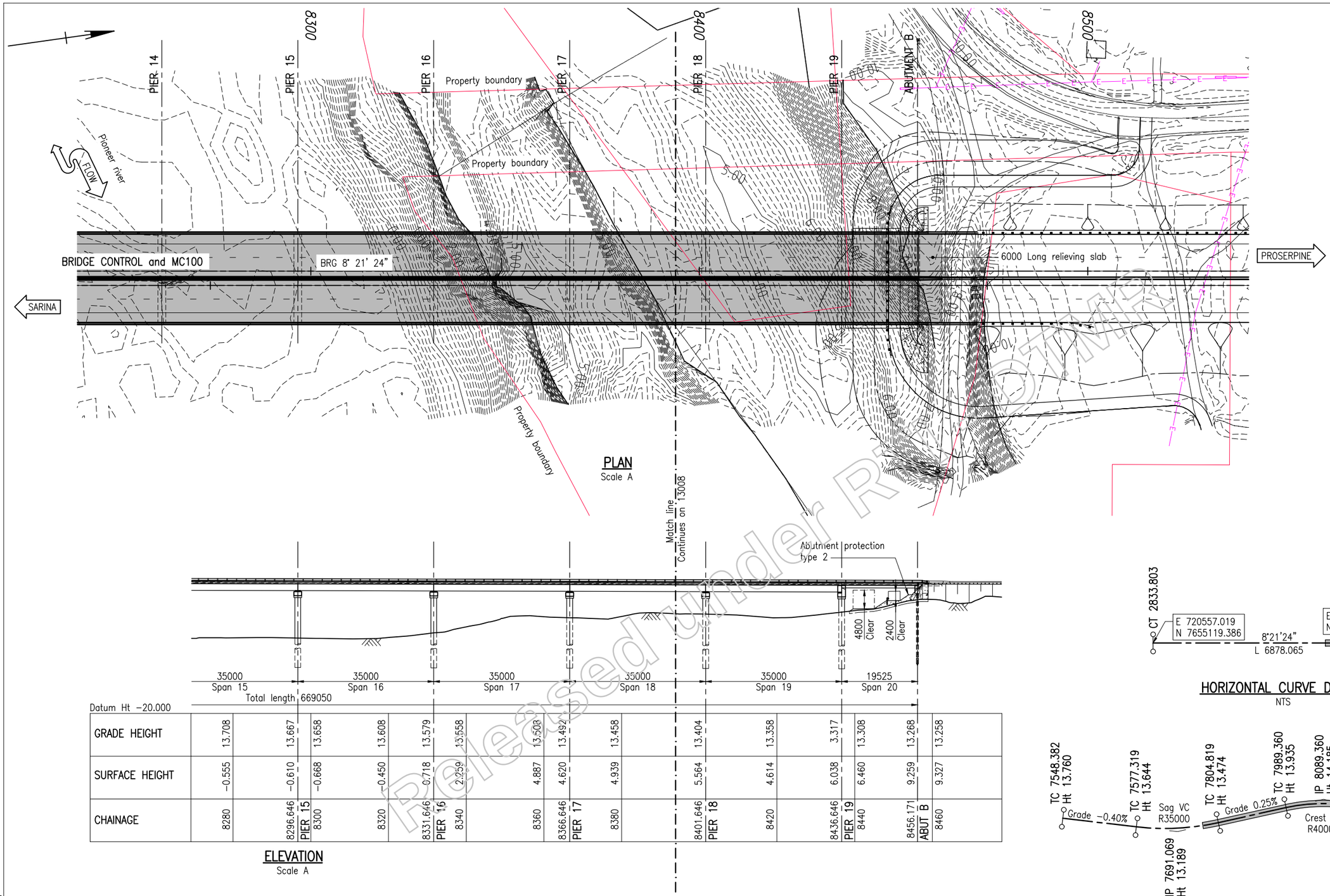



PLAN
Scale A




Datum Ht −20.000

| | | |

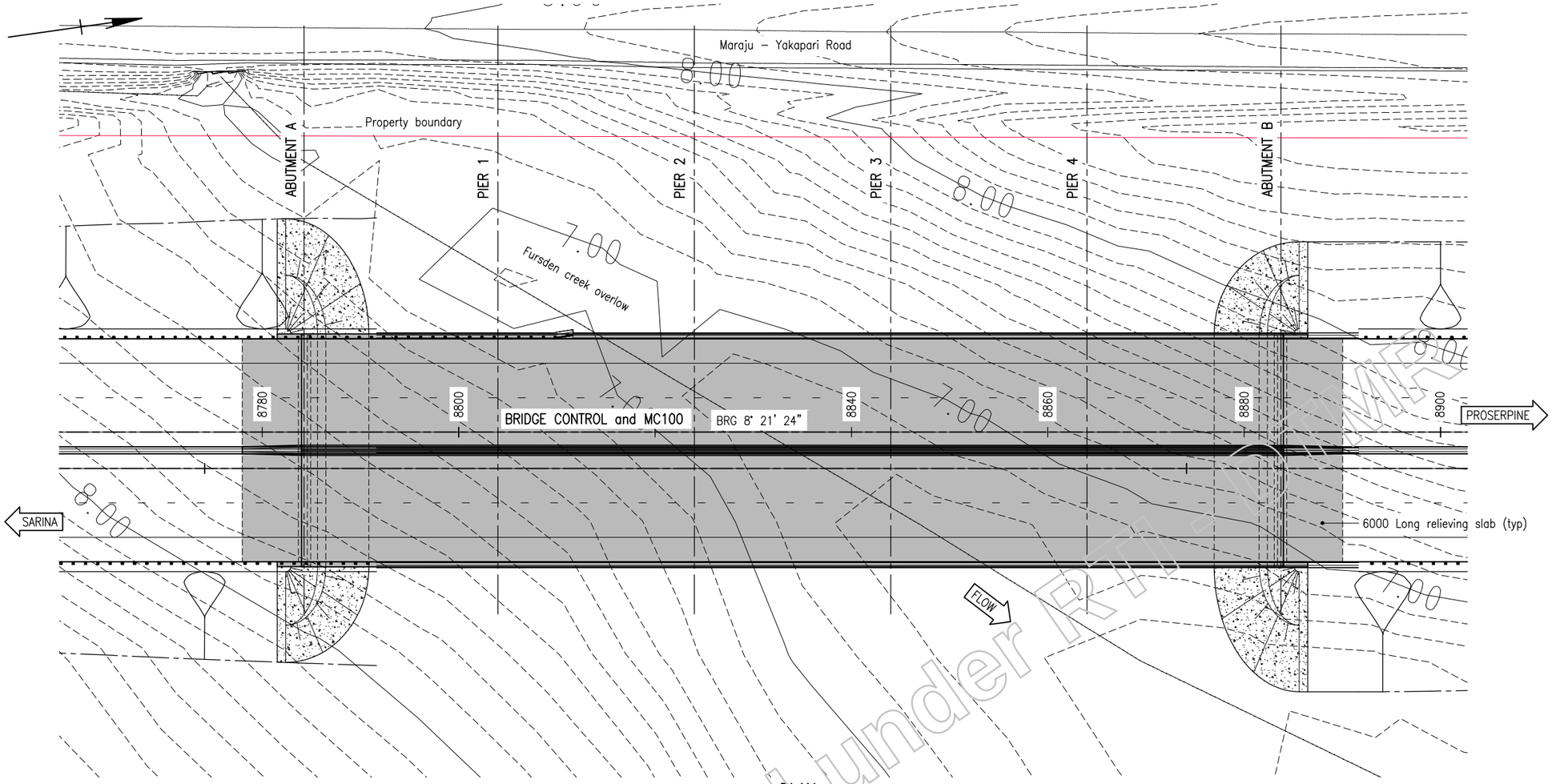



PLAN
Scale A

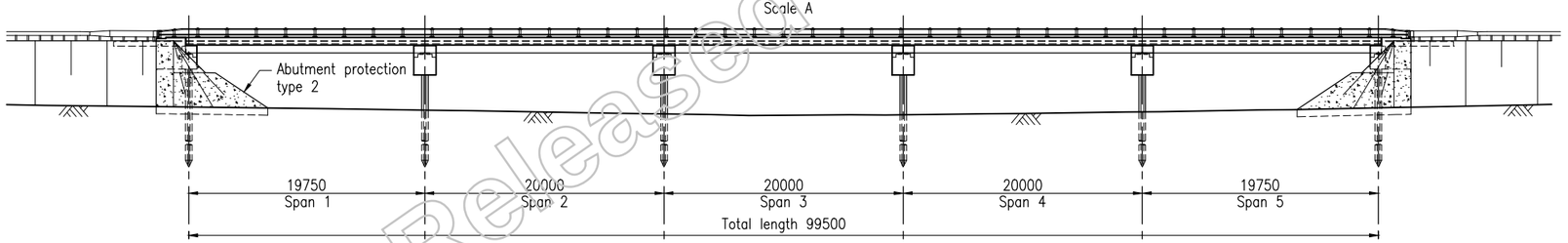



Datum Ht −20.000

| | | |




PLAN
Scale A

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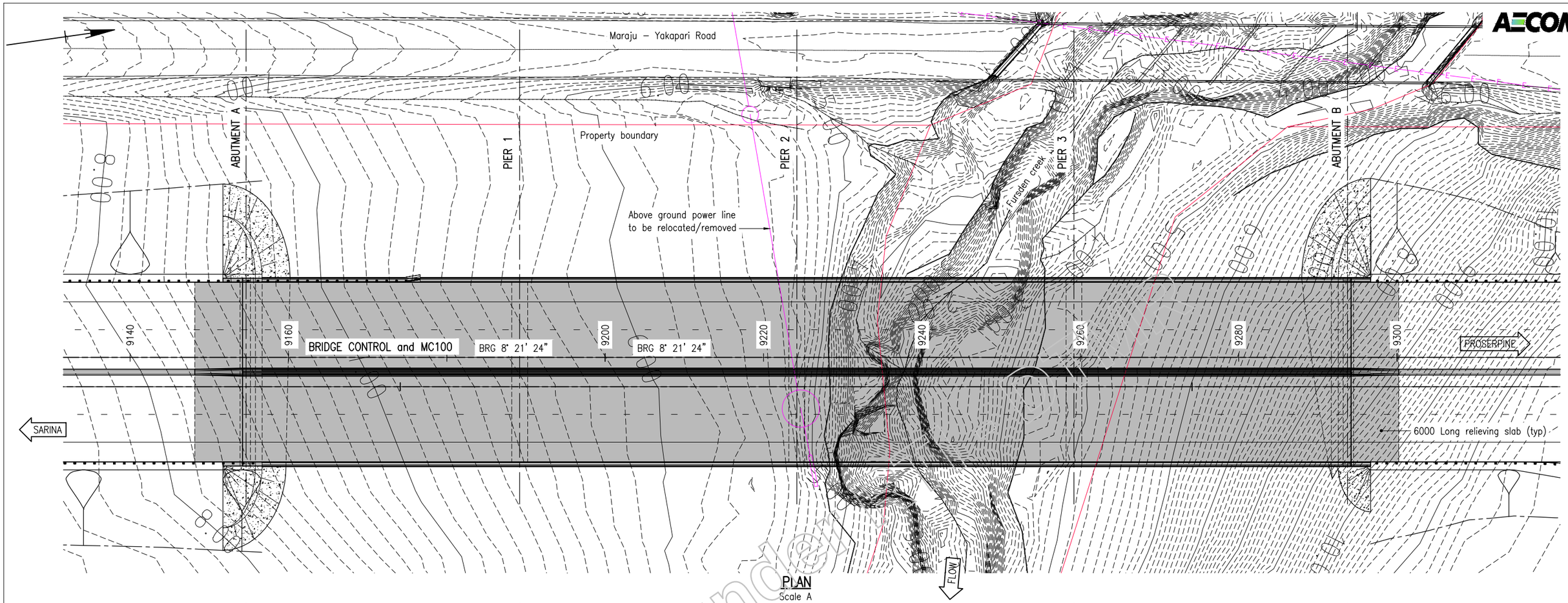
| | | |

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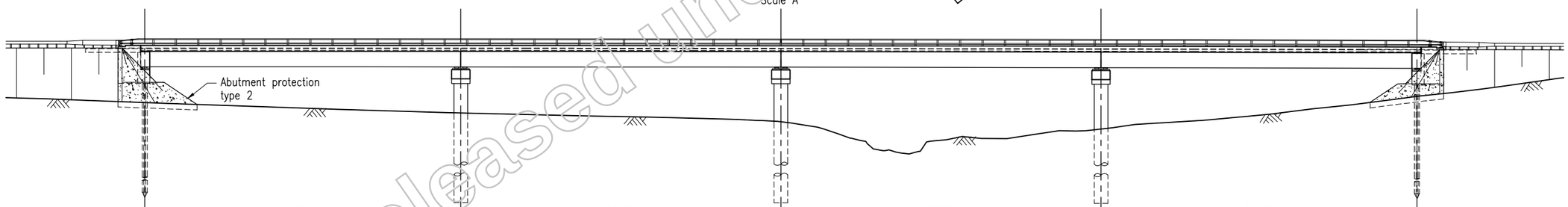
Scale A




Datum Ht −10.000

| | | |

Appendix C

# Pioneer River - Scour Assessment of Piers Skewed to the Flow

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Level 1, 162 Victoria Street
PO Box 11176
Mackay QLD 4740
Australia
www.aecom.com

+61 7 4965 9800 tel
+61 7 4957 6097 fax
ABN 20 093 846 925

# Memorandum

| | | | |
|---|---|---|---|
| To | Anthony Blines, George Illic, Ken Fong | Page | 1 |
| CC | | | |
| Subject | Pioneer River Bridge - Preliminary Scour Assessment of Piers Skewed to Flow | | |
| From | | | |
| File/Ref No. | 60342905/M144-15 | Date | 11-Aug-2015 |

## 1.0 Introduction

The Concept Design for the Pioneer River Bridge on the Mackay Ring Road Project (MRRP) consists of a 665 m long bridge with 35 m spans and piers aligned to the river flow at a $22^0$ skew to the road alignment. A Bridge Industry Workshop held on 27th March 2015 investigated the constructability constraints to be considered in the design of MRRP from which it was agreed to investigate the opportunity to detail the piers of the Pioneer River Bridge square to the road alignment.

The primary reason being to reduce the constructability and quality difficulties associated with precasting skewed Super T girders, and to simplify the detailing of the substructure. Aligning the piers to the flow of the river reduces the hydraulic forces on the substructure and other impacts to the waterway such as scour of the river bed. AECOM have completed a preliminary scour assessment to determine the effect on the scour depth and the impact of square piers on pier size and reinforcement and consequently the cost of the structure.

This memo provides details of the preliminary scour assessment, the geotechnical data considered and the preliminary structural design completed to determine the required substructure of both options.

This memo also seeks TMRs acceptance of the proposed design for the Pioneer River Bridge which is to design the piers squared to the road alignment.

## 2.0 Preliminary Scour Assessment

The current bridge arrangement for the Pioneer River is summarised in Table 1. The scour assessment has been undertaken to determine indicative scour depths and assess the potential increase in scour due to constructing the piers skewed to the river flow and perpendicular to the road alignment.

**Table 1 Pioneer River Bridge**

| Parameter | Value |
|---|---|
| Bridge width | 22 m |
| Bridge spans | 18 x 35 m<br>2 x 20 m<br>(670 m total length) |
| Pier size | 1.5 m dia. circular piers |
| Number of Piers | 3 |

The geotechnical data referenced for the assessment has been inferred from the Pioneer River QR bridge investigation which is the closest available borehole information available. The ground investigations carried out to date are discussed in Section 3.0. A summary of the geotechnical parameters adopted in the scour assessment are given in Table 2.

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**Table 2 Assumed Geotechnical Parameters**

| Parameter | Value |
|---|---|
| $D_{50}$ | 0.05 – 0.06 |
| $D_{95}$ | 0.3 – 0.5 |
| Depth to bedrock | 5 m to 17 m |

The 0.05% AEP (2000 year ARI) flood event has been simulated using software *tuflow*, and the relevant hydraulic parameters have been extracted from the model to assess the scour potential of the bridge piers. The velocity profile varies along the bridge length, and the maximum velocity within the channel and corresponding flood depth has been used for this assessment. The hydraulic parameters including the channel and abutment velocities are summarised in Table 3.

**Table 3 0.05% AEP Hydraulic parameters**

| Parameter | Value |
|---|---|
| Maximum flood depth | 12.4 m |
| Maximum channel velocity (middle spans) | 4.8 m/s |
| Abutment Velocities | 0.2 m/s – southern abutment<br>1.2 m/s northern abutment |

Piers constructed perpendicular to the road alignment will be at approximately $22^0$ skew to the peak flow direction in the middle of the river channel. The summary of the potential pier scour depths based on the available information is summarised in Table 4 for both piers aligned and skewed to the flow.

**Table 4 Pioneer River - Pier Scour Depths**

| Pier Skew Angle to Flow (degrees) | Total Scour at Piers (contraction + pier scour) (m) |
|---|---|
| 0 | 6.4 |
| 22 | 11.4 |

The results of the preliminary scour assessment indicate that constructing the piers perpendicular to the road alignment and skew to the Pioneer River flow, will increase the potential scour depths by approximately 5 m, for piers in the centre of the river channel.

For piers in other locations along the bridge alignment, the peak flow direction changes. The overbank area to the south channels the flow perpendicular to the bridge alignment. The peak velocity and flow direction is shown in Figure 1. This figure also shows the access road which is located beneath the bridge and adjacent to the northern abutment.

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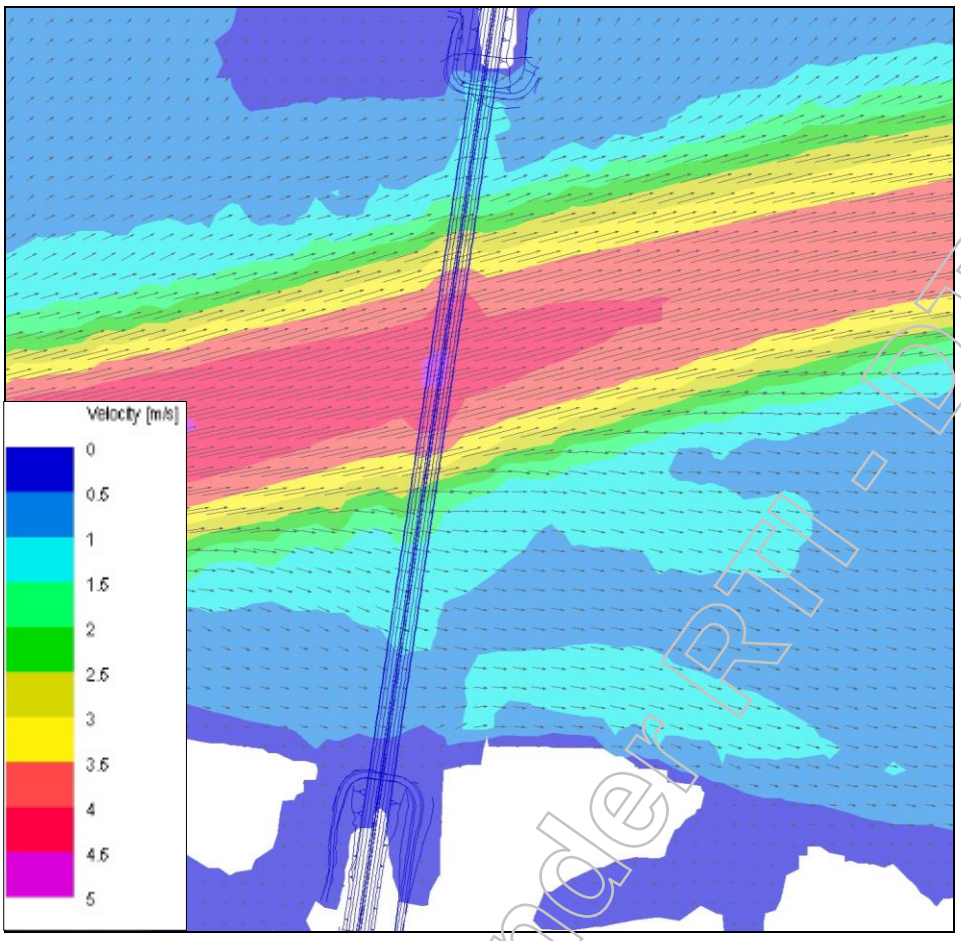


**Figure 1 - Pioneer River Bridge Peak Flow Direction**

### 2.1 Comparison to Hospital Bridge Scour Calculations

The request for scour data from the Hospital Bridge (Edmund Casey Bridge) Hydraulics Report has identified that there is no scour information in the report or on any other records held by the department. A comparison could not be made.

### 2.2 Assumptions and Limitations of Scour Calculations

The input parameters used for the scour assessment are as presented in Tables 1, 2 and 3.

These scour calculations have assessed the contraction and local scour only. Pier scour depths have been calculated using the FHWA HEC-18 equations. This reference suggests a maximum pier scour depth of 2.4 times the pier width for round nose piers aligned with the flow. Given the presence of such high stream velocities and depth of foundations on similar bridges downstream, this limitation has not been taken into account in this assessment.

There is also some uncertainty associated with the geotechnical and bedrock profile data as this information has been inferred from neighbouring locations. Therefore no assessment has been made on the potential impacts of changes in soil profile on these scour depths, other than using the grain size distribution data provided. These results should be viewed as indicative, for the purpose of this preliminary investigation. If further geotechnical investigations identify stiffer layers at depths shallower than 11m, then the scour depths may be reduced.

### 2.3 Fursden Creek Overflow Bridge

The flow through the Fursden Creek overflow also occurs at an angle to the road alignment. Figure 2 shows the flow direction at the peak flood level for the 1% AEP event. Should the piers be constructed perpendicular to the road alignment, they will be at an angle of approximately 30-35$^0$ to the flow in the middle of the bridge alignment with this angle reduced towards the northern abutment.

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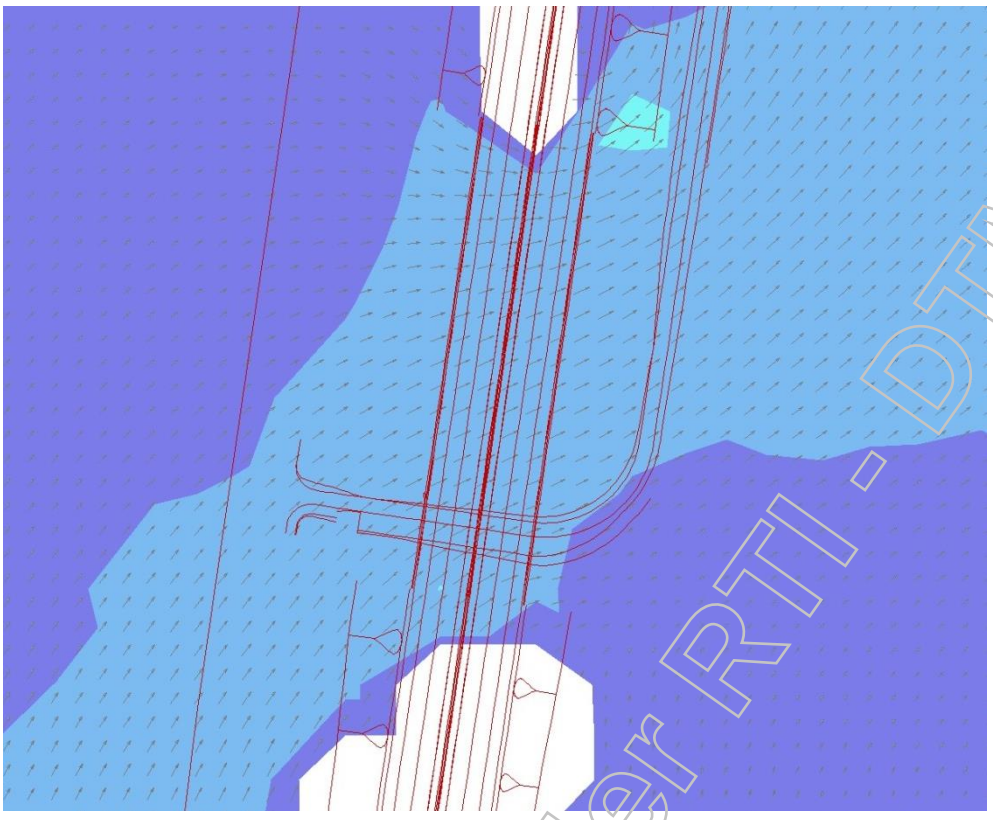

**Figure 2: Fursden Overflow Bridge - flow direction at peak of 1% AEP event**

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## 3.0 Geotechnical

Ground investigations are currently ongoing to identify subsurface conditions. At the time of compiling this memo, one draft bore log (BH 262) had been received and conditions are briefly described. The bore log indicated interbedded sequences of fine to coarse grained alluvial sands and fine to medium grained gravel lenses to 12 metres below ground level (bgl). These sand and gravel sequences were followed by more sequences of sandy clay and sand to 18.5 metres bgl. The alluvial deposits were underlain by residual silty sand to 22.7 metres where highly to slightly weathered granodiorite and dolerite continued to 33.92 metres bgl. The location of the borehole and the draft borehole log are given in Attachment 1.

Laboratory testing has yet to be completed to determine the sand and gravel particle size distribution and therefore nearby investigation and testing results have been considered when estimating initial D10, D50 and D95 particle sizes to undertake the initial river scour assessment for the Pioneer Bridge. Laboratory testing results available did not provide the fines component of gradings and therefore estimation of likely D10 was required. Test results provided from the MRRP Stage 1 Pavement investigations (TPs) were considered.

Results of relevant particle size distribution data has been presented in Figure 3 below.

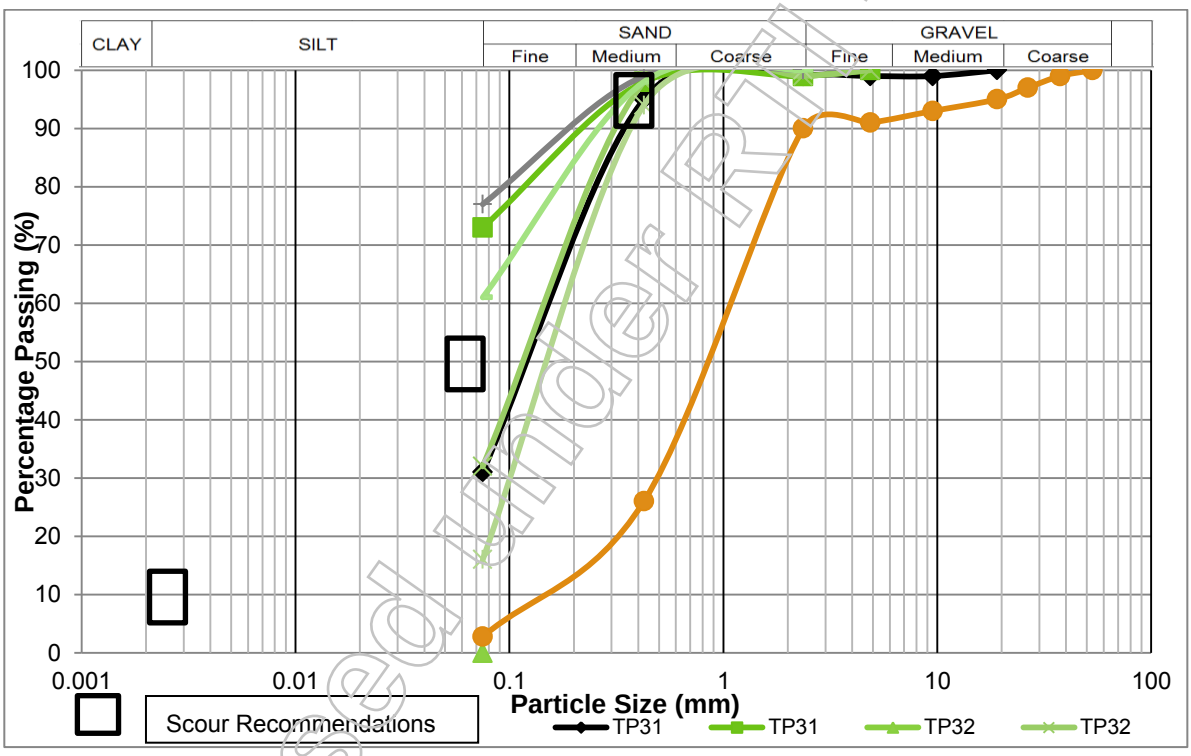


**Figure 3 Results of particle distribution tests from MRRP Stage 1 investigations**

Assuming that the particle distribution grading curves trend relatively consistently with existing data, the following ranges are recommended for the initial scour assessment until further testing can be completed after the Stage 2 GI Investigation.

| | |
|---|---|
| D95 | 0.3-0.5mm |
| D50 | 0.05-0.06mm |
| D10 | 0.002-0.004mm |

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## 4.0 Bridge Substructure

A preliminary design of the substructure was undertaken to determine the potential impact on material and costs due to constructing the piers aligned to the flow (skewed) or perpendicular to the road alignment (square). The piers in the main channel are approximately 11 m high, from the underside of headstock to existing ground level. Allowing for the scour depths, the height of the piers becomes 17 m and 22 m for skewed and square piers respectively. The Ultimate Limit State (ULS) flood loads were determined in accordance with AS5100.2 using the flow velocity, flood level and scour depth for skewed and squared piers as given in Table 3 and Table 4. 2-D frame models for the two pier heights were analysed for the flood loads to determine the critical load actions. The pile cross-section and reinforcement required to provide capacity for the resulting load actions was calculated. Table 5 below gives a summary of the required pile size and reinforcement.

**Table 5 Pile size and reinforcement required**

| Pier Alignment | Pile / Column Diameter (m) | | Reinforcement %[1] |
|---|---|---|---|
| Skewed | Upper Section | 1.5 | 1.7% |
| | Lower Section | 1.8 | |
| Square | Upper Section | 1.5 | 2.3% |
| | Lower Section | 1.8 | |

[1] Reinforcement area as a percentage of the cross sectional area of pile

The results show that the same pile size is needed for both options but the square pile option results in slightly more reinforcement being required. However, square Super T girders are cheaper to construct and better quality control can be achieved during precasting. A square bridge will also result in smaller headstocks, simplify the detailing of the bridge and facilitate future duplication of the bridge. Taking these benefits into account, the increase in reinforcement costs is not expected to result in a significant increase to the total cost of the bridge and it is therefore proposed to construct the bridge with square piers.

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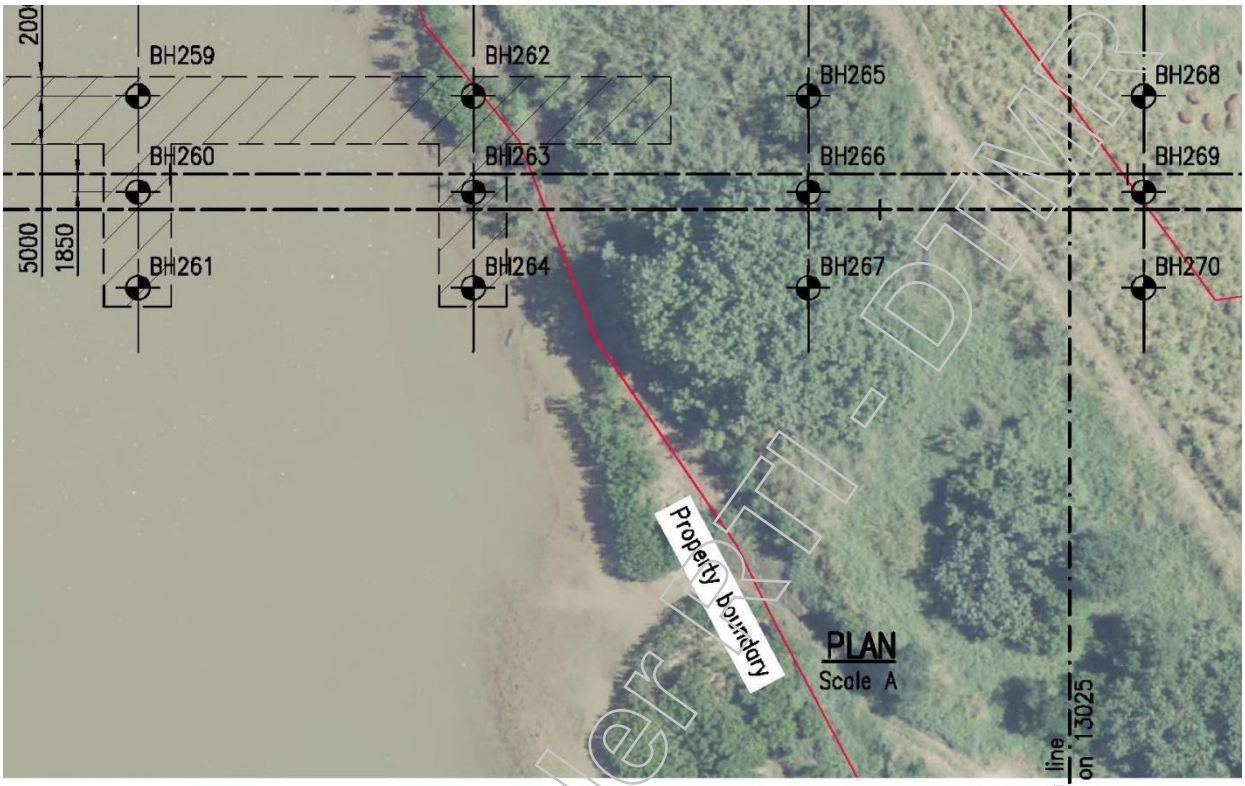
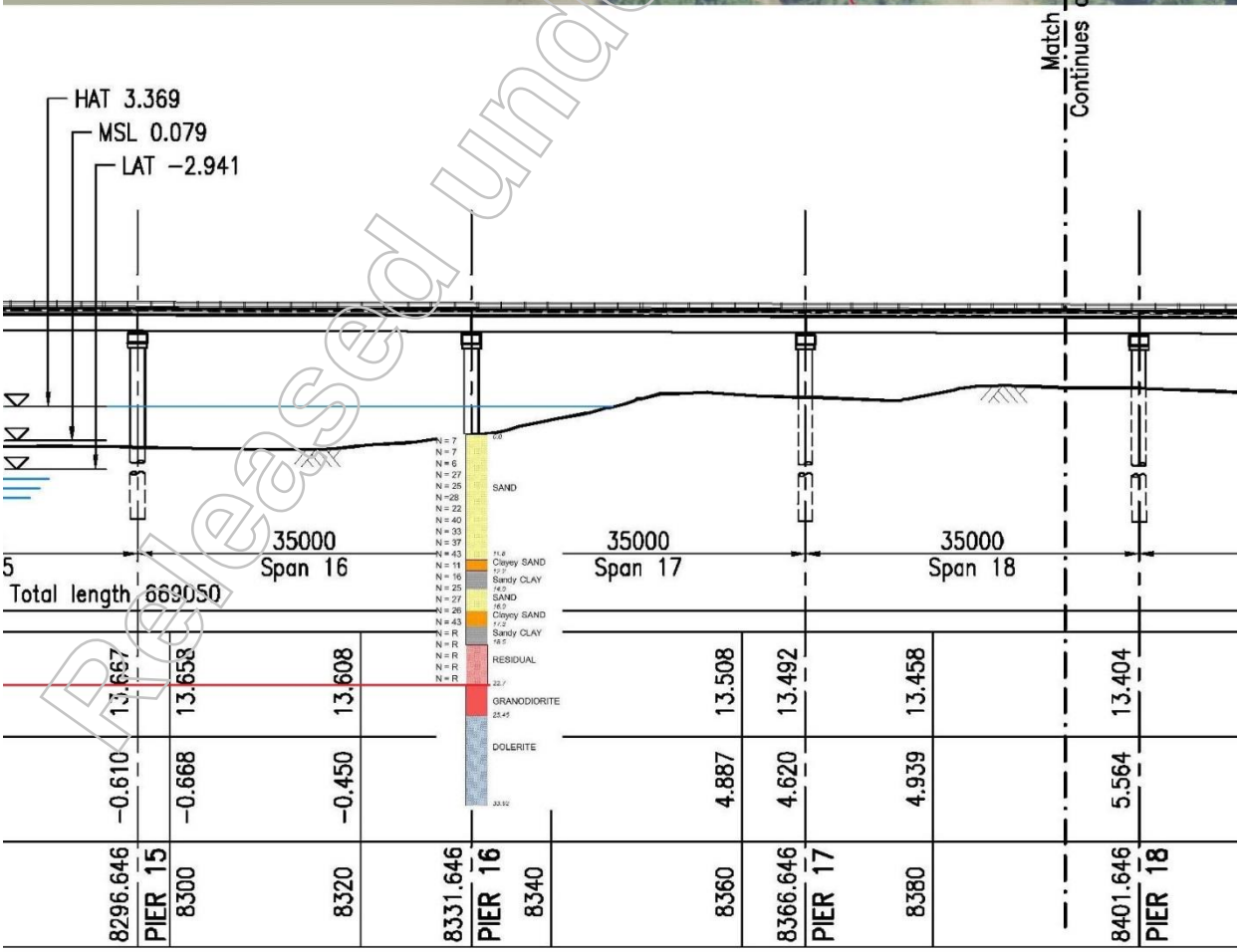
## Attachment 1

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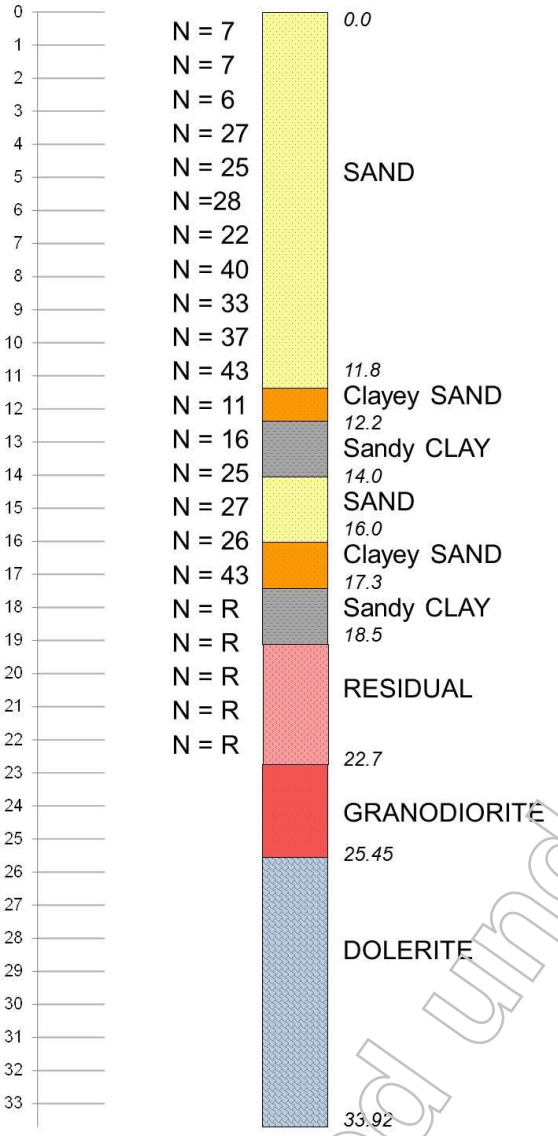


**Draft log - Borehole 262**

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Appendix D

# Afflux

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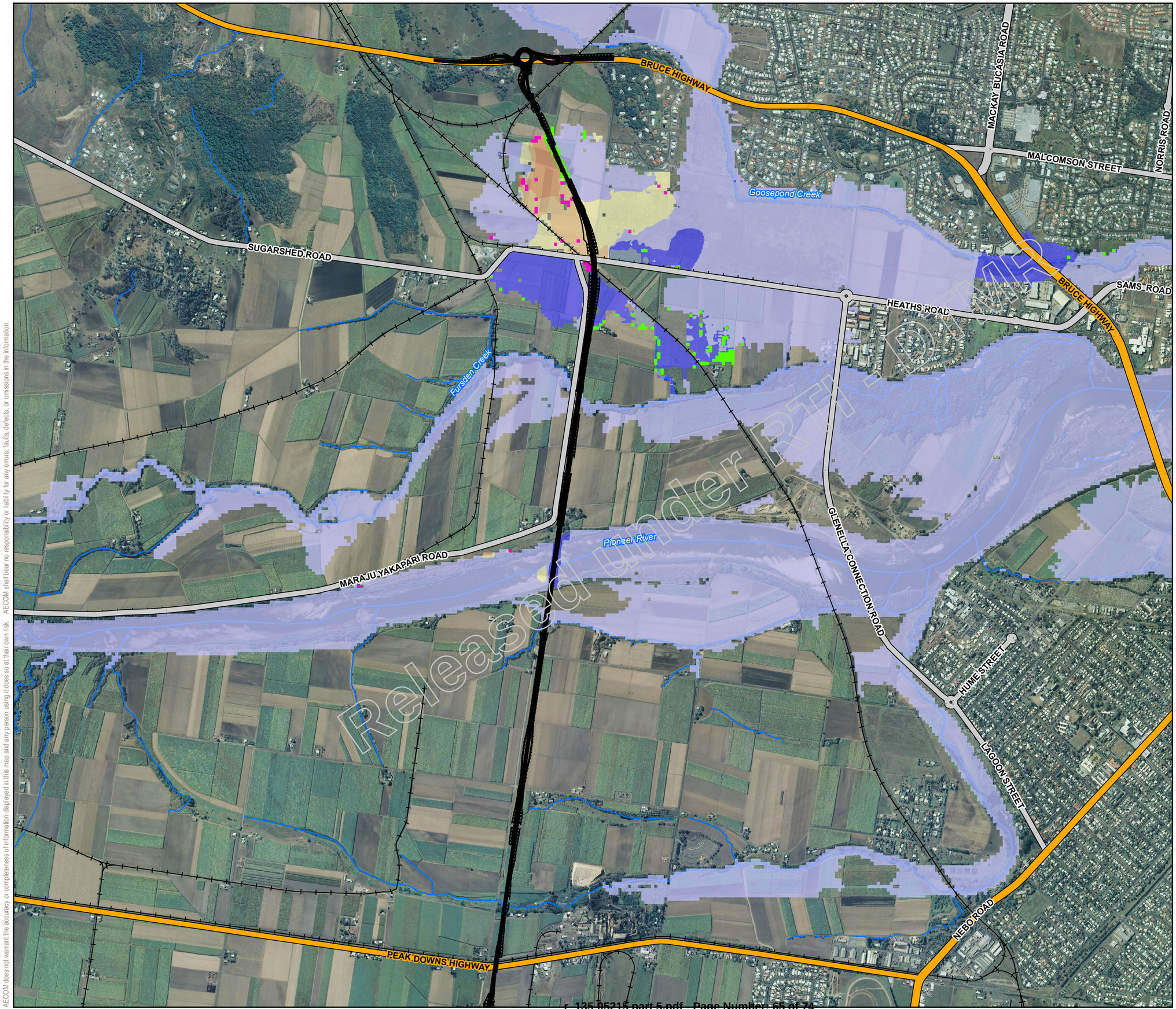


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- Alignment
- Highway
- Main Road
- Railway Line
- Watercourses
- Was Wet Now Dry
- Was Dry Now Wet

**Afflux (m)**

- -4 - -0.3
- -0.3 - -0.1
- -0.1 - -0.05
- -0.05 - -0.01
- -0.01 - 0.01
- 0.01 - 0.05
- 0.05 - 0.1
- 0.11 - 0.15
- 0.15 - 0.2
- 0.2 - 0.3
- 0.3 - 0.4

N

DATUM GDA 1994, PROJECTION MGA ZONE 55

0 250 500 1,000

Metres

1:22,000 (when printed at A3)

Data sources:

Imagery - QLD Gov 2009
Roads, Rail, Watercourse - QLD Gov 2015

# Mackay Ring Road - Detailed Design

## 20% AEP Event
## Afflux

| | |
|---|---|
| PROJECT ID | 60342905 |
| CREATED BY | mathieu-burrym |
| LAST MODIFIED | 18-Aug-2016 |
| VERSION | v4 |

**Appendix D1**

A3 size

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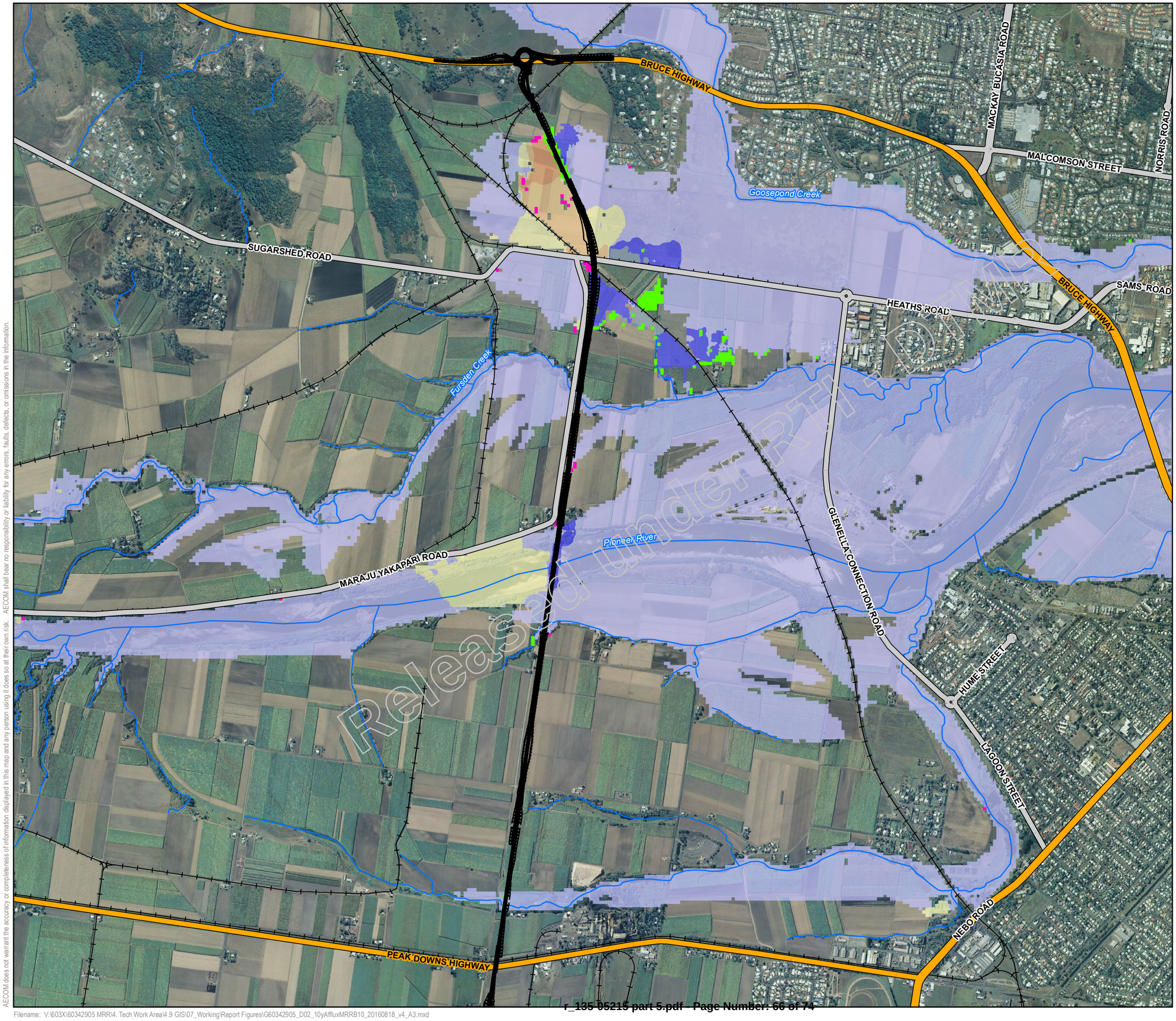


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- Alignment
- Highway
- Main Road
- Railway Line
- Watercourses
- Was Wet Now Dry
- Was Dry Now Wet

**Afflux (m)**

- -4 - -0.3
- -0.3 - -0.1
- -0.1 - -0.05
- -0.05 - -0.01
- -0.01 - 0.01
- 0.01 - 0.05
- 0.05 - 0.1
- 0.11 - 0.15
- 0.15 - 0.2
- 0.2 - 0.3
- 0.3 - 0.4

N

DATUM GDA 1994, PROJECTION MGA ZONE 55

0 250 500 1,000

Metres

1:22,000 (when printed at A3)

Data sources:

Imagery - QLD Gov 2009
Roads, Rail, Watercourse - QLD Gov 2015

# Mackay Ring Road - Detailed Design

## 10% AEP Event
## Afflux

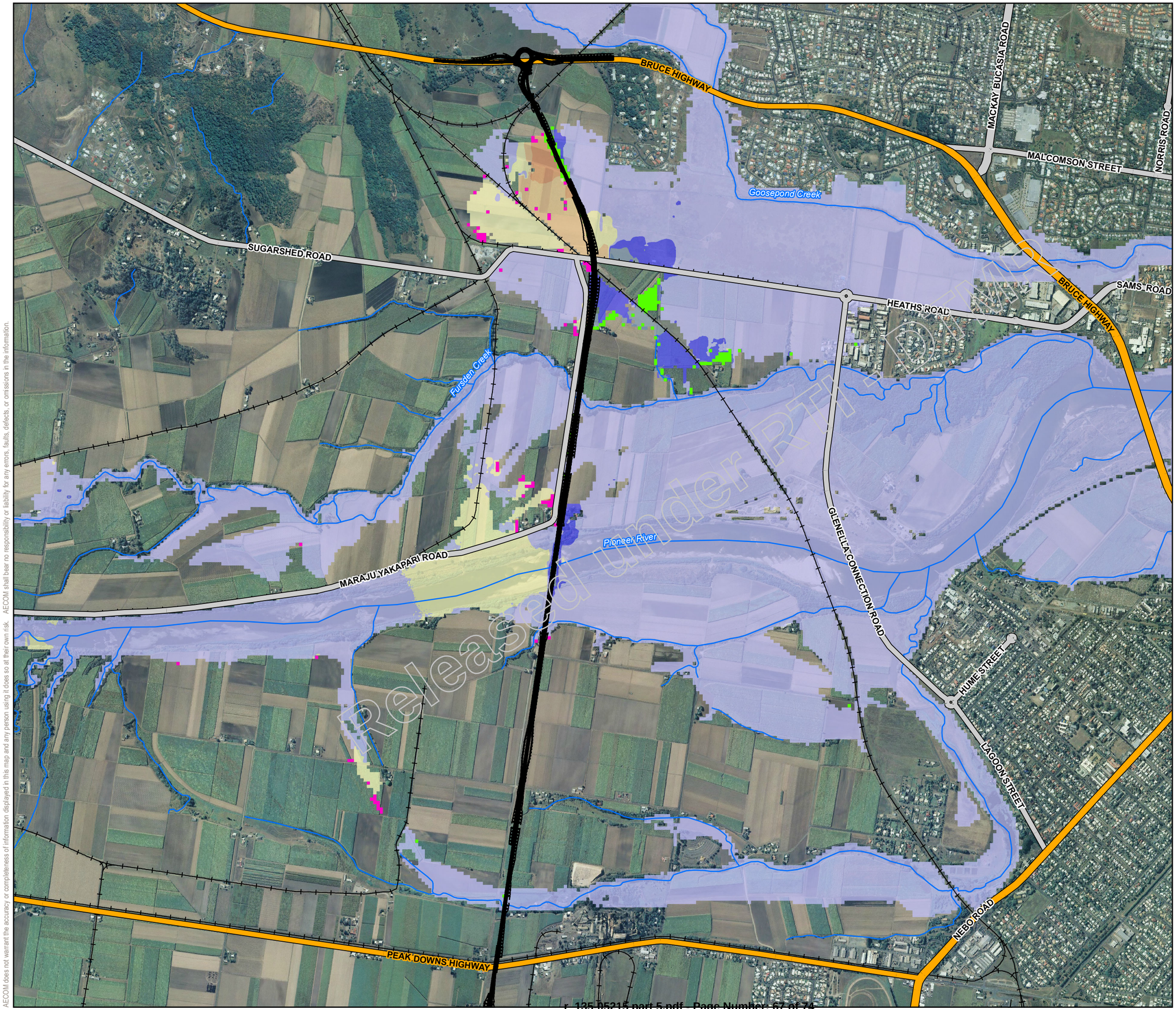
| | |
|---|---|
| PROJECT ID | 60342905 |
| CREATED BY | mathieu-burrym |
| LAST MODIFIED | 18-Aug-2016 |
| VERSION | v4 |

**Appendix D2**

A3 size



Filename: V:\603X\60342905 MRR\4. Tech Work Area\4.9 GIS\07_Working\Report Figures\G60342905_D02_10yAffluxMRRB10_20160818_v4_A3.mxd

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- Alignment
- Highway
- Main Road
- Railway Line
- Watercourses
- Was Wet Now Dry
- Was Dry Now Wet

**Afflux (m)**

- -4 - -0.3
- -0.3 - -0.1
- -0.1 - -0.05
- -0.05 - -0.01
- -0.01 - 0.01
- 0.01 - 0.05
- 0.05 - 0.1
- 0.11 - 0.15
- 0.15 - 0.2
- 0.2 - 0.3
- 0.3 - 0.4

N

DATUM GDA 1994, PROJECTION MGA ZONE 55

0 250 500 1,000

Metres

1:22,000 (when printed at A3)

Data sources:

Imagery - QLD Gov 2009
Roads, Rail, Watercourse - QLD Gov 2015

# Mackay Ring Road - Detailed Design

## 5% AEP Event
## Afflux

| | |
|---|---|
| PROJECT ID | 60342905 |
| CREATED BY | mathieu-burrym |
| LAST MODIFIED | 18-Aug-2016 |
| VERSION | v4 |

**Appendix D3**

A3 size

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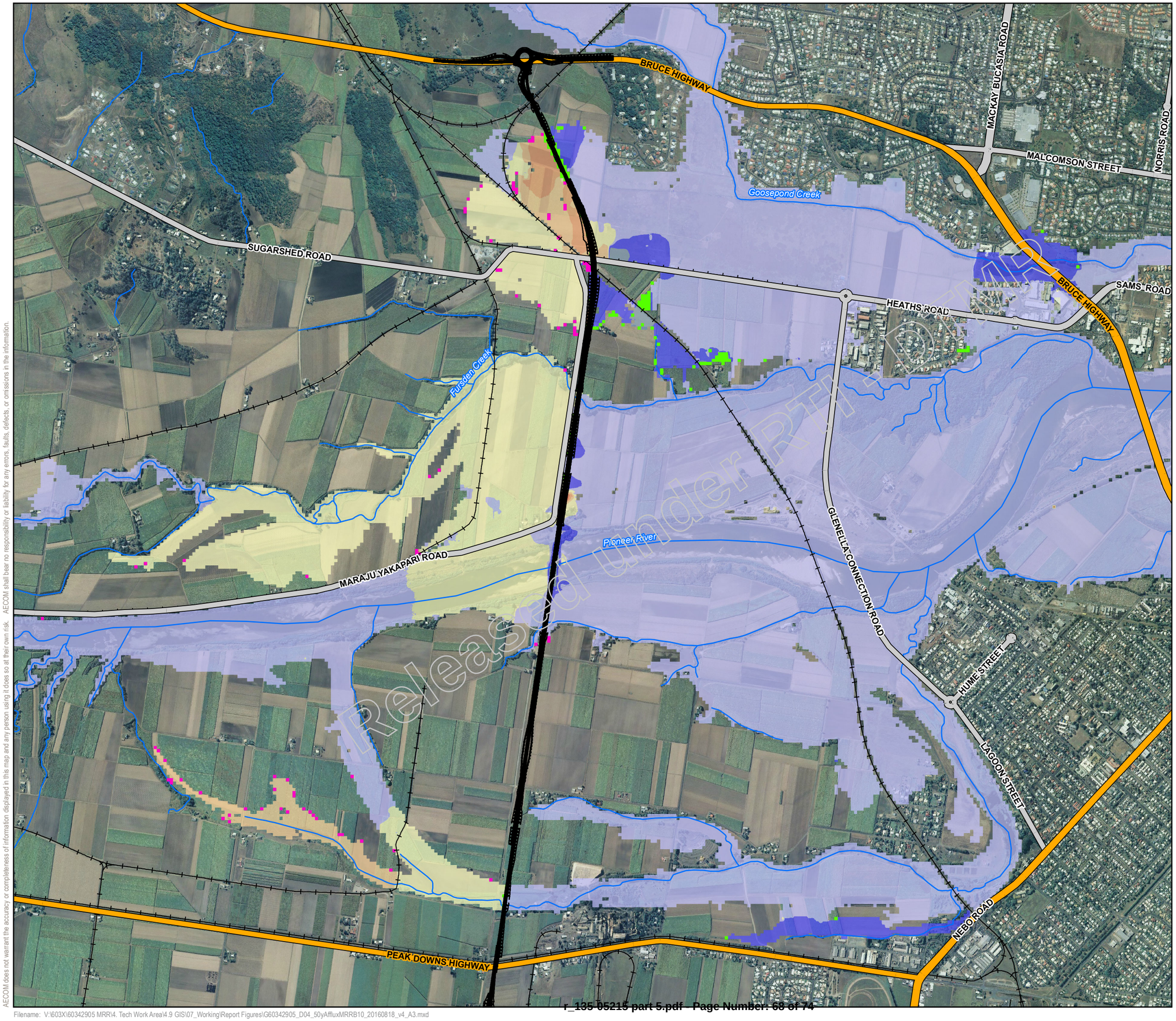


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Alignment
Highway
Main Road
Railway Line
Watercourses
Was Wet Now Dry
Was Dry Now Wet

**Afflux (m)**

-4 - -0.3
-0.3 - -0.1
-0.1 - -0.05
-0.05 - -0.01
-0.01 - 0.01
0.01 - 0.05
0.05 - 0.1
0.11 - 0.15
0.15 - 0.2
0.2 - 0.3
0.3 - 0.4

N

DATUM GDA 1994, PROJECTION MGA ZONE 55

0 250 500 1,000

Metres

1:22,000 (when printed at A3)

Data sources:

Imagery - QLD Gov 2009
Roads, Rail, Watercourse - QLD Gov 2015

# Mackay Ring Road - Detailed Design

## 2% AEP Event
## Afflux

| | |
|---|---|
| PROJECT ID | 60342905 |
| CREATED BY | mathieu-burrym |
| LAST MODIFIED | 18-Aug-2016 |
| VERSION | v4 |

**Appendix D4**

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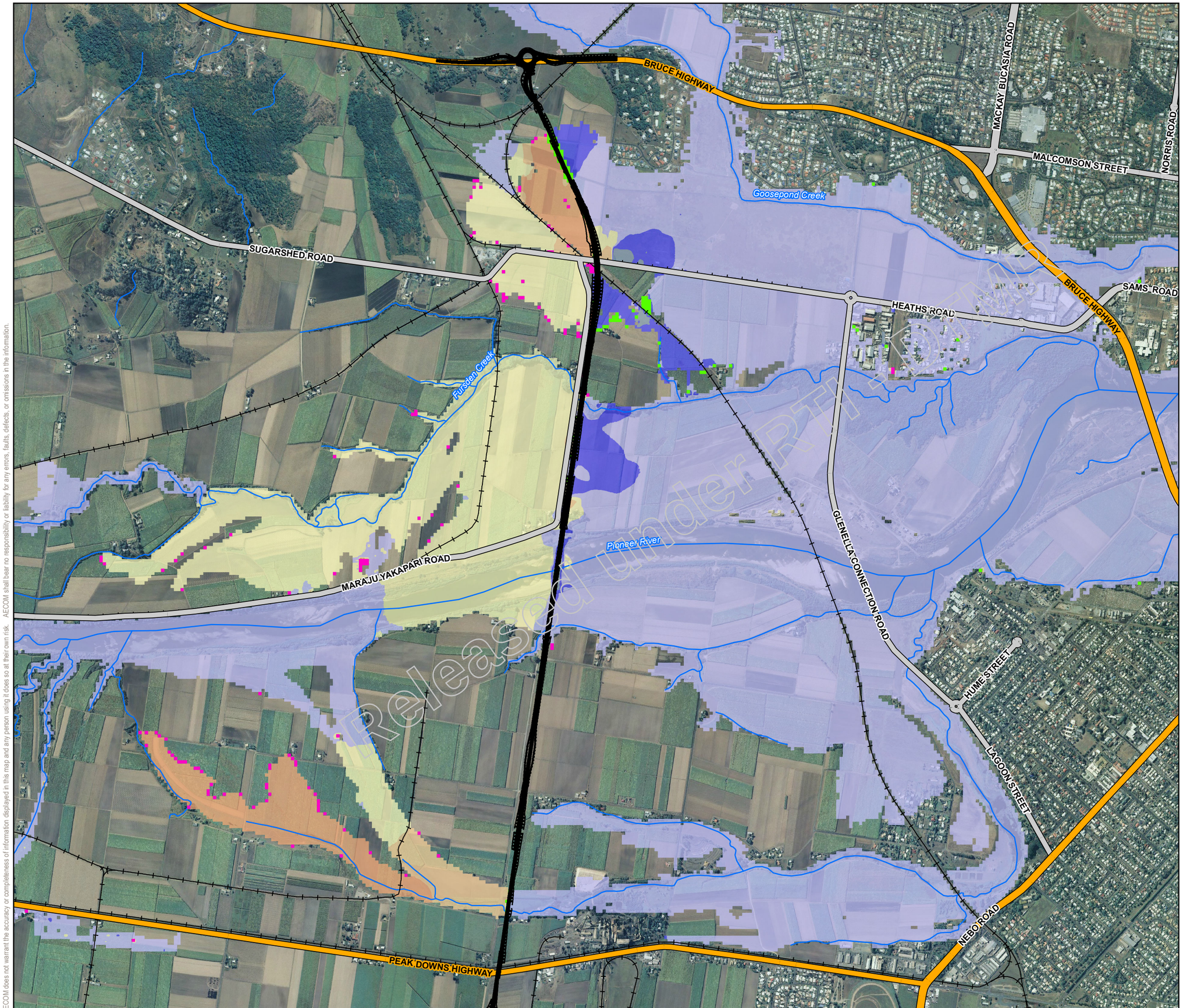


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- Alignment
- Highway
- Main Road
- Railway Line
- Watercourses
- Was Dry Now Wet
- Was Wet Now Dry

**Afflux (m)**

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- -0.3 - -0.1
- -0.1 - -0.05
- -0.05 - -0.01
- -0.01 - 0.01
- 0.01 - 0.05
- 0.05 - 0.1
- 0.11 - 0.15
- 0.15 - 0.2
- 0.2 - 0.3
- 0.3 - 0.4

N

DATUM GDA 1994, PROJECTION MGA ZONE 55

0 250 500 1,000

Metres

1:22,000 (when printed at A3)

Data sources:

Imagery - QLD Gov 2009
Roads, Rail, Watercourse - QLD Gov 2015

# Mackay Ring Road - Detailed Design

## 1% AEP Event
## Afflux

| | |
|---|---|
| PROJECT ID | 60342905 |
| CREATED BY | mathieu-burrym |
| LAST MODIFIED | 16-Aug-2016 |
| VERSION | v3 |

**Appendix D5**

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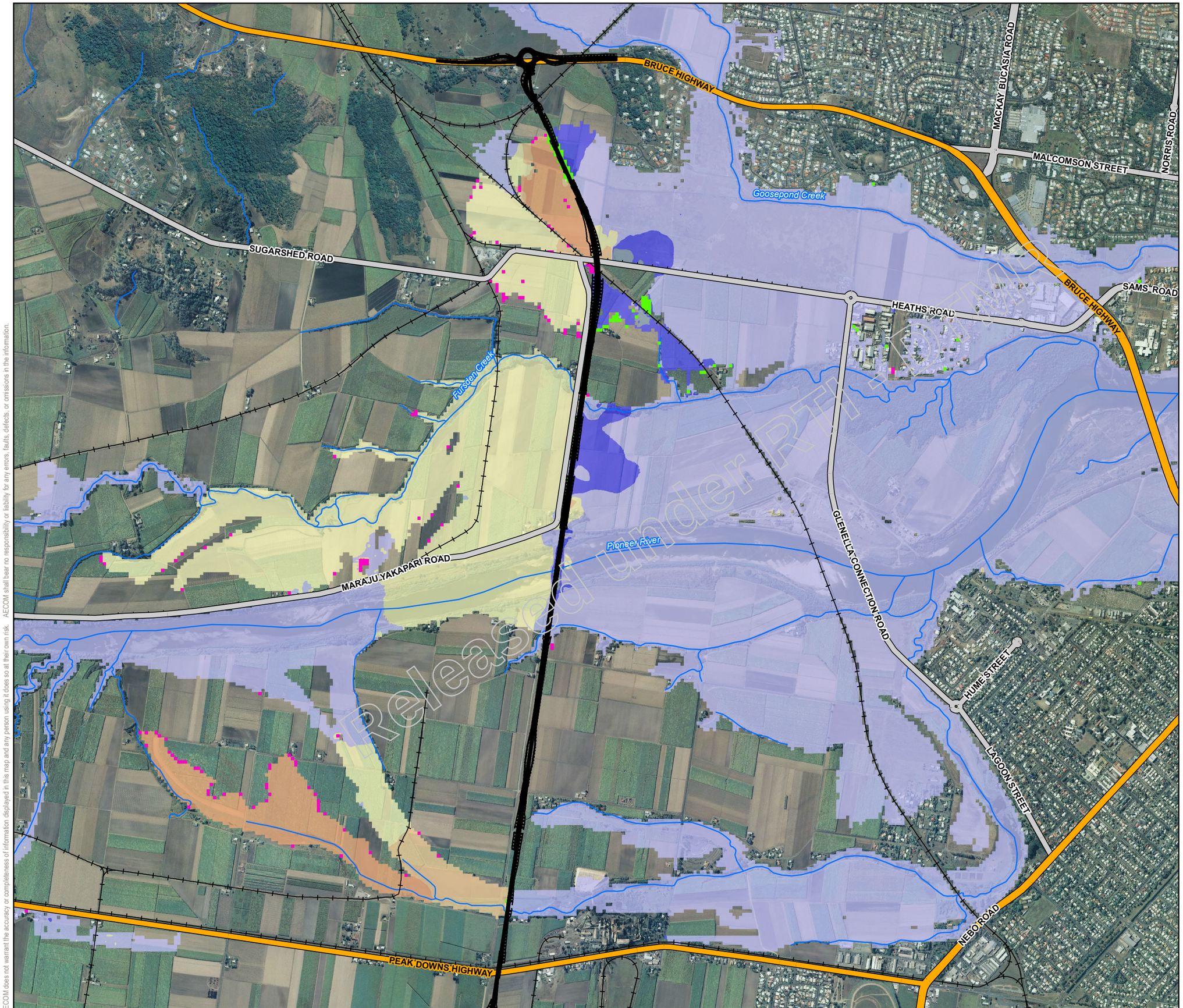


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- Alignment
- Highway
- Main Road
- Railway Line
- Watercourses
- Was Dry Now Wet
- Was Wet Now Dry

**Afflux (m)**

- -4 - -0.3
- -0.3 - -0.1
- -0.1 - -0.05
- -0.05 - -0.01
- -0.01 - 0.01
- 0.01 - 0.05
- 0.05 - 0.1
- 0.11 - 0.15
- 0.15 - 0.2
- 0.2 - 0.3
- 0.3 - 0.4

N

DATUM GDA 1994, PROJECTION MGA ZONE 55

0 250 500 1,000

Metres

1:22,000 (when printed at A3)

Data sources:

Imagery - QLD Gov 2009
Roads, Rail, Watercourse - QLD Gov 2015

# Mackay Ring Road - Detailed Design

## 1% AEP Event
## Afflux

| | |
|---|---|
| PROJECT ID | 60342905 |
| CREATED BY | mathieu-burrym |
| LAST MODIFIED | 18-Aug-2016 |
| VERSION | v4 |

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A3 size

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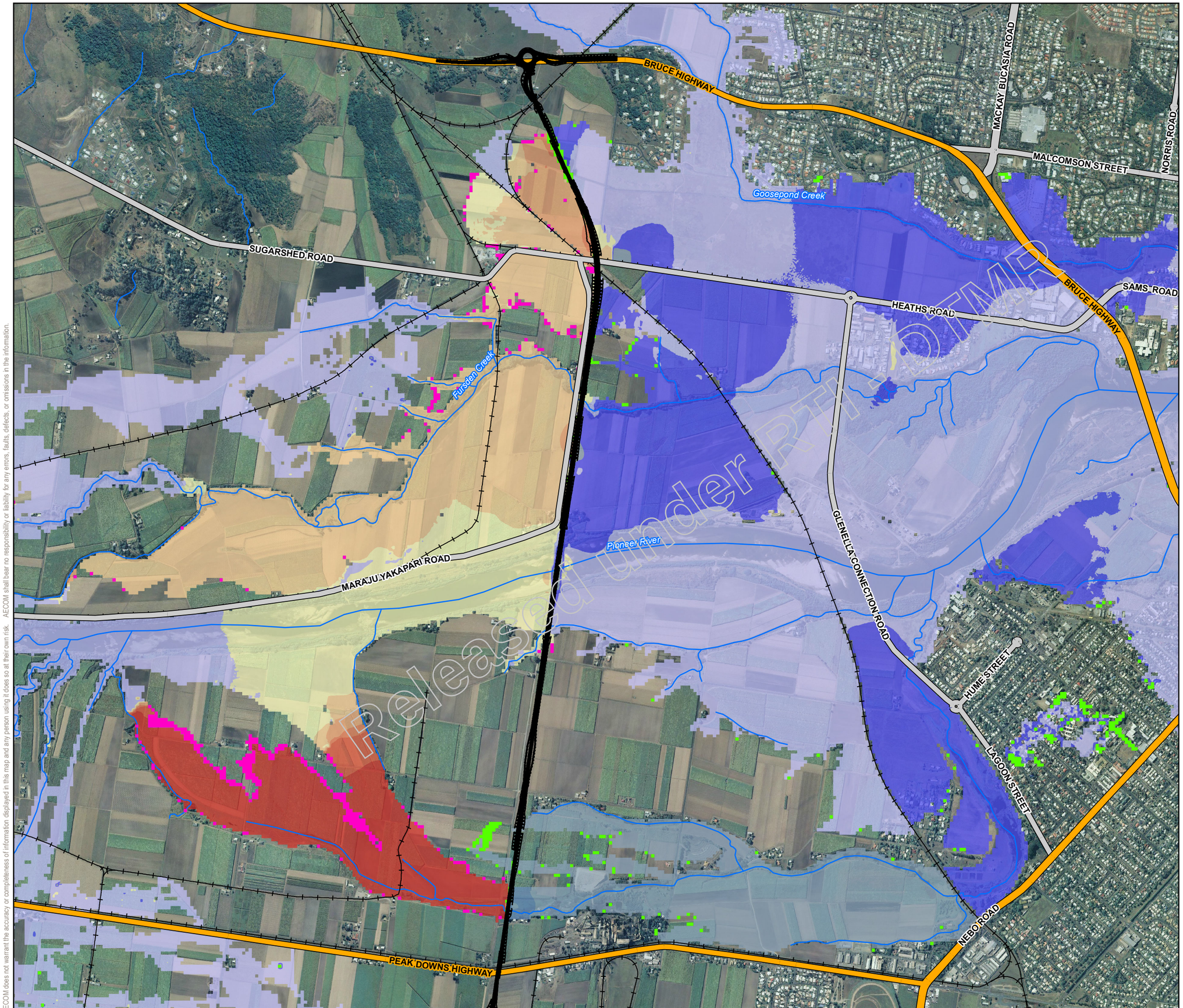


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- Alignment
- Highway
- Main Road
- Railway Line
- Watercourses
- Was Dry Now Wet
- Was Wet Now Dry

**Afflux (m)**

- -4 - -0.3
- -0.3 - -0.1
- -0.1 - -0.05
- -0.05 - -0.01
- -0.01 - 0.01
- 0.01 - 0.05
- 0.05 - 0.1
- 0.11 - 0.15
- 0.15 - 0.2
- 0.2 - 0.3
- 0.3 - 0.4

N

DATUM GDA 1994, PROJECTION MGA ZONE 55

0 250 500 1,000

Metres

1:22,000 (when printed at A3)

Data sources:

Imagery - QLD Gov 2009
Roads, Rail, Watercourse - QLD Gov 2015

# Mackay Ring Road - Detailed Design

## 0.2% AEP Event
## Afflux

| | |
|---|---|
| PROJECT ID | 60342905 |
| CREATED BY | mathieu-burrym |
| LAST MODIFIED | 18-Aug-2016 |
| VERSION | v4 |

**Appendix D6**

A3 size

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Appendix E

# Rail Line Flood Levels

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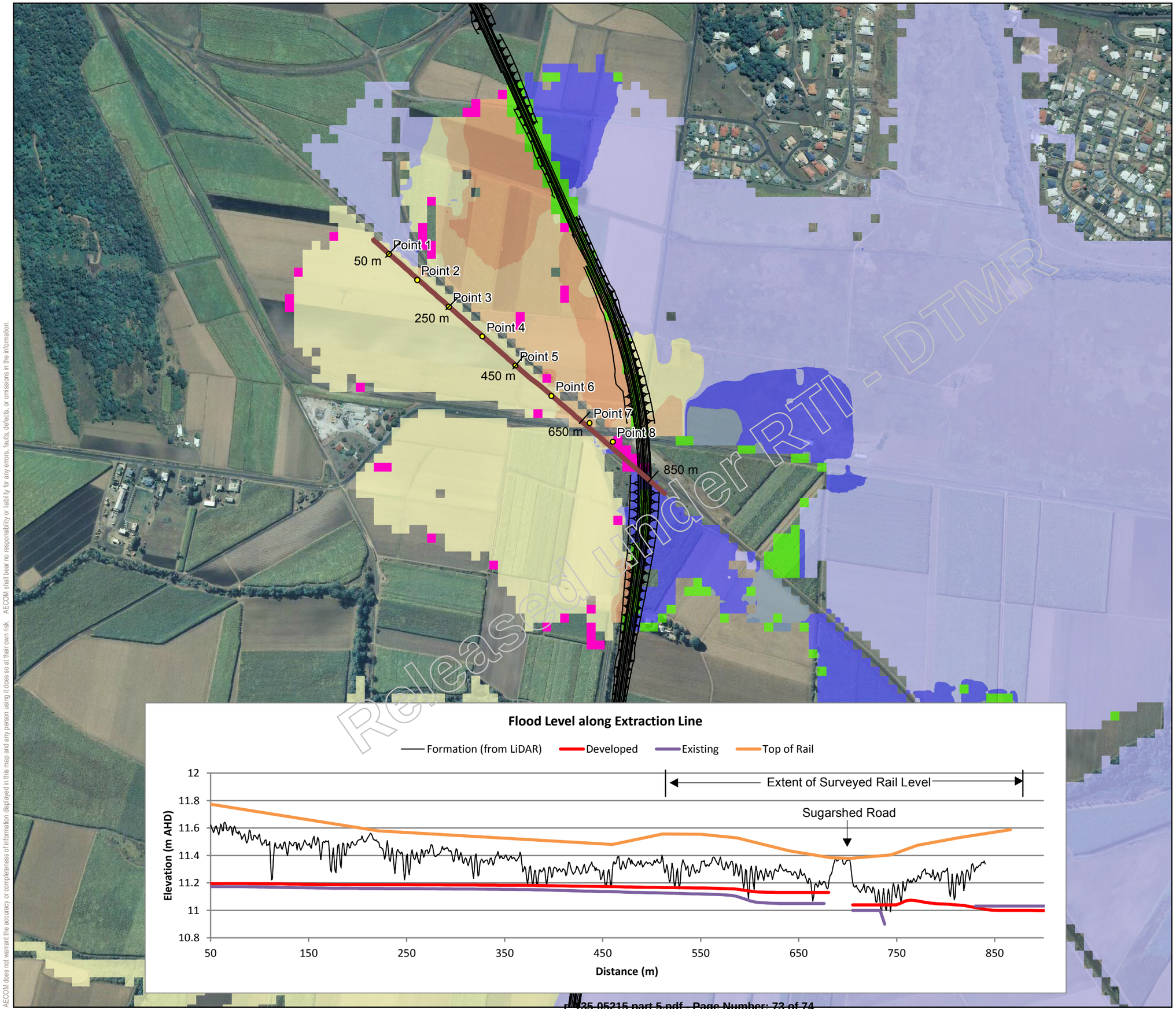


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- Extract QR Flood Levels
- QR Data Extraction Points
- Alignment
- Was Wet Now Dry
- Was Dry Now Wet

**Afflux**

**(m)**

- -4 - -0.3
- -0.3 - -0.1
- -0.1 - -0.05
- -0.05 - -0.01
- -0.01 - 0.01
- 0.01 - 0.05
- 0.05 - 0.1
- 0.11 - 0.15
- 0.15 - 0.2
- 0.2 - 0.3
- 0.3 - 0.4

N

DATUM GDA 1994, PROJECTION MGA ZONE 55

0 100 200 400

Metres

1:8,000 (when printed at A3)

Data sources:

Imagery - ESRI 2015
Afflux - AECOM 2015

**Mackay Ring Road - Detailed Design**

**Bald Hills Flood Impacts**
**2% AEP Event**

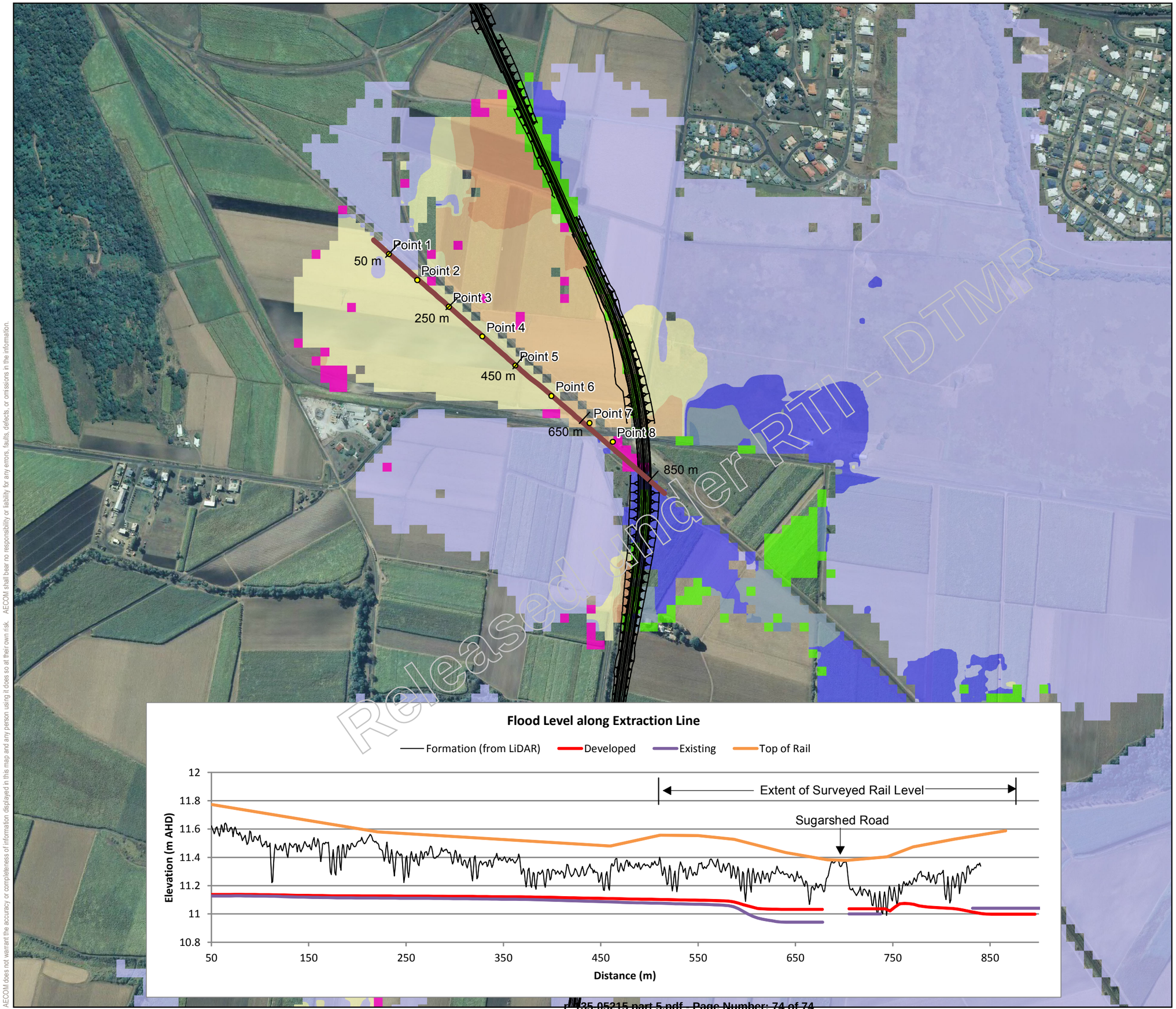
| | |
|---|---|
| PROJECT ID | 60342905 |
| CREATED BY | astorquiaa |
| LAST MODIFIED | 23-Aug-2016 |
| VERSION | v1 |

**Figure E1**

A3 size

Filename: V:\603X\60342905 MRR\4. Tech Work Area\4.9 GIS\07_Working\Report Figures\G60342905_E1_afflux_50y_MRRB10BaldHills_20160229_v1_A3_annotated.mxd

r_135-05215 part 5.pdf - Page Number: 73 of 74

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Extract QR Flood Levels
QR Data Extraction Points
Alignment
Was Wet Now Dry
Was Dry Now Wet

**Afflux**
**(m)**
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-0.3 - -0.1
-0.1 - -0.05
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-0.01 - 0.01
0.01 - 0.05
0.05 - 0.1
0.11 - 0.15
0.15 - 0.2
0.2 - 0.3
0.3 - 0.4

N

DATUM GDA 1994, PROJECTION MGA ZONE 55
0 100 200 400
Metres
1:8,000 (when printed at A3)

Data sources:
Imagery - ESRI 2015
Afflux - AECOM 2015

# Mackay Ring Road - Detailed Design

## Bald Hills Flood Impacts
## 5% AEP Event

| | |
|---|---|
| PROJECT ID | 60342905 |
| CREATED BY | astorquiaa |
| LAST MODIFIED | 23-Aug-2016 |
| VERSION | v1 |

**Figure E2**

A3 size

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r_135-05215 part 5.pdf - Page Number: 74 of 74

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Department of Transport and Main Roads
21-Jul-2017

# Mackay Ring Road Hydraulics

## South of Pioneer River Assessment

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# Mackay Ring Road Hydraulics

South of Pioneer River Assessment

Client: Department of Transport and Main Roads

ABN: 39 407 690 291

Prepared by

**AECOM Australia Pty Ltd**
Level 1, 162 Victoria Street, PO Box 11176, Mackay QLD 4740, Australia
T +61 7 4965 9800 F +61 7 4957 6097 www.aecom.com
ABN 20 093 846 925

21-Jul-2017

Job No.: 60342905

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# 1.0 Introduction

## 1.1 Project Description

The Mackay Ring Road Project (MRRP) is a limited access rural highway that bypasses the Mackay urban and central business areas. It is approximately 11.4 kilometres in length, commencing on the southern side of Mackay at the intersection of Stockroute Road and the Bruce Highway at Ch.0 (MC100) and terminating north of Mackay where it reconnects with the Bruce Highway, approximately 450 metres west of Bald Hill Road at Ch.11440 (MC100).

The MRRP will provide access to the Peak Downs Highway and Stockroute Road with a northbound on-ramp and southbound off-ramp at the Peak Downs Highway and a roundabout at the Stockroute Road intersection. There is an adjoining project, the Walkerston Bypass, which is currently awaiting funding approval which will connect onto the Stockroute Road roundabout and head west to the Peak Downs Highway.

The Mackay Ring Road will comprise new bridges over the Pioneer River, Lagoon Creek and two bridges over the Fursden Creek floodplain. Nine overpasses are proposed over existing local roads, highway and rail networks and a cutting is located at the northern end of the alignment, where the MRRP connects with the Bruce Highway (refer Figure 1).

The Department of Transport and Main Roads has completed a planning study and Business Case for the Mackay Ring Road. The aim of the Ring Road is to:

- Improve freight efficiency in the Mackay area.
- Improve road safety.
- Protect and maintain the integrity of the National road network.
- Improve road access between industrial areas and the Mackay Port; and
- Improve road access between homes and jobs.

AECOM Australia Pty Ltd (AECOM) was engaged by the Department of Transport and Main Roads (TMR) to carry out the detailed design of the MRRP.

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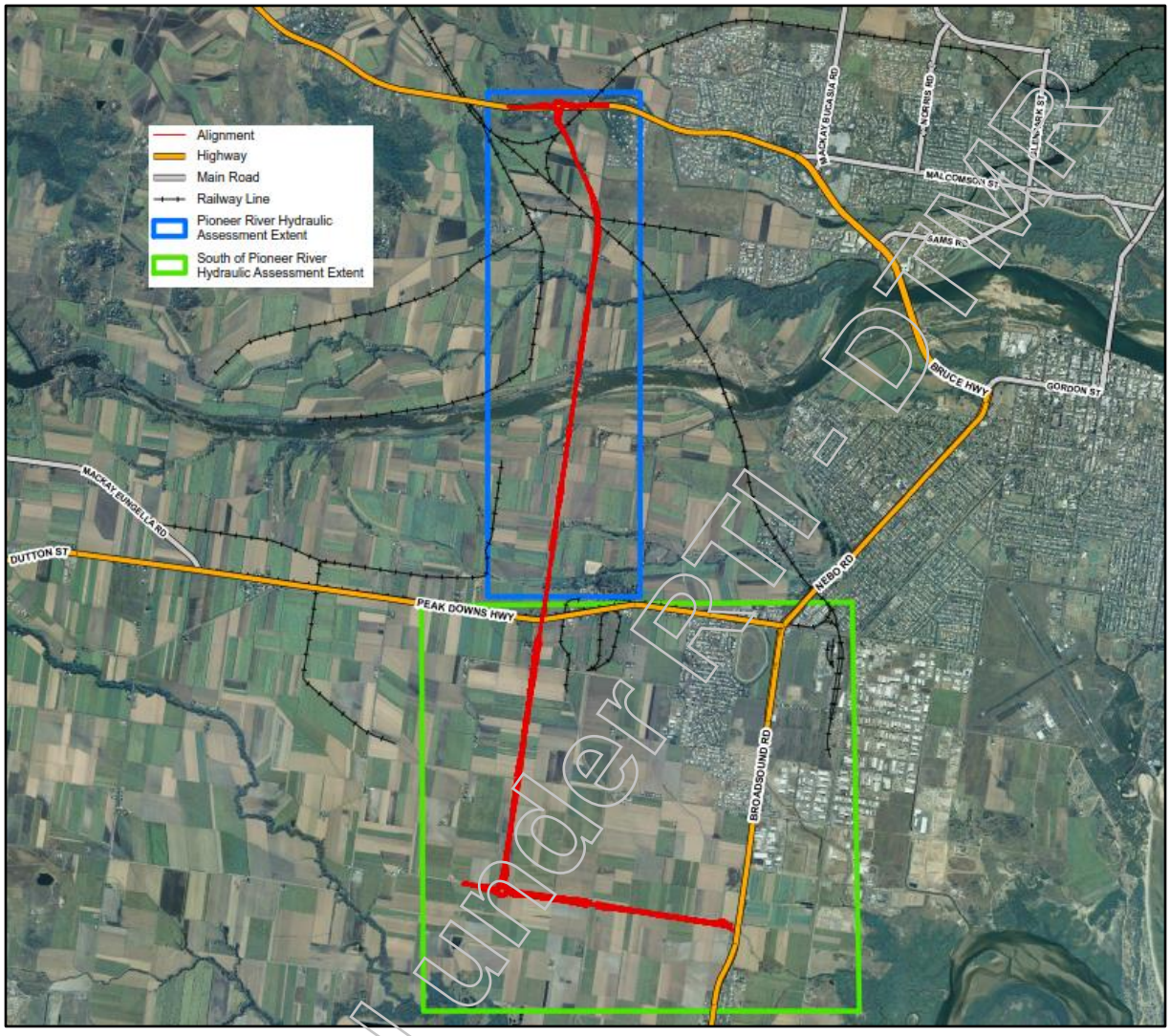


**Figure 1 Mackay Ring Road Overview Map**

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## 1.2 Report Overview

The Mackay Ring Road project traverses three major catchments as follows:

- The Bakers One catchment over which the proposed alignment traverses from the Bruce Highway at Bakers Creek to the Peak Downs Highway.
- The Pioneer River catchment over which the proposed alignment traverses from the Peak Downs Road to Sugarshed Road. This section of the ring road also includes lagoon creek and Fursden Creek.
- The Janes creek catchment over which the proposed alignment traverses from Sugarshed Road to the Bruce Highway (north connection).

The MRRP has now moved to the next design phase and this hydraulic assessment has been undertaken to inform the detailed design of Stage 1, including assessment of potential flood level impacts.

This report discusses the portion of the proposed ring road alignment that traverses the Bakers One catchment.

Also shown in this report are the outcomes of the hydraulic assessment and is structured as follows:

- Section 2 provides background.
- Sections 3 discuss the catchment characteristics.
- Section 4 discusses the previous studies.
- Section 7 discusses the surface water strategy.
- Section 8 lists the discussion of results.

The proposed Ring Road alignment is shown in Figure 1 including the extent of the assessment detailed in this report titled *Mackay Ring Road Hydraulics - South of Pioneer River*.

The hydraulic assessment for the remaining section of Stage 1 of the Ring Road is is detailed in a separate report titled *Mackay Ring Road - Pioneer River Hydraulic Assessment*.

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# 2.0 Background

The Bakers One catchment covers an area of approximately 1,513ha, as shown in Figure 2. The catchment is drained by a series of open farm drains through cane paddocks and along roadways. The topography of the study area is flat with average slopes of approximately 1 on 600 to the southeast. The main discharge location is Ferris Gully which discharges east across the Bruce Highway and Connors Road to an outfall into Bakers Creek.

Existing agricultural development including railways operated by Mackay Sugar and Queensland Rail (QR) as well as road infrastructure owned by Council and the Queensland Department of Transport and Main Roads (TMR) has significantly modified flow paths and flood behaviour across the floodplain. As a result, flood inundation represents a significant potential constraint to development of the catchment.

Mackay Regional Council (Council) has prepared a draft structure plan for the Ooralea Development Area (ODA). This area, which is outside the Priority Infrastructure Area (PIA) has been used to inform ultimate development within the Bakers one catchment. Development of the ODA involves significant infrastructure investment and is not planned for more than 10 years.

As part of the MRRP, the following scenarios have been modelled:

- Existing conditions based on development at 2015 (Existing Scenario); and
- Potential ultimate development conditions for the ODA (Ultimate Development Scenario), including the proposed MRRP.

This report presents the results of the hydrologic and hydraulic modelling studies undertaken to assess flood behaviour in the Bakers One study area for the above scenarios. A suite of flood management infrastructure has been proposed to enable urban development of the ODA within the Bakers One catchment and ensure no worsening of flooding on areas outside of the ODA. In addition, this report provides an assessment of stormwater management infrastructure required to meet appropriate water quality objectives for stormwater discharges from proposed development on the ODA site

This section outlines the indicative details of the cross drainage structures proposed along the Mackay Ring Road. The configurations of the cross drainage structures were determined using the flood models, described in Section 2.2, to minimise the impact on neighbouring properties and to provide 1% AEP immunity along the Ring Road and Port Access Link to the west of Valley Street.

The location of the cross drainage structures along the Ring Road are shown in Figure 3.1. The existing 100 year ARI flood depths for the Pioneer River, Fursden Creek, Gooseponds/Vines Creek, McCreadys Creek and the Bakers One catchment (fully developed Ooralea) derived using the flood models are also shown.

Following the completion of the flood modelling, the consultation process has identified minor modifications to the drainage infrastructure that will be taken forward into the design development phase. The proposed modifications have not been investigated but have been annotated to the tables below. A preliminary assessment would suggest that the proposed modifications will not significantly impact on the flood model results.

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**Figure 2 Study Area**

Source - BAKERS ONE CATCHMENT STORMWATER TRUNK DRAINAGE STUDY ( WRM 2015)



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# 3.0 Catchment Characteristics

Currently approximately 6% of the study area is made up of residential and industrial land use zones. The area is generally very flat with an average grade of about 1 in 600 to the south east. The external boundary of the study area is not clearly defined and there may well be cross boundary flows during periods of high rainfall events. A grid system of access roads and cane rail lines intersects the catchment. Shallow open drains run in a south-easterly direction through the catchment, crossing the road and light rail networks through small culverts or by floodways on roads.

General nuisance flooding from low order events can occur throughout the catchment. At times of heavy rain, parts of the study area are subject to flooding for long periods. This flooding has been caused partly by the changes to the natural drainage pattern resulting from the construction of roads and cane railways and partly by the alterations made by farmers to the locations and levels of the drains through their properties.

The existing major outlets for the catchment are across the Bruce Highway by way of two drainage paths, viz:

- The drainage path across the Bruce Highway to the immediate north of the Stockroute Road intersection. This is known locally as Ferris's Gully.
- The drainage path across the Bruce Highway north of the Dundula Primary School. This is known locally as School Gully.

These drainage paths merge upstream of the crossing of the Queensland Rail line approximately 400 metres east of the Bruce Highway. The catchment then drains across Connors Road by means of 13/2700x1500 SLB culverts to enter the lower reaches of Bakers Creek.

A secondary high level outlet exists along Cowleys Road south from Stockroute Road.

The existing drainage infrastructure within the study area at Connors Road, Bruce Highway, Schmidtkes Road and other local road and cane railway transport systems imposes hydraulic constraints on the operation of the existing drainage system.

The majority of the study area to the west of Cowleys Road and south of Schmidtkes Road is currently zoned rural in the Mackay City Planning Scheme (May 2006). Mackay Sugar's cane rail marshalling area is located in the north of the study area adjacent to the Peak Downs Highway and is zoned high impact industry.

North of Schmidtkes Road the area includes zonings of residential, urban expansion, special purposes and some rural expansion. The Mackay campus of Central Queensland University is zoned special purposes.

The original land use within the study area was cane farming. Currently some 6% of the catchment is zoned residential; special purposes or urban expansion. However the land is strategically located for development for both residential and industrial purposes. The increased stormwater runoff resulting from this urbanisation needs to be conveyed through the existing or alternative new trunk drainage systems to its final point of discharge at Bakers Creek.

## 3.1 Known Problem Areas

General nuisance flooding for low order events can occur throughout the catchment. However the major problem areas are listed below:

1. Cowleys Road – from Boundary Road to south of Stockroute Road
2. Schmidtkes Road - from Cowleys Road extending approximately 900m east
3. Stockroute Road and Bruce Highway intersection
4. Connors Road – Ferris Gully crossing north of Cooks Lane
5. Main Street Bakers Creek – adjacent to Dundula School
6. Bradco Avenue and Monash Way areas of Ooralea.

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## 3.2 Existing Infrastructure

### 3.2.1 Road Infrastructure

A number of important road infrastructure links exist within the study area. These are listed in Table 1.

**Table 1 Existing Road Infrastructure**

| Street | Section | Road Classification Φ | Existing Cross Drainage Immunity (1 in AEP) | Required Cross Drainage Immunity (1 in AEP) |
|---|---|---|---|---|
| Connors Road | Cooks Lane to 500m north | Sub-Arterial | 20-50 | β |
| Bruce Highway | Farrellys Lane to Temples Lane | National Highway | 20-50 | 50 - 100 |
| Cowleys Road | Full length | Sub-Arterial/Access | 1-2 | β |
| Peri Road | Full length | Access | 1 | β |
| Hansens Road | Peak Downs Hwy to 1000m south | Sub-Arterial | 1 | β |
| Calrossie Road | Full length | Major Collector | 1 | β |
| Peak Downs Highway | Alexandra Rd to Calrossie Road | Highway – Traffic Distributor | | 50 |
| Stotts Road | Full length | Access | | β |
| Boundary Road | Cowleys Road to Bath Ave | Sub-Arterial | 2 | β |
| Schmidtkes Road | Cowleys Road to Canecutters Dr | Sub-Arterial | 1 | β |
| Stockroute Road | Bruce Highway to Peri Road | Sub-Arterial | 1 | β |
| Temples Lane | Cowleys Road west | Access | 2 | β |

Φ Road classification taken from Mackay City Council's Infrastructure Map A (24 March 2006)

β Mackay Regional Council adopt a case by case risk based approach for determining immunity levels for culverts in rural areas.

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## 3.3 Cane Rail Infrastructure

Mackay Sugar has major cane rail infrastructure within the study area. Racecourse Mill's rail marshalling yard and cane tipper operations are located in the northern sectors of the study area adjacent to Peak Downs Highway. The mill's main line extends south from the marshalling yards along Cowleys Road to cross Bakers Creek approximately 3 kilometres upstream on the highway bridge.

A major connection to Mackay Sugar's other factories is on the northern side of Stockroute Road between Cowleys Road and Peri Road. The rail alignment is then generally westerly through cane farms.

The cross drainage immunity level of the cane railways is similar to that of the adjacent Stockroute and Cowleys Roads. In general the rail levels are equal to or higher than the adjacent road crown level. The cane railway network crosses the study area in both north-south and east-west directions and places additional limits on possible trunk drainage alignment options.

## 3.4 Open Drainage System

Open earth drains define the existing drainage paths within the study area as follows:

**Table 2 Existing Open Drain Infrastructure**

| Location | Description | Easement Width |
|---|---|---|
| Hansens Road to Peri Road | Open earth drain through cane farms – no easement | None |
| Peri Road to Cane Railway | Open earth drain through cane farms – no easement | None |
| Cane Railway to Cowleys Road | Open earth drain through cane farms | None |
| Cowleys Road to Schmidtkes Road | Open earth drain through cane farms | None |
| Schmidtkes Road to Stockroute Road | 10m wide temporary drain is being constructed within a 70m corridor. | 10m |
| Monash Way to Schmidtkes Road | Open earth drain | 10m |
| Stockroute Road to Connors Road | Open earth drain | 20m and 30m |
| Connors Road to Bakers Creek | Open earth drain | 120m approx |
| Cane railway to Stockroute Road | Open earth drain adjacent to cane railway and Cowleys Road | Nil – majority length in road reserve. |
| Stockroute Road to Temples Lane | Open earth drain & concrete lined drain | Nil – in road reserve |
| Cane Railway to Bakers Creek | Open earth drain | None |
| Cowleys Road to Bruce Highway | Open earth drain | Nil |
| Bruce Highway to QR Line | Open earth drain – partially concrete lined | 10m |

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## 3.5 Culvert Structures

The existing culvert structures within the study area are listed in Table 3

**Table 3 Existing Trunk Drainage Structures**

| Location | Description |
|---|---|
| Hansens Road | 5/1200x450 RCBC |
| Peri Road | 9/1200x450 RCBC |
| Cane Railway | 7/1200x900 RCBC |
| Cowleys Road | Concrete causeway |
| Schmidtkes Road | 4/2400x1500 RCBC |
| Bruce Highway | 4/2750x2150 RCC<br>2/2750x1840 RCBC |
| North Coast Rail Line | 3/9m span bridge |
| Connors Road | 13/2700x1500 SLBC |
| Cane Railway | 5/1200x600 RCBC |
| Stockroute Road | 3/1200x900 RCBC |
| Cowleys Road Cane railway | 2/2050x950 RCC<br>3/1200x1200 RCBC |
| Temples Lane Cane Railway | 2/2100x2050 RCC<br>2/3300x1500 RCBC |
| Bruce Highway | 4/2150x1520 RCC |
| Main Street | 2/3000x1500 RCBC |

## 3.6 Trunk Drainage System Constraints

The built infrastructure within the study area imposes hydraulic constraints on the operation of the trunk drainage system as follows.

### 3.6.1 Connors Road Culverts

The constructed culverts under Connors Road comprise 13/2700x1500 SLBC and have been designed to convey the 50 year ARI rural flow of 115 m3/s (KBR 2003) from a catchment of approximately 735 hectares. This 735 hectare catchment represents approximately 50% of the rural catchment that discharges to Bakers Creek across Connors Road adopted in this study. The designed capacity of the Connors Road culverts at 115 m3/s is approximately 70% of the 100 year ARI rural flow from the 1488 hectare catchment. A maximum of about 10% of the catchment flows are directed south along Cowleys Road towards Bakers Creek.

### 3.6.2 Bruce Highway Culverts

The existing culverts under the Bruce Highway at the Stockroute Road intersection provide approximately 20 to 50 year ARI immunity. The culverts operate under outlet control conditions. Flows in excess of the culvert capacity will flow south across Stockroute Road and, if the flows are significant, across the Bruce Highway.

The existing culverts under the Bruce Highway near Dundula School provide approximately 50 year ARI immunity. In a 50 year ARI event the culvert headwaters inundate about 20 hectares of upstream cane farm. The existing culverts under Main Street, Bakers Creek have approximately 70% of the waterway of the upstream Bruce Highway culverts. While the 100 year ARI water surface levels for the School Gully culverts may not inundate the highway (assuming that upstream storage is available), Main Street and the adjacent school areas may be inundated to a depth of approximately 0.4 metres.

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### 3.6.3 Schmidtkes Road Culvert

The Council has recently upgraded the culverts under Schmidtkes Road to provide for 4/2400x1500 RCB Culverts at a new invert level of 6.17 mAHD. To date, only temporary drainage works have been undertaken downstream of these culverts.

The new culverts are an interim measure to provide temporary relief to the residential areas upstream of Schmidtkes Road. It is noted that the designed capacity of these culverts will not be achieved until downstream drainage works have been completed.

### 3.6.4 Other Local Roads and Cane Railways

The existing open drains and culverts under the intersecting roads and cane railways within the study area provide for a lower order flow capacity of approximately 1 year ARI immunity. Significant ponding along the open drains within cane farms and ponding upstream of roads and cane railways is a feature of low to middle order floods. Higher order flows inundate large lengths of existing roads and cane railways and cane farms. To improve road access and to reduce water surface levels, additional drain and culvert capacity is required throughout the catchment.

### 3.6.5 Mackay Water Recycling Project Rising Main

The 914mm nominal diameter sewer rising main traverses the study area along Schmidtkes Road, Cowleys Road and Temples Lane to the Bakers Creek sewage treatment plant. The rising main has been lowered at Schmidtkes Road and Cowleys Road – Temples Lane intersection to make allowance for existing culverts. The vertical alignment of the rising main has reduced the range of culvert size/number options for the proposed trunk drainage.

# 4.0 Previous Studies

There have been a number of studies over the Ooralea area which are of relevance to the flood behaviour of the Bakers One catchment:

- Ullman & Nolan (1971) Master Drainage Plan; North of Bakers Creek.
- Ullman & Nolan (1980) Stormwater Drainage Plan; North of Bakers Creek.
- Mackay City Council (undated) master drainage plan; Bakers one.
- KBR (2003) Hydraulic Modelling of Ferris Gully catchment.
- Cardno Ullman & Nolan (2009) *Bakers One catchment; Stormwater Trunk Infrastructure Study.*
- WRM (2013) *Mackay Ring Road Business Case Scenario.*
- WRM (2015) *Bakers One Catchment; Stormwater Trunk Drainage Study.*

The two WRM reports are 2-dimensional analyses that simulate the existing case and ultimate case and propose an ultimate case stormwater trunk infrastructure strategy for the catchment.

## 4.1 Discussion of Later WRM Reports

The 2013 WRM business case report models the ring road alignment with the existing and ultimate development scenarios for Bakers One catchment. This study proposed a number of longitudinal channels parallel to the ring road alignment and four major cross culverts/bridges that aligned ( for both invert levels and location) with the Bakers One proposed channels.

The 2015 WRM study is understood to be “close to adoption by Council” and contains the proposed ring road (possibly business case alignment and bridge location/geometry) in the ultimate scenario.

Deliberations of the MRRP team have concluded that the open channel network proposed in the WRM study may be an optimal source of embankment material. If this scenario is adopted there is an additional benefit in that the MRRP drainage strategy will neatly align with Council ultimate development drainage strategy.

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The WRM business case report included two models:

- Base Case scenario that modelled the existing conditions circa 2015.
- Ultimate development scenario to model the fully developed sections of the study area and the proposed drainage infrastructure (proposed MRRP culverts, proposed local road culverts, proposed cane rail realignment and proposed open drains).

Discussions between TMR and Council have determined that the construction of the MRRP is anticipated to commence in 2017, which will precede the likely construction of the Bakers One trunk infrastructure by a number of years. This mismatch of construction timeframes is discussed further in Section 6.0.

The WRM Business Case Report model extents are shown in Figure 2. The model does not include any catchment to the north of the Peak Downs Highway that report to Te Kowai Foulden Road. A portion of discharge from these catchments flows south across the Peak Downs Highway through 4/450 RCP which are located near the intersection of Calrossie Road and the highway.

## 4.2 MRRP Models

Mackay Regional Council has approved TMR to use the 2015 version of the WRM Bakers one XP-RAFTS and Tuflow models for the purposes of undertaking hydraulic assessment of the southern portion of the MRRP.

The XP-RAFTS and Tuflow models are both assumed to be correct and “fit for purpose” for the MRRP project. The additions/changes that have been made to the models are discussed in the following sections.

## 4.3 XP-RAFTS

The following catchments have been added to the Bakers One XP-RAFTS model:

- Catchment to the north of Peak Downs Highway and west of Te Kowai Foulden Road that reports to the intersection of these two roads. A portion of the discharges flows south across the Peak Downs Highway and the remainder surcharges north to an eventual discharge into Lagoon Creek.
- Catchments west along the Peak Downs Highway road reserve that reports to the intersection of Peak Downs Highway and Te Kowai Foulden Road. These catchments direct flows to the south into Bakers One and also surcharge north into Lagoon Creek.
- Catchment to the north of Peak Downs Highway and east of Te Kowai Foulden Road that reports to the intersection of these two roads. This catchment encompasses part of a cane farm and part of Mackay Sugar’s Racecourse factory. This catchment discharges across discharges west across Te Kowai Foulden Road and then north to an eventual discharge into Lagoon Creek.
- Catchments east along the Peak Downs Highway road reserve that reports to the intersection of Peak Downs Highway, Te Kowai Foulden Road and Calrossie Road. These catchments direct flows to the south into Bakers One and north into Lagoon Creek.

The additional catchments are shown on Sketches 5015 to 5018 in Appendix A.

The flow footprints generated by the additional catchments in the vicinity of the Peak downs Highway are shown as pink (what was dry now wet) on Sketches 8005, 8011, and 8018.

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# 5.0 Hydraulic Modelling

The following infrastructure has been added to the Bakers One Tuflow base case model:

- MRRP footprint.
- Business case proposed culverts.
- Proposed culverts and open channels for the additional catchments north of Peak Downs Highway.
- Proposed culverts and open channels to suit Peak Downs Highway off/on ramp alignment.

For the interim hydraulic assessment for the section from the Bruce Highway to Peak Downs Highway, the WRM two dimensional model (ultimate case) prepared for Mackay Regional Council has been adopted to assess flow patterns ( depths, flows, velocities) and to assess the hydraulic behaviour of proposed culverts and channels that are generally longitudinal to the proposed MRRP alignment.

As noted in the Bakers One study (WRM, 2013) there are four main cross drainage structures proposed along the MRRP from Stockroute Road to the Peak Downs Highway. These are listed in Table 4 below.

**Table 4 1% AEP Culvert structures - WRM 2013 report**

| Location | Catchment area (ha) ( WRM) | WRM 2013 Ultimate scenario structure | Location approx. MRRP chainage | Fill depth over culvert (m) |
|---|---|---|---|---|
| C1 | 22 | 10/1200x450 RCBC | 3000 | 1.5 |
| Cane rail over pass | 195 | Open channel top width 10.4m; depth 0.75m | 3940 | N/A |
| C2 | 297 | 2/1800x1500 RCBC 4/1800x1200 RCBC | 4450 | 1.3/1.6 |
| C3 | 30 | 2/1200x900 RCBC | 5400 | 8.5 |

## 5.1 Design Parameters

The following criteria have been adopted for the design of local catchment (excluding riverine flows) drainage infrastructure relating to the proposed ring road:

- Immunity of stormwater infrastructure crossing the ring road or state controlled roads – 1% AEP.
- Immunity of stormwater infrastructure crossing the local authority roads – 18% AEP.

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# 6.0 Timing of Construction of Bakers One Trunk System

Advice from Mackay Regional Council is that the construction of the Bakers One trunk drainage system may not occur until the year 2025 or later. Construction of the trunk system from 2025 has two significant impacts on the project:

- Removes the opportunity to source significant volumes of fill for the project from relatively close at hand.
- Impacts on the preferred drainage scenario as detailed in the WRM report.

The loss of opportunity of fill for the project is not the subject of this report.

The drainage scenario listed in Table 4 assumes that the trunk drainage system is operational. In general the proposed trunk drainage systems in the WRM report are approximately 1.0m deep where the proposed channels cross the ring road alignment.

As the proposed channels will not be constructed at the time of the ring road (indicative construction time frame 2017-2019) the business case scenario culverts have been modified to suit the existing available discharge locations and levels cognisant of the MRRP formation and elevation. The proposed amendments are listed in Table 5.

**Table 5 1% AEP Culvert structures – Business case report and adopted structures**

| Location WRM report | Location/MRRP chainage | WRM 2013 Ultimate scenario structure | Adopted drainage structures | Fill depth over culvert (m) |
|---|---|---|---|---|
| C1 | 2785 | 10/1200x450 RCBC | 8/1200x900 RCBC | 1.5 |
| Cane rail over pass | 3940 | Open channel top width 10.4m; depth 0.75m | Open channel top width 10.4m; depth 0.75m ( not in AECOM MRRP scope) | N/A |
| C2 | 4450 | 2/1800x1500 RCBC<br>4/1800x1200 RCBC | 6/2400x2400 RCBC<br>2/1200x900 RCBC (ch 4554)<br>2/1200x900 RCBC (ch 4730) | 0.6<br>0.6<br>1.2 |
| C3 | 5400 | 2/1200x900 RCBC | 4/900 RCP | 8.0 |

## 6.1 Discussion of Adopted Structures

The culvert at chainage 2785 has been optimised to better suit the MRRP geometry near the Stockroute Road roundabout, the catchment reporting to the ring road from the west and the ability to construct a discharge channel to the east along the old cane rail formation to Cowleys Road. A channel parallel to the ring road will need to be constructed to ensure natural sag at approximately 3120 can be drained.

The channel parallel to the realigned cane rail line is not part of this scope of works for this project.

The adopted culverts to replace the business case scenario at chainage 4450 are as follows:

- 6/2400x2400 RCBC at chainage 4450. The culverts will be constructed to final (Bakers One trunk drainage) elevation and backfilled to the existing natural surface with sand. The depth of the infill is approximately 1.0m. The remaining conveyance area above the sand fill plus the provision of two sets of 2/1200x900 RCBC will suit the 1% AEP event in the current circumstances (circa 2016).
- 2/1200x900 RCBC at chainage 4554. This culvert is complementary to the adopted culvert at chainage 4450 and is alignment to suit existing low flow paths.
- 2/1200x900 RCBC at chainage 4730. This culvert is complementary to the adopted culvert at chainage 4450 and is alignment to suit existing low flow paths.

The adopted 4/900 RCP culverts at chainage 5400 are better suited to a high fill location than the proposed box culverts.

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# 7.0 Surface Water Strategy

The estimated catchment area to the west of the proposed ring road is 544 hectares. The current flow path (circa 2015) for the 544 hectare catchment is generally to the east across the proposed alignment of the ring road.

The commission for the Mackay Ring Road requires that the existing stormwater case (circa 2015) be addressed. This is achieved by strategically placed culverts and longitudinal table drains to direct and/or discharge the required design event across or parallel to the ring road.

## 7.1 Stockroute Road Section

The strategy for this section is for longitudinal drains as follows:

**Bruce Highway to Cowleys Road** – wide table drain on the southern side to cater for the existing southern catchment to grade east to the existing culverts under Stockroute Road near the Bruce Highway. On the northern side a graded table drain between the proposed road and the existing formation heading east.

**Cowleys Road to new roundabout** - wide table drain on the southern side to cater for the catchments further to the west and the new roundabout to grade east to the proposed channel under the Cowleys Road overpass.

This section is part of the Bakers One Tuflow model.

## 7.2 Stockroute Road Roundabout north to Peak Downs Highway

There are a number of existing watercourses crossing the ring road alignment. As discussed previously the bankfull capacity of these watercourses are low order flows. The adopted strategy for the current scenario is to provide a culvert set at the main watercourse crossings known as locations C1 and C2 and place additional structures ( for a total conveyance of 1% AEP) at regular intervals.

The full set of structures will be placed at chainage 4450 as this is a natural bowl. The fourth watercourse is parallel to the proposed cane rail line. It is anticipated that for the existing case the embankment of the cane railway will act as a levee directing flows to the east under the overpass. All structures are placed with one exception at or just below existing natural surface levels at the respective location.

Minimal longitudinal open drains to promote the low flows to the nearest structure are required. The high order events will tend to pond against the embankment and discharge over time to the nearest drainage structure.

This section is part of the Bakers One Tuflow model.

Provision for internal drainage at the roundabout at Stockroute Road and adjacent median drainage has been made which will discharge into adjacent channels.

## 7.3 Peak Downs Highway

The Bakers One Tuflow model was extended to cater for the catchments north of the Peak Downs Highway and to the east and west of Te Kowai Foulden Road (Refer Sketch 5015 Appendix B). Modelling of the existing condition shows the Peak Downs Highway within the study area is not impacted by a 1% AEP event. The adopted strategy for this area is as follows:

- Catchments on the southern side of the highway to the east of the ring road will drain via open channel and kerb and channel west to the on ramp and then discharge south into the Bakers One upper catchment. The catchment area is approximately half the road reserve and extends east to near Cowleys Road. The capacity of the existing drainage structures is approximately an 18% AEP event. Excess flows will discharge south over the kerb.
- Catchments on the southern side of the highway to the west of the ring road will drain via open channel east to the off ramp and then discharge south into the Bakers One upper catchment. The catchment area is approximately half the road reserve and extends west for approximately 300m. Excess flows will discharge south through adjacent properties without impacting on the highway.

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- Catchments on the northern side of the highway and to the east of the ring road (primarily within Racecourse Mill) will be drained via open channel west towards Te Kowai Foulden Road. A portion of the flow will discharge south across the highway and into the Bakers One catchment and the remainder will flow west and then north along Te Kowai Foulden Road to discharge into the Lagoons. Drainage structures will be placed at accesses (Racecourse Mill) that cross the channel on the northern side of the highway.
- Catchments on the northern side of the highway and to the west of the ring road (primarily cane lands) will be drained via open channel east to and across Te Kowai Foulden Road and then directed north along Te Kowai Foulden Road to discharge into the Lagoons.

Median drainage along the Peak Downs Highway will discharge south into the Bakers One catchment.

## 7.4 Peak Downs Highway to Pioneer River

There are two small catchments to the north of the lagoons bridge. The ring road strategy is to place culverts opposite the existing road culverts to cater for the 1% AEP event. Outside of these local catchments especially to the north over Gibsons Road the landform falls to the north and northeast. There are no culverts under the existing local road from Gibsons Road to Lansdowne Road. The strategy is to ensure that there is longitudinal drainage (table drains) to provide positive drainage in the direction of the landform. Culverts may be required under local access roads that are to be constructed as part of the ring road project.

## 7.5 Pioneer River to Fursden Creek

This section is part of the Pioneer River 2D model.

## 7.6 Fursden Creek to Sugarshed Road

The strategy is to not have any cross culverts in this section and direct flows to the north (Sugarshed Road) and to the south (Fursden Creek) as the landform dictates. The potential for scour in the table drains/ embankment toe at the existing and new Fursden Creek bridges is to be checked. It is intended not to alter the existing drainage patterns at the intersection of Yakapari Road and Sugarshed Road. A new culvert is proposed under Sugarshed Road to the north of the new intersection with Bald Hill Road to cater for any low order flows that may be redirected by the overpass/fill embankments. Culverts may be required under local access roads that are to be constructed as part of the ring road project.

## 7.7 Sugarshed Road to Rail overpass

This section is part of a separate 2D model.

## 7.8 Rail Overpass to Bruce Highway

This section is in cut. The adopted strategy is to direct the catchments reporting to the highway to the west of the roundabout across the highway through existing or replaced and upgrades structures. The excess will drain east then south towards the rail overpass. Two drainage structures will discharge the western flows across the ring road and via a new channel, to direct the flows to the northeast parallel to the port rail line to cross the highway to the west of the existing rail overpass. The proposed channel will require a berm to prevent flows from discharging down the rail cutting.

Provision for internal drainage at the roundabout at the Bruce Highway and adjacent median drainage has been made which will discharge into existing adjacent watercourses.

## 7.9 Additional Road Runoff

The construction of the MRRP will result in an impervious road surface where there were previously cane fields. This impervious surface has the potential to increase runoff locally from the road surface. To handle this localised increase in runoff, table drains will be constructed at relevant locations adjacent to the road alignment to collect this runoff from the road surface, with sufficient capacity to direct this flow to the nearest drainage path.

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# 8.0 Discussion of Results

## 8.1 Impacts on farm infrastructure and houses

TMR have undertaken an engineering survey of existing houses and sheds and their floor levels in the areas of interest that pertain to the MRRP hydraulic model influence area. The location and relevant elevations in relation to the 18% AEP and 1% AEP base case scenario and the 18% AEP and 1% AEP event for the MRRP are shown in Appendix C.

Table 8 lists locations at houses and shed and other farm infrastructure that are predicted to have an increase in flood levels of greater than 0.01m. Table 9 discusses the proposed mitigation options for each case where the difference in modelled Peak Water Surface Elevation (PWSE) is greater than 0.01m. There are no houses that have an increase in over floor flooding levels. However there are three sheds at 34 Calrossie Road where the over floor flooding is predicted to increase by 0.02m.

It is to be noted that the over floor flooding in the developed case model is approximately 0.45m below that recorded in the 2008 flood event. The sheds are located to the immediate south of the on ramp from the Peak Downs Highway. No mitigation options are proposed for the three sheds.

An existing irrigation pump is recommended to be raised above the 1% AEP PWSE for the developed case.

## 8.2 Developed Case Impacts

Figure 8005 shows the difference in PWSE between the base case and the developed case for the 1% AEP event. The base case is from the original Council model base case and excludes the additional catchments added as discussed in in Section 4.3 above. The differences are discussed in the sections below

### 8.2.1 North of Peak Downs Highway

The area in red reflects the additional catchment flows not included in the base case.

### 8.2.2 Within the on/off ramps

The catchments for the areas within the on and off ramps have been subdivided from the base case catchments to assess the internal flows.

### 8.2.3 Peak Downs Highway

The flows south form the Peak Downs Highway to the east of the service station represent the overflow from the existing kerb and channel conveyance for the 1% AEP flows. The proposed MRRP project is not predicted to change this flow regime.

### 8.2.4 South of Stotts Road

Figure 8005 shows an increase in storage approximately greater than 0.3m approximately 900m south of Stotts Road against the proposed MRRP embankment. It is understood that when the ultimate development of the Bakers One trunk drainage system occurs the increase in PWSE upstream of the MRRP embankment will decrease. The storage area is within existing cane fields.

### 8.2.5 North of Stockroute Road

Figure 8005 shows an increase of storage approximately greater than 0.3m approximately 200m north of Stockroute Road against the proposed MRRP embankment. . The location of the culverts proposed in the business case have been moved south at the request of the landowner. The business case culverts were previously located in the natural sag along the MRRP alignment. The MRRP design includes a table drain from the natural sag south to the proposed culvert location. The storage area is within existing cane fields.

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### 8.2.6 Bruce Highway

Figure 8005 shows that in the developed case the Bruce Highway is inundated to the north of the Stockroute Road roundabout. The inundation commences approximates 50 metres north of the existing roundabout and extents for approximately 150m with and indicative depth of 25-50mm. Investigation of this potential flooding to the Bruce Highway suggests that there may be two key causes as follows:

1. The proposed ring road embankment prevents high order flows that in the current case (before construction) would normally discharge across the existing Stockroute Road and enter the School Gully drain. With the overland flow path being blocked by the proposed ring road formation, the post construction flows are directed east to the existing culverts under the Bruce Highway – Stockroute Road roundabout thus slightly increasing the peak flows to this area.
2. The existing culverts (6/2700x2400 RCBC) across the Bruce Highway at the Stockroute Road roundabout in the existing condition are hydraulically tailwater controlled, as the downstream conveyance is restricted relative to the potential conveyance of the existing culverts. The relative waterway areas are as follows:
    - Waterway area of existing culverts – 39m2.
    - Bankfull area of existing channel downstream of the Bruce Highway – 21m2.
    - Bankfull area of the ultimate channel downstream of the Bruce Highway – 51m2.

It is to be noted that the flooding of the Bruce Highway does not occur in the Ultimate case model as demonstrated in the WRM 2015 report. Mackay Regional Council are currently (August 2016) undertaking the detailed design of Ferris and School gullies from the Bruce Highway east to the rail line. When constructed the new drain profiles will increase the waterway area downstream of the Bruce Highway by approximately 50%.

There are two options to alleviate the flooding of the Bruce Highway:

1. Provide additional cross drainage structures under Stockroute Road to direct flows to the south of the ring road. This option may not be practicable or appropriate as it is understood the developer is in the process of securing a development application agreement with Mackay Regional Council over this property that is based on there being no flows across Stockroute Road directed to the south.
2. Coordinate the construction of the new Ferris and School gully channel profiles downstream of the Bruce Highway with Mackay Regional Council so that the channels are fully operational at the time of commencement of the earthworks for Stockroute Road section of the ring road project.

## 8.3 Indicative time of Inundation of Cane Areas

The average annual time of submergence was estimated for 8 locations along the MRRP alignment from Stockroute Road to the Peak Downs Highway. The locations are shown in Figure 3.The impact of the time of inundation for the cane farms in the Bakers One catchment has been assessed. Table 7 shows the increase in inundation times at four locations as shown in Figure 3. The time of submergence for the 20% and 1% AEP events have been tabulated with submergence assumed when the depth exceeds 0.15m. The results indicate a minor increase in inundation times with times of inundation increased by up to 2 hours in the 20% AEP event and up to 6 hours in the 1% AEP event.

The average annual times of submergence (AATOS) for the selected locations are listed in Table 6.

The estimate of annual average time of submergence is based on a synthetic design storm hydrograph at a particular location, combining with other flows and discharging across the study area in a direction and velocity dictated by the topography. The AATOS does not include the duration a cane field may be waterlogged due to localised depressions and/or blocked pipes and channels.

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**Table 6 Average Annual Time of Submergence (AATOS)**

| Location | Short name | Existing conditions AATOS (hrs) | Developed conditions AATOS (hrs) |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

The full AATOS assessment is listed in Appendix D.

**Table 7 Cane Inundation Times**

| | Time of Submergence > 0.15m (hours | | | |
|---|---|---|---|---|
| | 20% AEP | | 1% AEP | |
| | Existing | Developed | Existing | Developed |

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**Figure 3 AATOS locations**

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**Table 8 Impacts greater than 0.01m**

| Location | Floor Level (mAHD) | 18% AEP Base case PWSE (mAHD) | 1% AEP Base case PWSE (mAHD | Base case – surveyed (m) | 18% AEP develop PWSE (mAHD) | 1% AEP develop PWSE (mAHD) | Develop Surveyed (m) | Is Developed Case Worse | Difference Base – Developed (m) | Lidar Ground Elevation (mAHD) |
|---|---|---|---|---|---|---|---|---|---|---|

**Table 9 Proposed Mitigation options for areas where the PWSE is greater than 0.01m**

| Location | Floor Level (mAHD) | Difference Base Developed (m) | Lidar Ground Elevation (mAHD) | Comments | Proposed Mitigation |
|---|---|---|---|---|---|

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## 8.4 Flood Mapping

Flood mapping for a range of events is shown in Appendix E, including:

- Sketches 8003 and 8004 show the base case and developed case ( Mackay Ring Road) peak water surface elevations for the 1% AEP event.
- Sketches 8001 and 8002 show the base case and developed case ( Mackay Ring Road) peak water surface depths for the 1% AEP event.
- Sketch 8005 shows the differences between the base case and the developed case for the 1% AEP event.
- Sketches 8014 and 8015 show the base case and developed case ( Mackay Ring Road) peak water surface elevations for the 0.2% AEP event.
- Sketches 8012 and 8013 show the base case and developed case ( Mackay Ring Road) peak water surface depths for the 0.2% AEP event.
- Sketch 8015 shows the differences between the base case and the developed case for the 0.2% AEP event.
- Sketches 8016 and 8017 show the base case and developed case (Mackay Ring Road) peak water surface depths for the 1EY AEP event.
- Sketch 8018 shows the differences between the base case and the developed case for the 1EY AEP event.
- Sketches 8019 and 8020 show the base case and developed case (Mackay Ring Road) peak water surface depths for the 40% AEP event.
- Sketch 8021 shows the differences between the base case and the developed case for the 40% AEP event.

Discussion of the overtopping of the Bruce Highway to the north of the Stockroute roundabout is discussed in Section 8.2.6

Sketches 5011 to 5013 in Appendix B show the as surveyed floor elevations and adjacent 1% AEP base case and developed case peak water surface elevations. Where the 1% AEP PWSE is shown as “Q100 – 0.00, this indicates that the location is not impacted in the 1% AEP event.

# 9.0 Other Matters

## 9.1 Pipe Class

An assessment of pipe class has been made and is listed in **Appendix A**.

## 9.2 Outlet Protection

An assessment of culvert discharge velocities and required outlet protection (if any) is listed in **Appendix A**.

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# Appendix A

## Catchments

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PEAK DOWNS HIGHWAY

IE KOWAI — FOULDEN ROAD

PEAK DOWNS HIGHWAY

STOTTS ROAD

CALROSSIE ROAD

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60342905
ISSUE 1

LEGEND

- PROPOSED CULVERTS
- EXISTING CULVERTS
- PROPOSED FLOW
- CATCHMENT

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| | |
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QUEENSLAND DEPARTMENT OF TRANSPORT AND MAIN ROADS
MACKAY RING ROAD PROJECT
PROPOSED DRAINAGE
SK-60342905-05015

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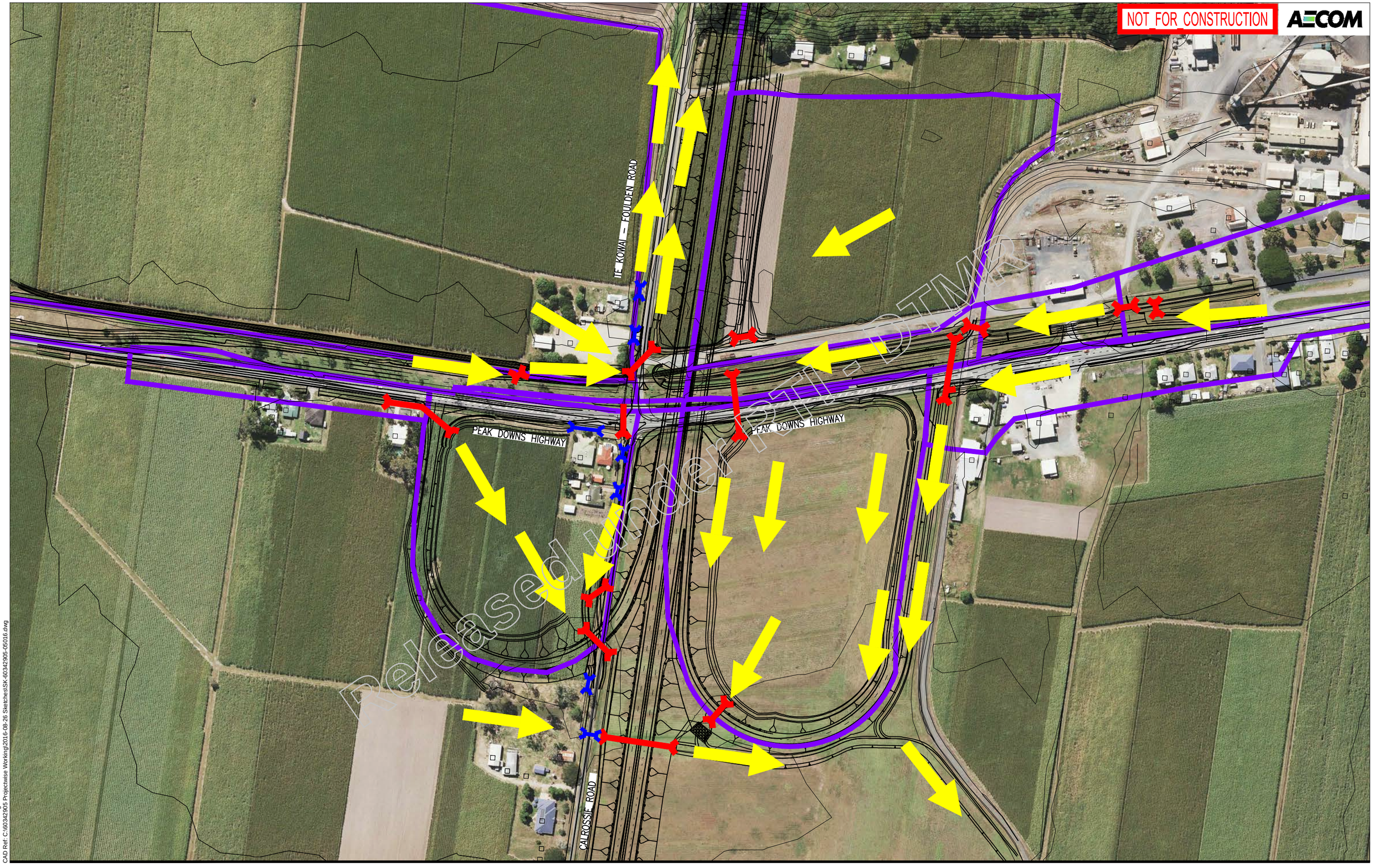
AECOM

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60342905
ISSUE 1

LEGEND

- PROPOSED CULVERTS
- EXISTING CULVERTS
- PROPOSED FLOW
- CATCHMENT

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AECOM

OVERFLOW

TE KOWAI - FOULDEN ROAD

PEAK DOWNS HIGHWAY

PEAK DOWNS HIGHWAY

CALROSSIE ROAD

STOTTS ROAD

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ISSUE 1

LEGEND

- EXISING FLOW
- CATCHMENT
- EXISTING CULVERTS

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EXISTING DRAINAGE
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AECOM

OVERFLOW

TE KOWAI – FOULDEN ROAD

PEAK DOWNS HIGHWAY

PEAK DOWNS HIGHWAY

CALROSSIE ROAD

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ISSUE 1

LEGEND

- EXISING FLOW
- CATCHMENT
- EXISTING CULVERTS

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EXISTING DRAINAGE
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# Appendix B

# Proposed Drainage Structures

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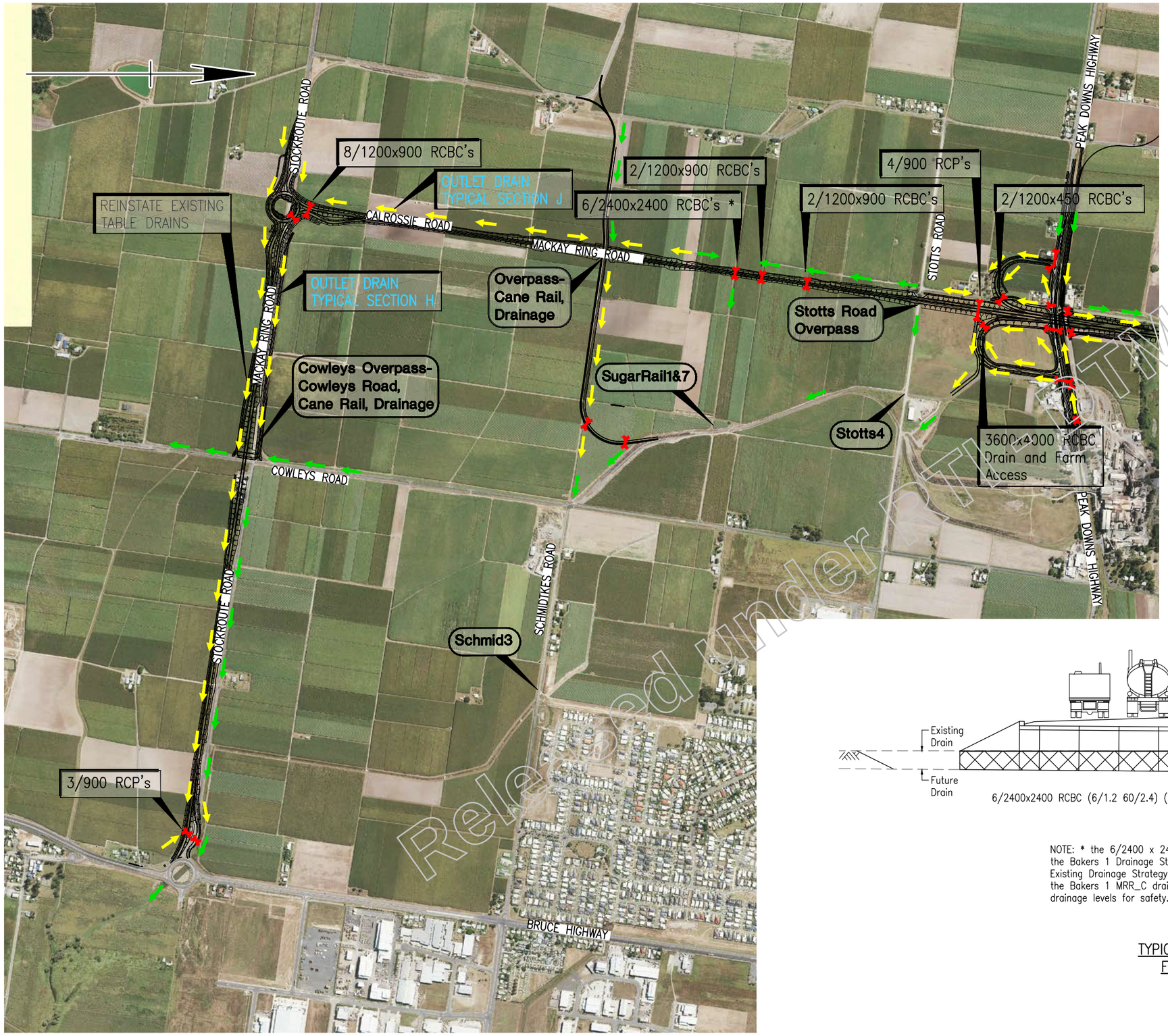
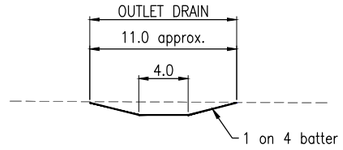
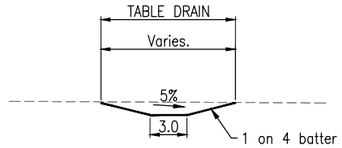
AECOM

| LOCATION | EXIST CULVERT |
|---|---|
| Schmid3 | 4x2.4(W)x1.5(H) |
| SugarRail1&7 | 7x1.2(W)x0.9(H) |
| Stotts4 | 0.9(W)x0.3(H) |

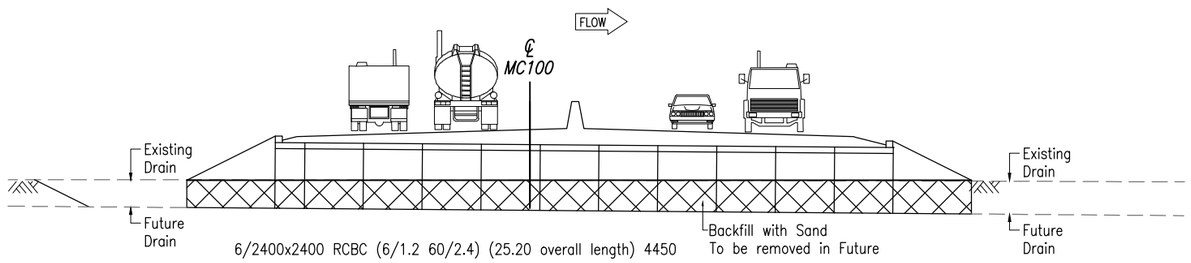



TYPICAL SECTION H
OUTLET DRAIN




TYPICAL SECTION J
TABLE DRAIN




NOTE: * the 6/2400 x 2400 RCBC culvert in the Robke Farm is sized to suit the Bakers 1 Drainage Strategy and also to provide similar conveyance for the Existing Drainage Strategy. The culvert will be constructed to inverts that suit the Bakers 1 MRR_C drain and infilled with sand to the existing surface drainage levels for safety.

TYPICAL DRAINAGE SECTION
FUTURE ALLOWANCE

DRAINAGE TO SUIT THE EXISTING DRAINS

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ISSUE 4

LEGEND
- NEW CULVERTS
- EXISTING DRAINS TO REMAIN
- PROPOSED DRAINS

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| DRAWING IN PROGRESS | DATE: 10/05/2016 REVISION: 4 |
|---|---|

0 1 2 3 4m

0 80 160 240 320m

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MACKAY RING ROAD PROJECT
ADOPTED DRAINAGE STRATEGY - RING ROAD DRAINAGE
SK-60342905-05009

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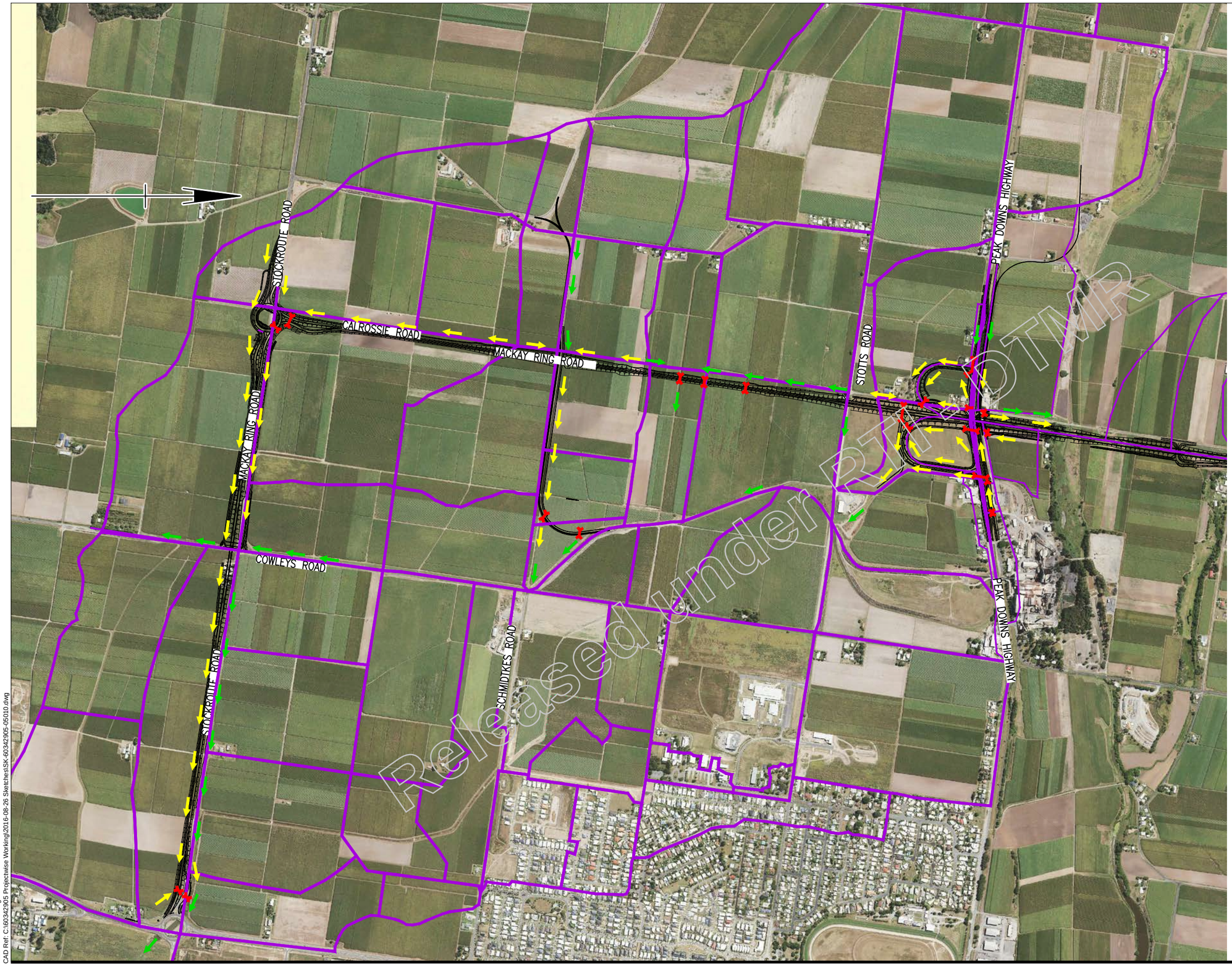


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60342905
ISSUE 1

LEGEND

- NEW CULVERTS
- EXISTING DRAINS TO REMAIN
- PROPOSED DRAINS
- BAKERS ONE RAFTS

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MACKAY RING ROAD PROJECT
ADOPTED DRAINAGE STRATEGY - RING ROAD DRAINAGE
SK-60342905-05010

NOT FOR CONSTRUCTION

AECOM

STOCKROUTE ROAD

COWLEYS ROAD

Q100–8.15

Q100–8.15

Q100–8.16

Q100–8.11

Q100–0.00

Q100–8.15

Q100–8.16

Q100–8.15

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ISSUE 1

LEGEND

NEW CULVERTS
EXISTING DRAINS TO REMAIN
PROPOSED DRAINS

FL – FLOOR LEVEL
Q100 – 1° AEP PWSE

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MACKAY RING ROAD PROJECT
ADOPTED DRAINAGE STRATEGY - RING ROAD DRAINAGE
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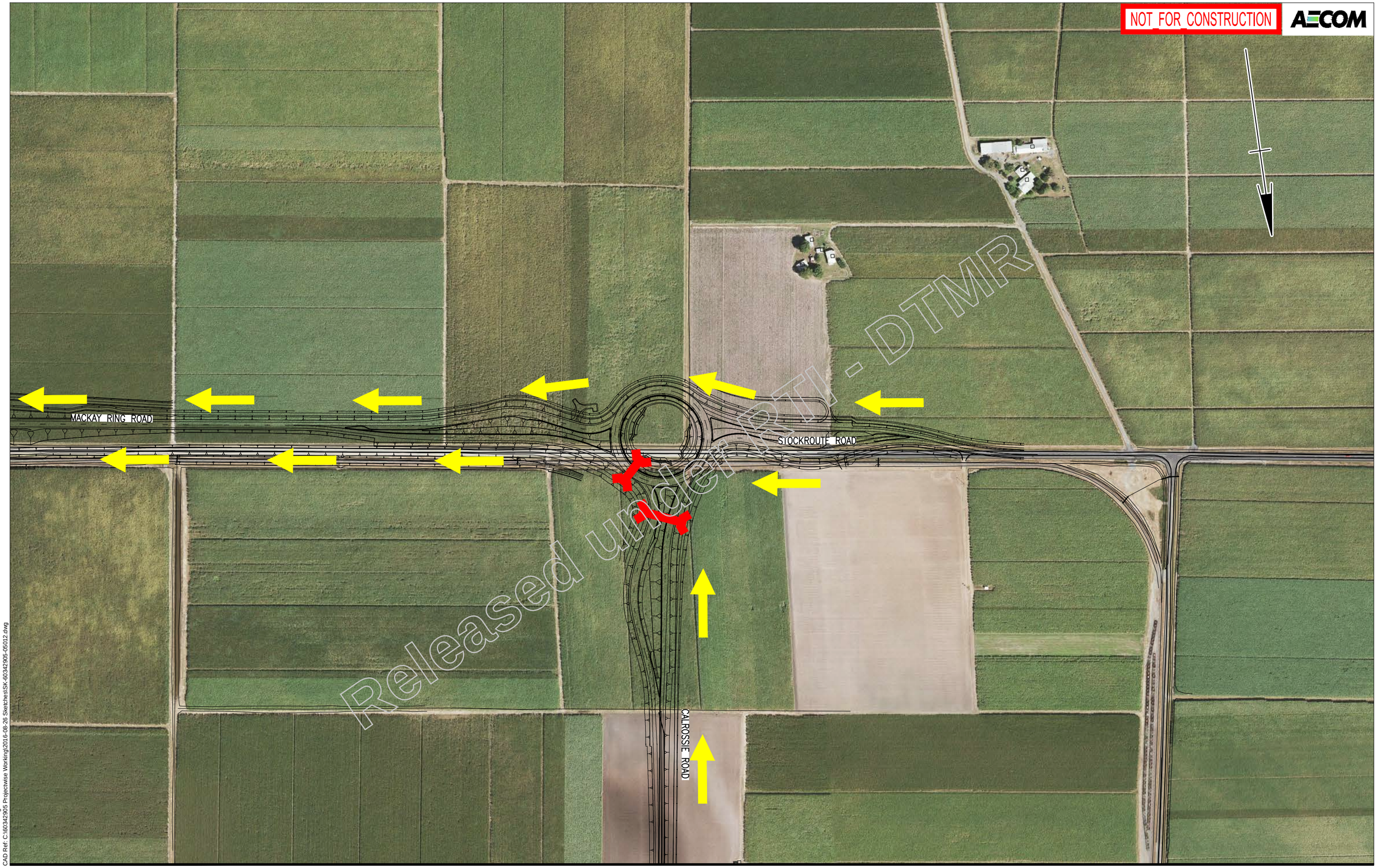
AECOM

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60342905
ISSUE 1

LEGEND

NEW CULVERTS
EXISTING DRAINS TO REMAIN
PROPOSED DRAINS

FL – FLOOR LEVEL
Q100 – 1' AEP PWSE

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QUEENSLAND DEPARTMENT OF TRANSPORT AND MAIN ROADS
MACKAY RING ROAD PROJECT
ADOPTED DRAINAGE STRATEGY - RING ROAD DRAINAGE
SK-60342905-05012

NOT FOR CONSTRUCTION

AECOM

13.33
Q100–0.00

Q100–0.00
13.86

13.35
Q100–0.00

Q100–0.00
13.30

Q100–0.00
12.60

Q100–0.00
13.31

13.21
Q100–0.00

12.62
Q100–0.00

12.95
Q100–0.00

Q100–0.00
FL 13.50

Q100–0.00
FL 12.99

FL 12.94

FL 12.34
Q100–12.61

FL 12.81
Q100–0.00

Q100–0.00
FL 13.08

Q100–0.00
FL 13.85

Q100–0.00
FL 12.72

FL 15.19
Q100–13.01

Q100–12.99
FL 12.95

FL 12.86
Q100–12.92

FL 13.17
Q100–12.70

FL 12.28
Q100–12.69

Q100–12.68
FL 12.51

Q100–12.64
FL 12.76

Q100–0.00
Q100–0.00
Q100–0.00
Q100–0.00

MACKAY RING ROAD

Q100–11.12
Q100–11.12
Q100–11.12
Q100–11.12

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ISSUE 1

LEGEND

NEW CULVERTS
EXISTING DRAINS TO REMAIN
PROPOSED DRAINS

FL – FLOOR LEVEL
Q100 – 1% AEP PWSE

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QUEENSLAND DEPARTMENT OF TRANSPORT AND MAIN ROADS
MACKAY RING ROAD PROJECT
ADOPTED DRAINAGE STRATEGY - RING ROAD DRAINAGE
SK-60342905-05013

NOT FOR CONSTRUCTION

AECOM

FL13.46
Q100–13.56

FL13.51
Q100–13.68

FL13.65
Q100–0.00

FL13.59
Q100–13.71

Q100–13.74
FL13.75

FL13.98
Q100–13.76

FL14.10

FL13.83

Q100–13.75
FL14.48

Q100–13.53
FL13.45

Q100–13.65
FL13.55

FL13.44
Q100–13.52

FL13.53
Q100–13.59

FL13.64
Q100–13.54

FL16.02
Q100–13.60

FL15.88
Q100–13.69

Q100–0.00
FL16.58

Q100–13.80
FL16.05

FL13.92
Q100–13.80

Q100–0.00
FL13.67

FL13.78
Q100–13.73

Q100–13.68
FL15.81

Q100–14.42
FL 14.51

FL 14.54

FL 15.55

Q100–14.46
FL 15.46

Q100–14.45
FL 14.54

FL 15.48

FL 14.55
Q100–14.42

FL 14.81

FL 16.79

Q100–14.57

FL 14.60

Q100–14.54

FL 14.75

FL 15.35

FL 15.54

FL 14.69

FL 14.67

FL 14.78

FL 14.70

FL 14.67

FL 16.75

FL 15.25

PEAK DOWNS HIGHWAY

Q100–0.00
FL 14.36

Q100–0.00
FL 14.40

Q100–0.00
FL 10.25

FL 12.78

FL 13.59

FL 12.89

FL 13.68

FL 12.98

FL 13.01

FL 13.31

Q100–12.59

FL 12.73

Q100–12.59

Q100–12.59

FL 12.96

FL 12.40
Q100–12.60

FL 12.51
Q100–12.60

Q100–0.00
FL 13.01

Q100–0.00
FL 13.67

FL 12.57
Q100–12.59

SLOTS ROAD

FL 13.60

FL 13.66

FL 12.94

FL 13.07

Q100–12.60
FL 13.33

Q100–13.06
FL 13.20

FL 13.94

FL 13.18

FL 13.82

MACKAY RING ROAD

Q100–12.59

Q100–12.59

Q100–12.59

Q100–12.59

FL 12.39
Q100–12.59

Q100–0.00

Q100–0.00

Q100–0.00

Q100–0.00

Q100–0.00

Q100–0.00

Q100–0.00

Released under DTMR

Last modified: 26 Aug 16 - 14:30
CAD Ref: C:\60342905 Projectwise Working\2016-08-26 Sketches\SK-60342905-05014.dwg

60342905
ISSUE 1

LEGEND

NEW CULVERTS
EXISTING DRAINS TO REMAIN
PROPOSED DRAINS

FL – FLOOR LEVEL
Q100 – 1' AEP PWSE

**NOT TO BE USED FOR CONSTRUCTION**

| DRAWING IN PROGRESS | DATE: 10/05/2016 |
|---|---|
| | REVISION: 1 |

NTS

QUEENSLAND DEPARTMENT OF TRANSPORT AND MAIN ROADS
MACKAY RING ROAD PROJECT
ADOPTED DRAINAGE STRATEGY - RING ROAD DRAINAGE
SK-60342905-05014

# Appendix C

# Floor Level Assessment

Released under RTI - DTMR

# Floor Level Assessment

| Easting | Northing | Location | Floor Level (mAHD) | 18% AEP basecase PWSE (mAHD) | 1% AEP basecase PWSE (mAHD) | Basecase – surveyed (m) | 18% AEP develop PWSE (mAHD) | 1% AEP develop PWSE (mAHD) | Develop – surveyed (m) | Is Developed Case Worse | Difference Base – Developed (m) | Lidar Ground Elevation (mAHD) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

Released under RTI - DTMR

# Floor Level Assessment

| Easting | Northing | Location | Floor Level (mAHD) | 18% AEP basecase PWSE (mAHD) | 1% AEP basecase PWSE (mAHD) | Basecase – surveyed (m) | 18% AEP develop PWSE (mAHD) | 1% AEP develop PWSE (mAHD) | Develop – surveyed (m) | Is Developed Case Worse | Difference Base – Developed (m) | Lidar Ground Elevation (mAHD) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

**Legend**

| | |
|---|---|
| BRICK VENEER HOUSE | Location where the developed case PWSE has increased by more than 0.010 metres |
| 34 CALROSSIE RD, SHED | Location where the developed cae over floor PWSE has increased by more than 0.010 metres |

Released under RTI - DTMR

# Appendix D

## AATOS - Cane

Released under RTI - DTMR

| Developed (post MRRP) | Existing (prior to MRRP) |
| --- | --- |
| | |

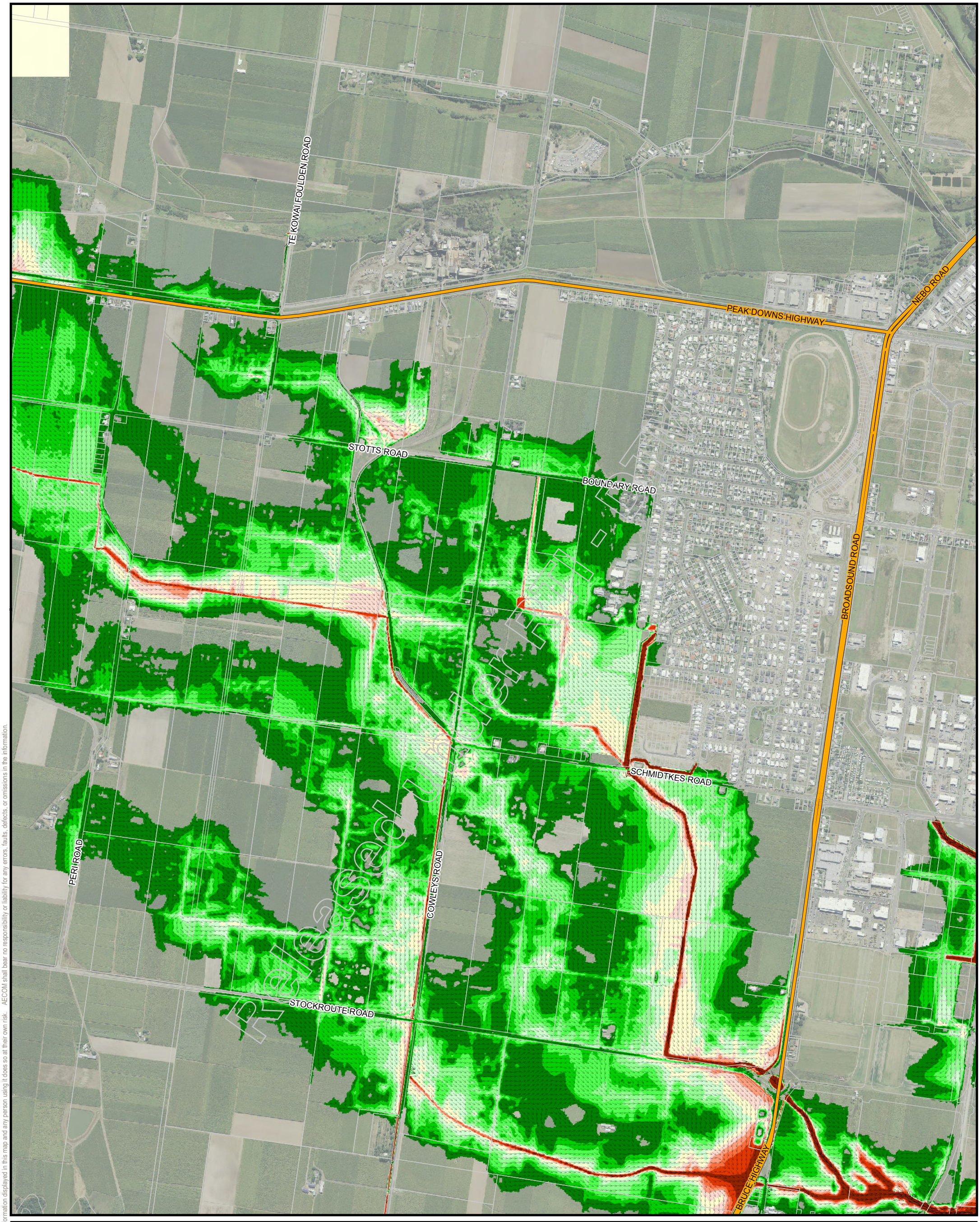
Released under RTI - DTTMR

Released under RTI - DTMR

# Appendix E

# Flood Mapping

Released under RTI - DTMR

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N

GDA 1994 MGA Zone 55

0 150 300 600

metres

1:15,000 (when printed at A3)

**LEGEND**

| Peak Water Depth (m) | | | Peak Velocity (m/s) | | |
|---|---|---|---|---|---|
| < 0.2 | 0.6 - 0.7 | | 0.00 - 0.50 | 3 - 4 | Highways |
| 0.2 - 0.3 | 0.7 - 0.8 | | 0.50 - 1.00 | | Cadastre |
| 0.3 - 0.4 | 0.8 - 0.9 | | 1 - 2 | > 4 | |
| 0.4 - 0.5 | 0.9 - 1.0 | | 2 - 3 | | |
| 0.5 - 0.6 | 1.0 - 1.25 | | | | |
| | > 1.25 | | | | |

Data sources:

Base Data: Imagery (c) 2015 TMR
Transport Network, DCDB - QLD Gov 2015

# MACKAY RING ROAD STAGE 1 DETAILED DESIGN
## Peak Depth and Velocity
## Bakers One, Existing Case
## 1% AEP Event, 24 Hour Storm

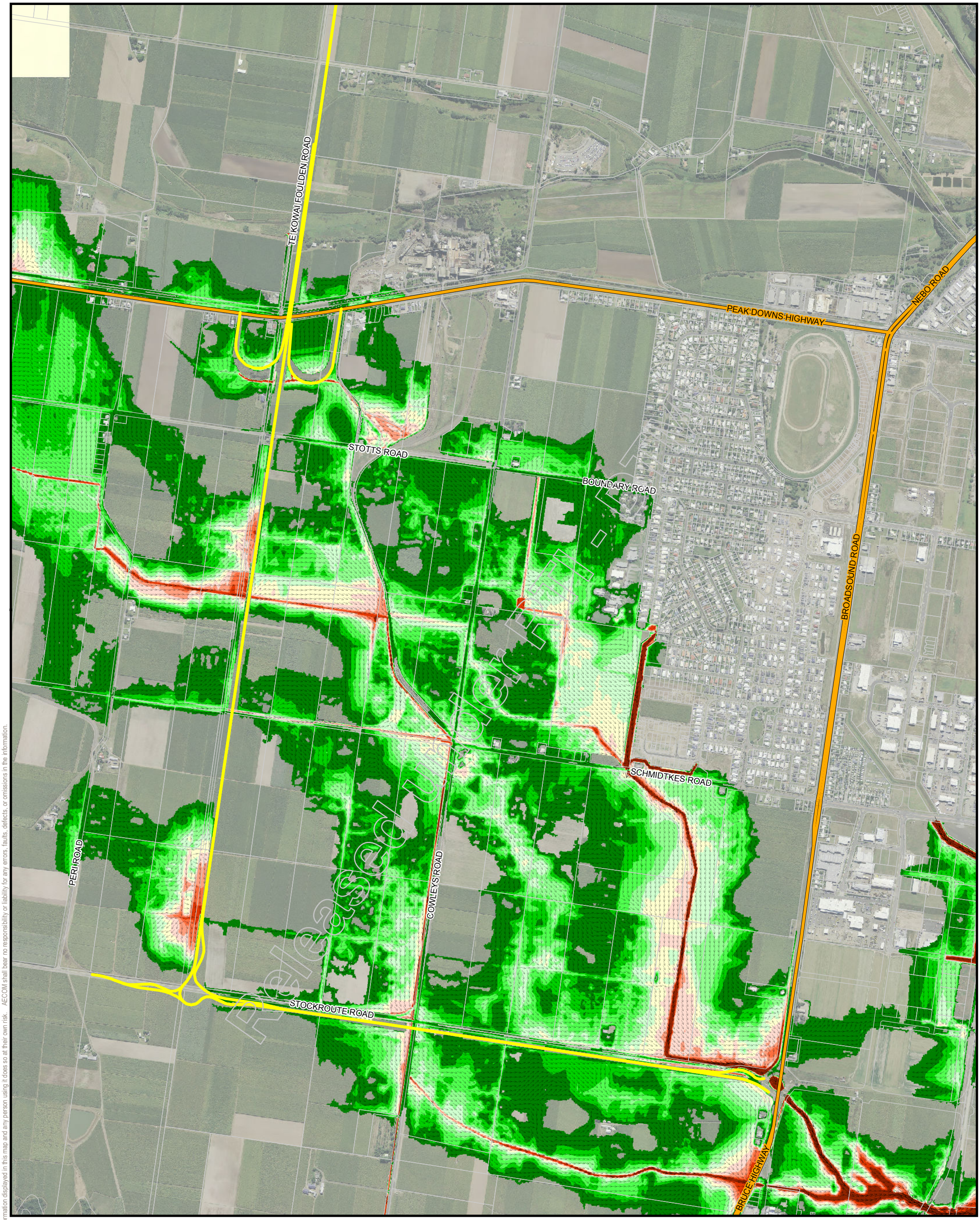
**SK-60342905-08001**

| CREATED BY: briggh | LAST MODIFIED: 30/10/2015 | VERSION: 1 |
|---|---|---|

Filename: J:\60342905\4. Tech Work Area\4.99 GIS\02_MXDs\G_SK-60342905-08001_Depth_Velocity_Bakers_One_Existing_20151030_1_A3.mxd



A3 size

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GDA 1994 MGA Zone 55

0 150 300 600

metres

1:15,000 (when printed at A3)

**LEGEND**

| Peak Water Depth (m) | | Peak Velocity (m/s) | |
|---|---|---|---|
| < 0.2 | 0.6 - 0.7 | 0.00 - 0.50 | 3 - 4 |
| 0.2 - 0.3 | 0.7 - 0.8 | 0.50 - 1.00 | > 4 |
| 0.3 - 0.4 | 0.8 - 0.9 | 1 - 2 | |
| 0.4 - 0.5 | 0.9 - 1.0 | 2 - 3 | |
| 0.5 - 0.6 | 1.0 - 1.25 | | |
| | > 1.25 | | |

Proposed Alignment
Highways
Cadastre

Data sources:

Base Data: Imagery (c) 2015 TMR
Transport Network, DCDB - QLD Gov 2015

# MACKAY RING ROAD STAGE 1 DETAILED DESIGN
## Peak Depth and Velocity
## Bakers One, Developed Case
## 1% AEP Event, 24 Hour Storm

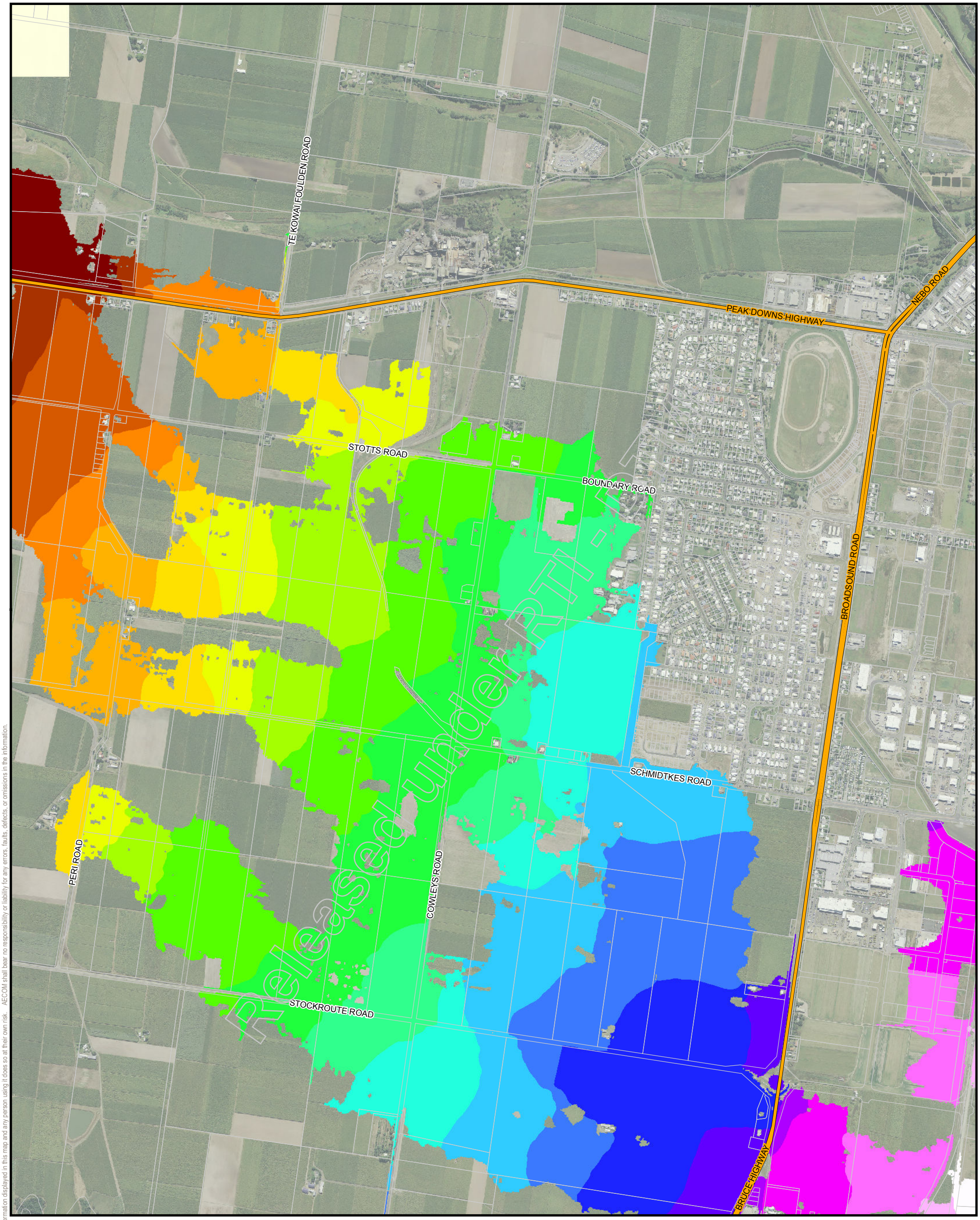
**SK-60342905-08002**

| CREATED BY: briggh | LAST MODIFIED: 18/02/2016 | VERSION: 2 |
|---|---|---|

Filename: J:\60342905\4. Tech Work Area\4.99 GIS\02_MXDs\G_SK-60342905-08002_Depth_Velocity_Bakers_One_Developed_2016...

r. 135-05215 part 6.pdf - Page Number: 47 of 64

A3 size

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GDA 1994 MGA Zone 55

0 150 300 600

metres

1:15,000 (when printed at A3)

**LEGEND**

**PWSE (mAHD)**

| | | |
|---|---|---|
| < 5.0 | 8.0 - 8.5 | 12.0 - 12.5 |
| 5.0 - 5.5 | 8.5 - 9.0 | 12.5 - 13.0 |
| 5.5 - 6.0 | 9.0 - 9.5 | 13.0 - 13.5 |
| 6.0 - 6.5 | 9.5 - 10.0 | 13.5 - 14.0 |
| 6.5 - 7.0 | 10.0 - 10.5 | 14.0 - 14.5 |
| 7.0 - 7.5 | 10.5 - 11.0 | > 14.5 |
| 7.5 - 8.0 | 11.0 - 11.5 | Highways |
| | 11.5 - 12.0 | Cadastre |

Data sources:

Base Data: Imagery (c) 2015 TMR
Transport Network, DCDB - QLD Gov 2015

# MACKAY RING ROAD STAGE 1 DETAILED DESIGN
## Peak Water Surface Elevation
## Bakers One, Existing Case
## 1% AEP Event, 24 Hour Storm

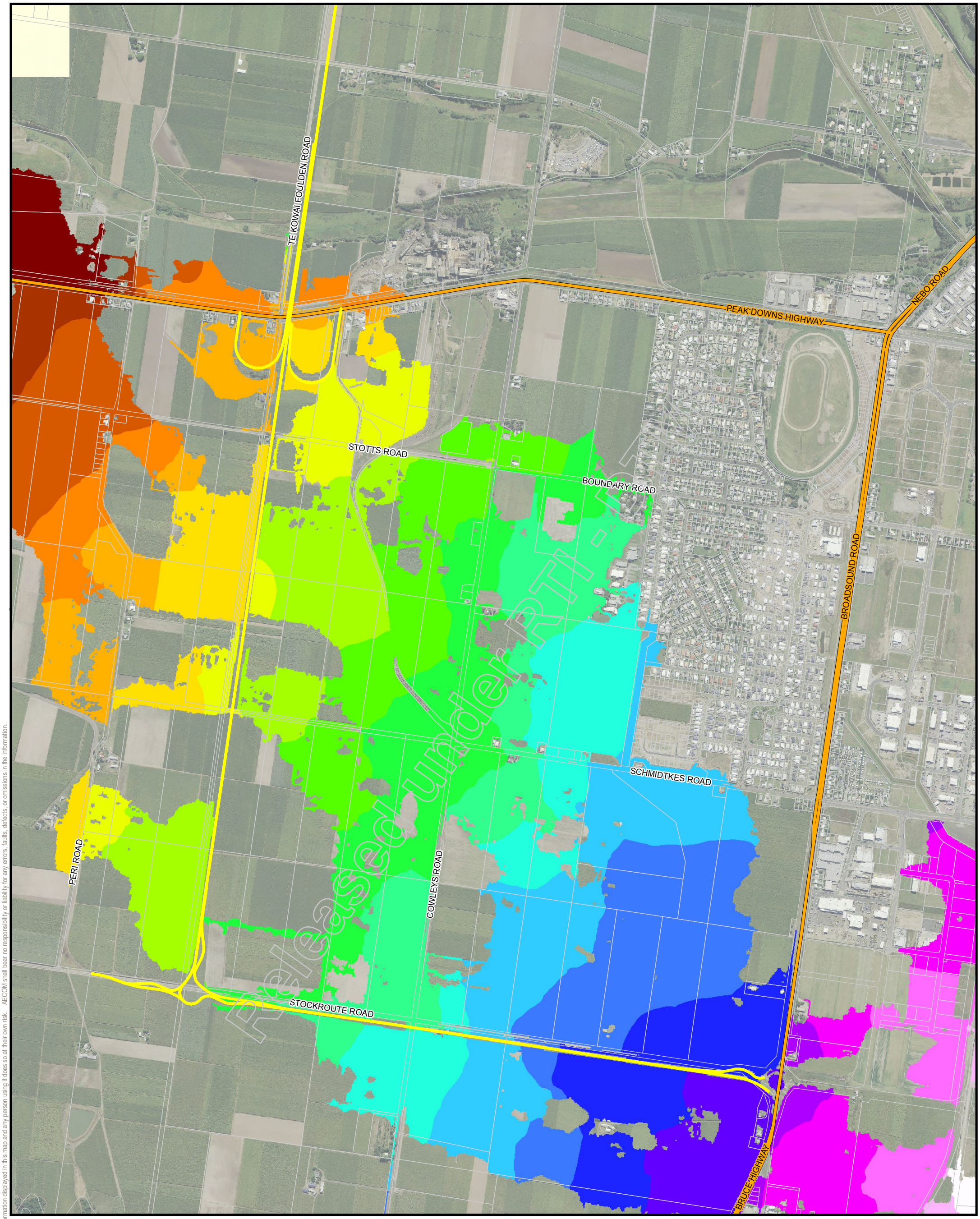
**SK-60342905-08003**

| CREATED BY: briggh | LAST MODIFIED: 30/10/2015 | VERSION: 1 |
|---|---|---|

Filename: J:\60342905\4. Tech Work Area\4.99 GIS\02_MXDs\G_SK-60342905-08003_PWSE_Bakers_One_Existing_20151030_V1_A3.mxd



A3 size

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GDA 1994 MGA Zone 55

0 150 300 600

metres

1:15,000 (when printed at A3)

**LEGEND**

| PWSE (mAHD) | | | |
|---|---|---|---|
| < 5.0 | 8.5 - 9.0 | 13.0 - 13.5 | Proposed Alignment |
| 5.0 - 5.5 | 9.0 - 9.5 | 13.5 - 14.0 | Highways |
| 5.5 - 6.0 | 9.5 - 10.0 | 14.0 - 14.5 | Cadastre |
| 6.0 - 6.5 | 10.0 - 10.5 | > 14.5 | |
| 6.5 - 7.0 | 10.5 - 11.0 | | |
| 7.0 - 7.5 | 11.0 - 11.5 | | |
| 7.5 - 8.0 | 11.5 - 12.0 | | |
| 8.0 - 8.5 | 12.0 - 12.5 | | |
| | 12.5 - 13.0 | | |

Data sources:

Base Data: Imagery (c) 2015 TMR
Transport Network, DCDB - QLD Gov 2015

**MACKAY RING ROAD STAGE 1**
**DETAILED DESIGN**
**Peak Water Surface Elevation**
**Bakers One, Developed Case**
**1% AEP Event, 24 Hour Storm**

**SK-60342905-08004**

| CREATED BY: briggh | LAST MODIFIED: 18/02/2016 | VERSION: 2 |
|---|---|---|

Filename: J:\60342905\4. Tech Work Area\4.99 GIS\02_MXDs\G_SK-60342905-08004_PWSE_Bakers_One_Developed_20151030_V2_A3.mxd



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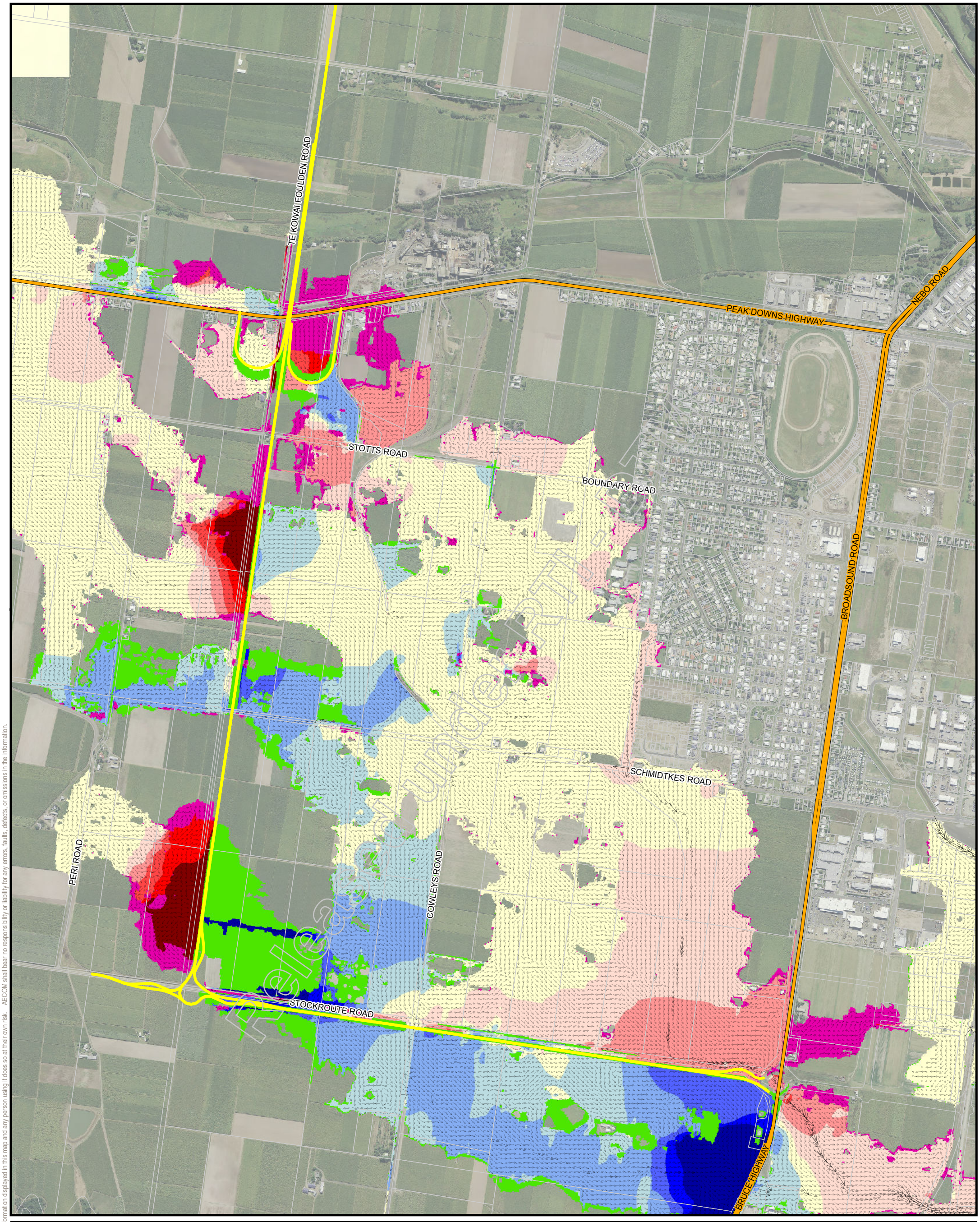


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0 150 300 600

metres

1:15,000 (when printed at A3)

**LEGEND**

**Peak Velocity (m/s)**
- 0.00 - 0.50
- 0.50 - 1.00
- 1 - 2
- 2 - 3
- 3 - 4
- > 4

**Difference in PWSE (m)**
- < -0.3
- -0.3 to -0.225
- -0.225 to -0.15
- -0.15 to -0.075
- -0.075 to -0.02
- -0.02 to 0.02
- 0.02 to 0.075
- 0.075 to 0.15
- 0.15 to 0.225
- 0.225 to 0.3
- > 0.3
- Was Dry Now Wet
- Was Wet Now Dry

- Proposed Alignment
- Highways
- Cadastre

Data sources:

Base Data: Imagery (c) 2015 TMR
Transport Network, DCDB - QLD Gov 2015

# MACKAY RING ROAD STAGE 1 DETAILED DESIGN
## Difference in PWSE
## Bakers One, Developed vs Existing
## 1% AEP Event, 24 Hour Storm

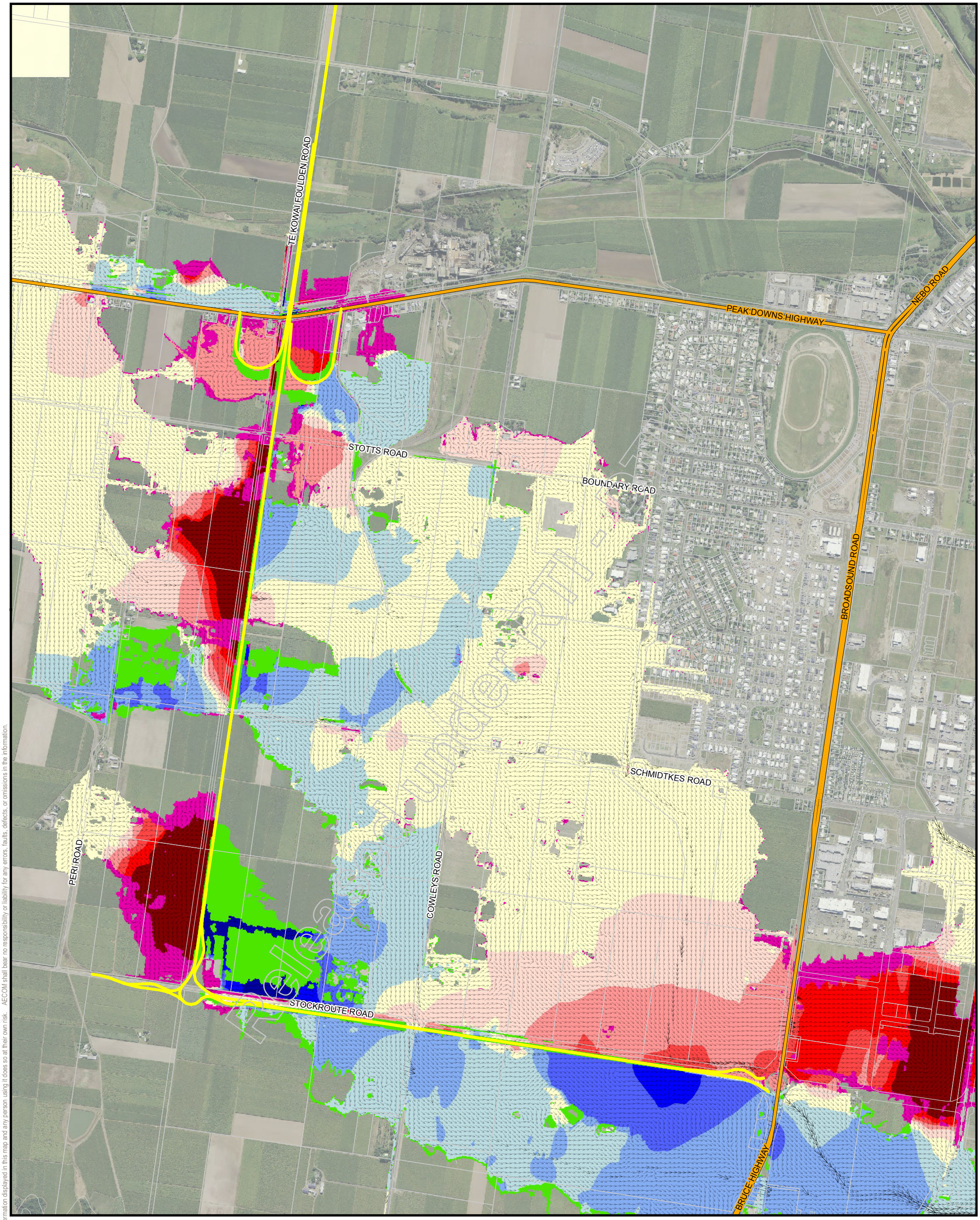
**SK-60342905-08005**

| CREATED BY: briggh | LAST MODIFIED: 18/02/2016 | VERSION: 2 |
|---|---|---|

Filename: J:\60342905\4. Tech Work Area\4.99 GIS\02_MXDs\G_SK-60342905-08005_Difference_PWSE_Bakers_One_20151030_V2_A3.mxd

r_135-05215 part 6.pdf - Page Number: 50 of 64

A3 size

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0 150 300 600

metres

1:15,000 (when printed at A3)

**LEGEND**

**Peak Velocity (m/s)**
- 0.00 - 0.50
- 0.50 - 1.00
- 1 - 2
- 2 - 3
- 3 - 4
- > 4

**Difference in PWSE (m)**
- < -0.3
- -0.3 to -0.225
- -0.225 to -0.15
- -0.15 to -0.075
- -0.075 to -0.02
- -0.02 to 0.02
- 0.02 to 0.075
- 0.075 to 0.15
- 0.15 to 0.225
- 0.225 to 0.3
- > 0.3
- Was Dry Now Wet
- Was Wet Now Dry

- Proposed Alignment
- Highways
- Cadastre

Data sources:

Base Data: Imagery (c) 2015 TMR
Transport Network, DCDB - QLD Gov 2015

# MACKAY RING ROAD STAGE 1 DETAILED DESIGN
## Difference in PWSE
## Bakers One, Developed vs Existing
## 0.2% AEP Event, 24 Hour Storm

**SK-60342905-08011**

| CREATED BY: briggh | LAST MODIFIED: 2/03/2016 | VERSION: 1 |
|---|---|---|



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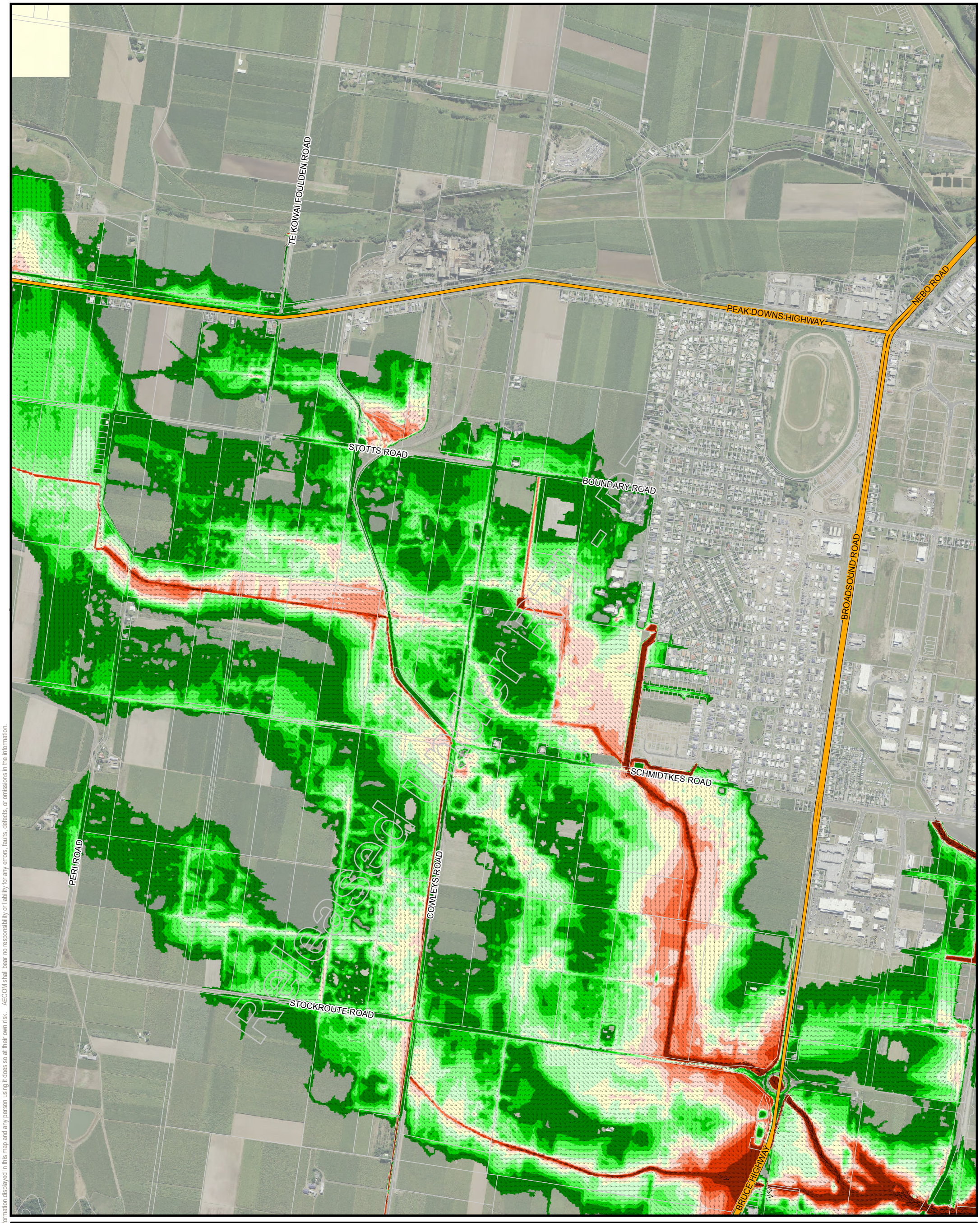


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GDA 1994 MGA Zone 55

0 150 300 600

metres

1:15,000 (when printed at A3)

**LEGEND**

| Peak Water Depth (m) | | Peak Velocity (m/s) | |
|---|---|---|---|
| < 0.2 | 0.6 - 0.7 | 0.00 - 0.50 | 3 - 4 |
| 0.2 - 0.3 | 0.7 - 0.8 | 0.50 - 1.00 | > 4 |
| 0.3 - 0.4 | 0.8 - 0.9 | 1 - 2 | |
| 0.4 - 0.5 | 0.9 - 1.0 | 2 - 3 | |
| 0.5 - 0.6 | 1.0 - 1.25 | | |
| | > 1.25 | | |

Highways
Cadastre

Data sources:

Base Data: Imagery (c) 2015 TMR
Transport Network, DCDB - QLD Gov 2015

# MACKAY RING ROAD STAGE 1 DETAILED DESIGN

## Peak Depth and Velocity
## Bakers One, Existing Case
## 0.2% AEP Event, 24 Hour Storm

**SK-60342905-08012**

| CREATED BY: briggh | LAST MODIFIED: 2/03/2016 | VERSION: 1 |
|---|---|---|

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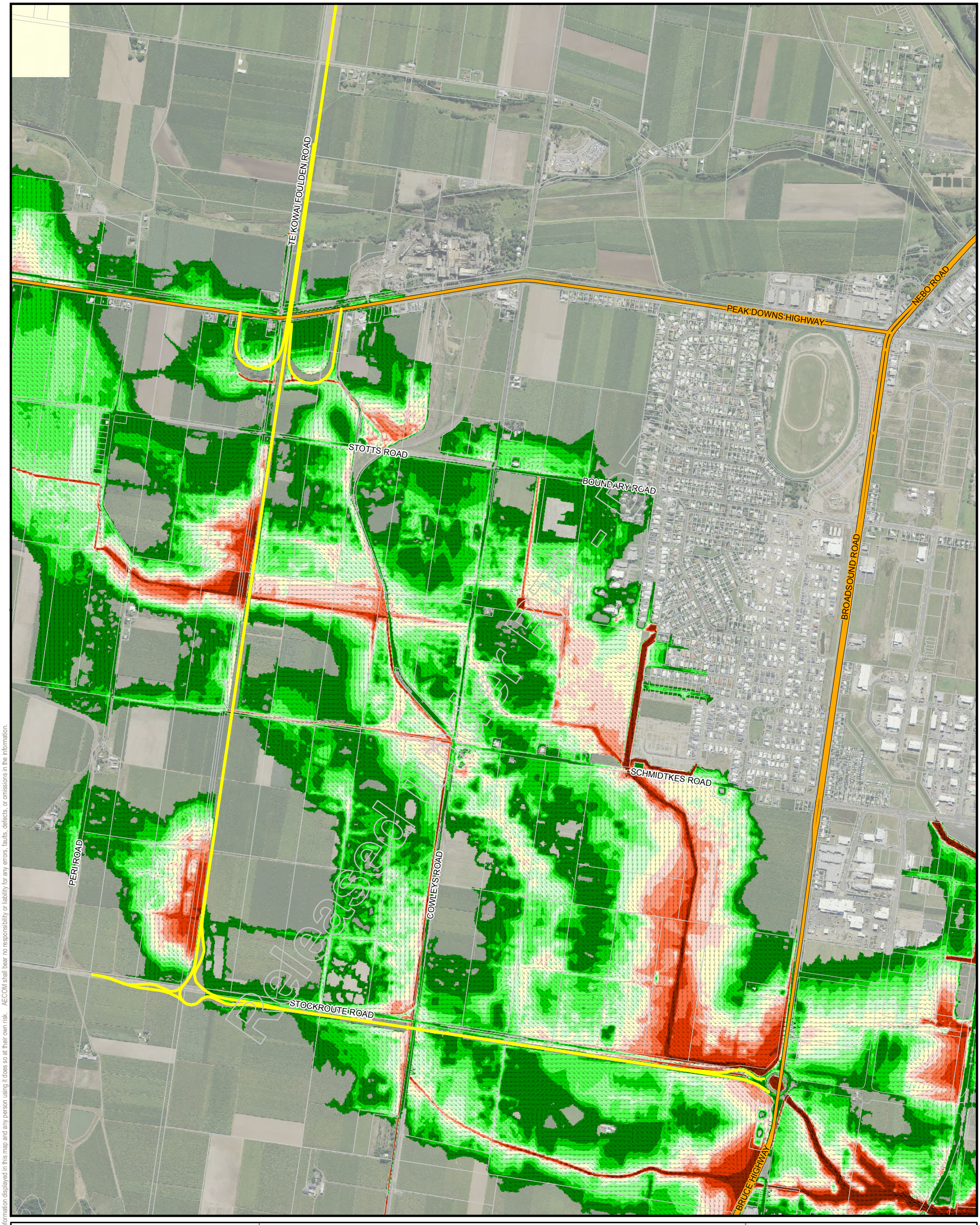
Filename: J:\60342905\4. Tech Work Area\4.99 GIS\02_MXDs\G_SK-60342905-08012_Depth_Velocity_Bakers_One_Existing_Q500_[illegible]

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0 150 300 600

metres

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**LEGEND**

| Peak Water Depth (m) | Peak Velocity (m/s) |
|---|---|
| < 0.2 | 0.00 - 0.50 |
| 0.2 - 0.3 | 0.50 - 1.00 |
| 0.3 - 0.4 | 1 - 2 |
| 0.4 - 0.5 | 2 - 3 |
| 0.5 - 0.6 | 3 - 4 |
| 0.6 - 0.7 | > 4 |
| 0.7 - 0.8 | |
| 0.8 - 0.9 | |
| 0.9 - 1.0 | |
| 1.0 - 1.25 | |
| > 1.25 | |

Proposed Alignment
Highways
Cadastre

Data sources:

Base Data: Imagery (c) 2015 TMR
Transport Network, DCDB - QLD Gov 2015

**MACKAY RING ROAD STAGE 1**
**DETAILED DESIGN**
**Peak Depth and Velocity**
**Bakers One, Developed Case**
**0.2% AEP Event, 24 Hour Storm**

**SK-60342905-08013**

| CREATED BY: briggh | LAST MODIFIED: 2/03/2016 | VERSION: 1 |
|---|---|---|

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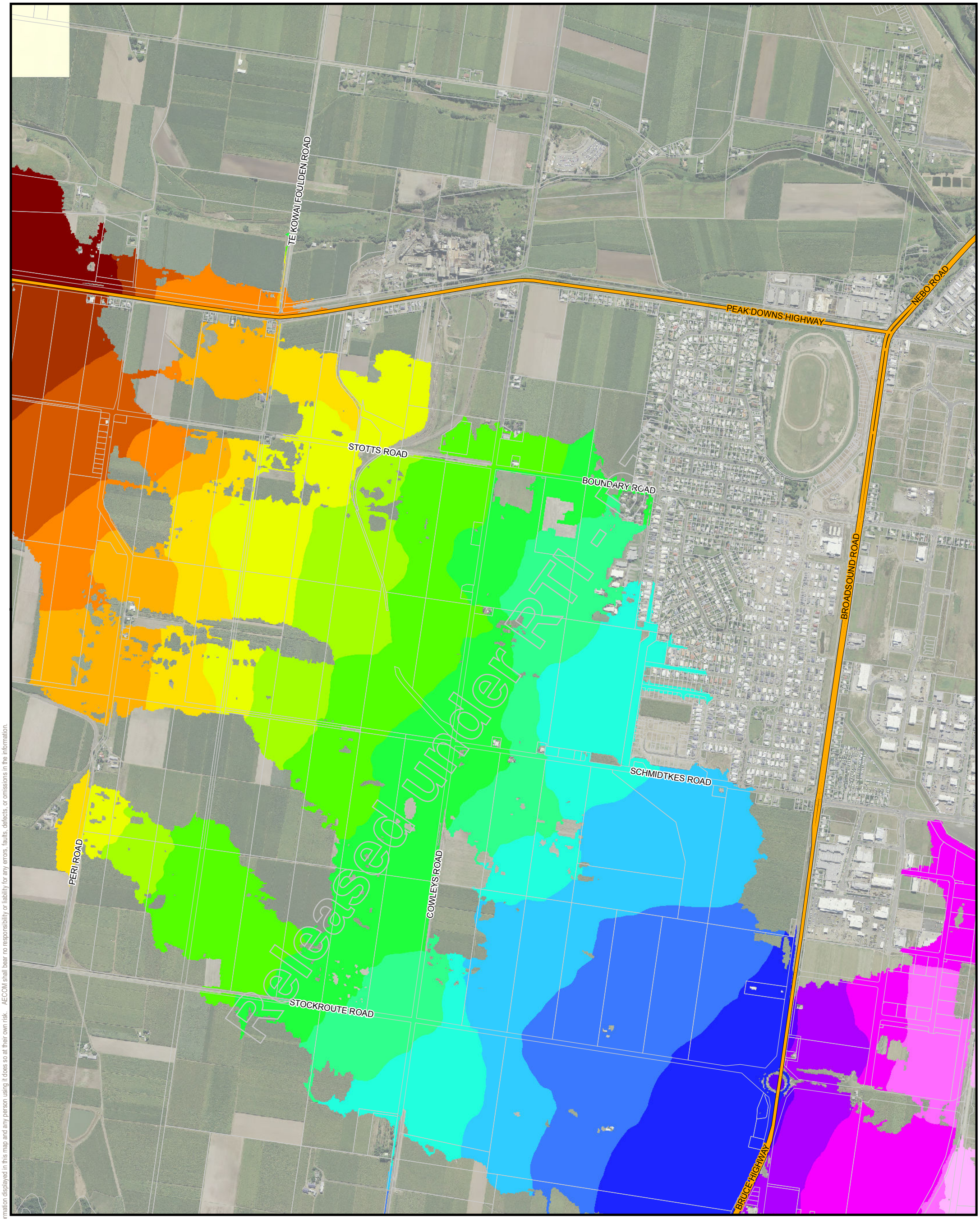
A3 size

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N

GDA 1994 MGA Zone 55

0 150 300 600

metres

1:15,000 (when printed at A3)

**LEGEND**

| PWSE (mAHD) | | | |
|---|---|---|---|
| < 5.0 | 7.5 - 8.0 | 11.0 - 11.5 | Highways |
| 5.0 - 5.5 | 8.0 - 8.5 | 11.5 - 12.0 | Cadastre |
| 5.5 - 6.0 | 8.5 - 9.0 | 12.0 - 12.5 | |
| 6.0 - 6.5 | 9.0 - 9.5 | 12.5 - 13.0 | |
| 6.5 - 7.0 | 9.5 - 10.0 | 13.0 - 13.5 | |
| 7.0 - 7.5 | 10.0 - 10.5 | 13.5 - 14.0 | |
| | 10.5 - 11.0 | 14.0 - 14.5 | |
| | | > 14.5 | |

Data sources:

Base Data: Imagery (c) 2015 TMR
Transport Network, DCDB - QLD Gov 2015

# MACKAY RING ROAD STAGE 1 DETAILED DESIGN
## Peak Water Surface Elevation
## Bakers One, Existing Case
## 0.2% AEP Event, 24 Hour Storm

**SK-60342905-08014**

| CREATED BY: briggh | LAST MODIFIED: 2/03/2016 | VERSION: 1 |
|---|---|---|

Filename: J:\60342905\4. Tech Work Area\4.99 GIS\02_MXDs\G_SK-60342905-08014_PWSE_Bakers_One_Existing_Q500_20160302_V1_SKmxd

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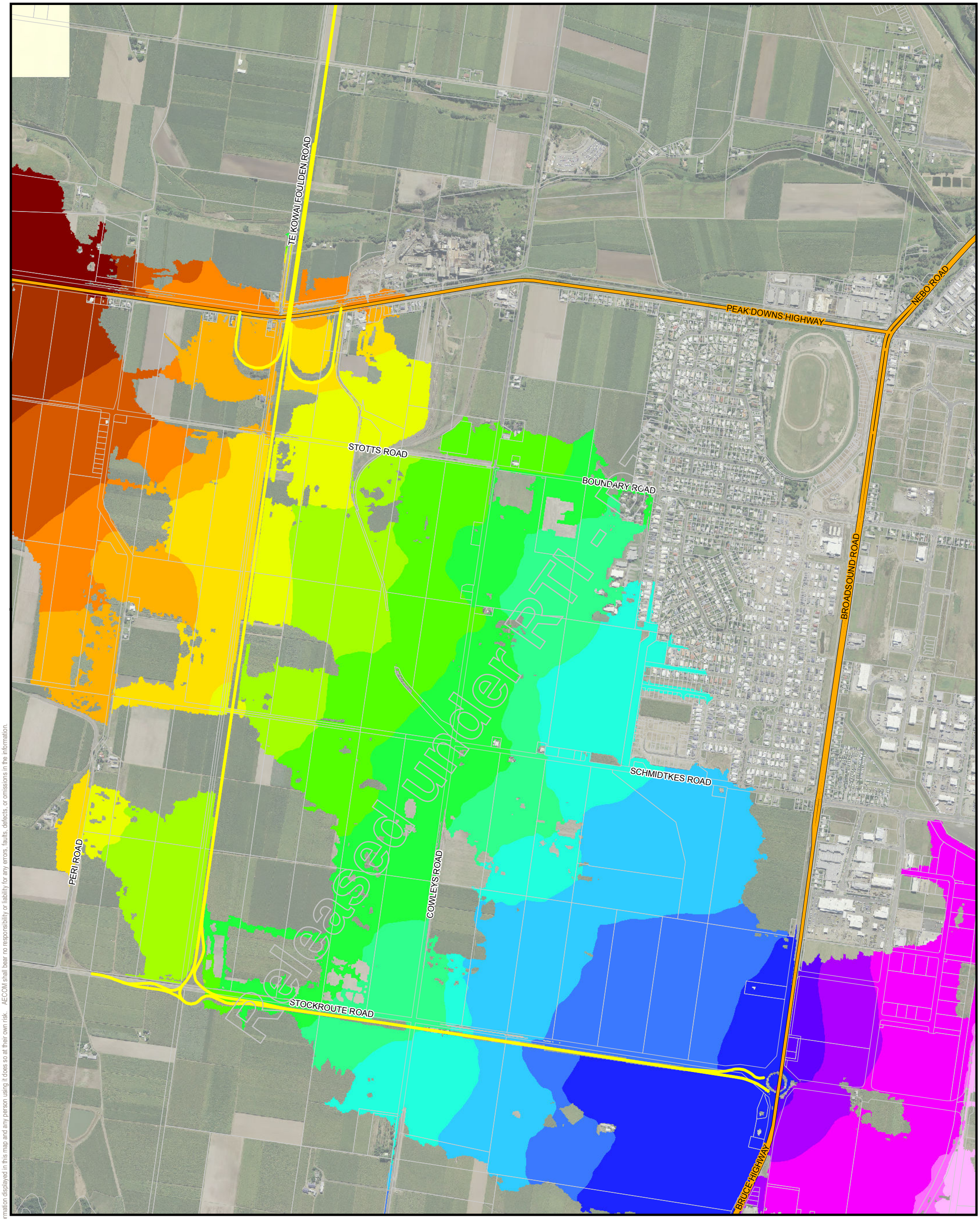


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N

GDA 1994 MGA Zone 55

0 150 300 600

metres

1:15,000 (when printed at A3)

**LEGEND**

| PWSE (mAHD) | | |
|---|---|---|
| < 5.0 | 8.5 - 9.0 | 13.0 - 13.5 |
| 5.0 - 5.5 | 9.0 - 9.5 | 13.5 - 14.0 |
| 5.5 - 6.0 | 9.5 - 10.0 | 14.0 - 14.5 |
| 6.0 - 6.5 | 10.0 - 10.5 | > 14.5 |
| 6.5 - 7.0 | 10.5 - 11.0 | Proposed Alignment |
| 7.0 - 7.5 | 11.0 - 11.5 | Highways |
| 7.5 - 8.0 | 11.5 - 12.0 | Cadastre |
| 8.0 - 8.5 | 12.0 - 12.5 | |
| | 12.5 - 13.0 | |

Data sources:

Base Data: Imagery (c) 2015 TMR
Transport Network, DCDB - QLD Gov 2015

# MACKAY RING ROAD STAGE 1 DETAILED DESIGN
## Peak Water Surface Elevation
## Bakers One, Developed Case
## 0.2% AEP Event, 24 Hour Storm

**SK-60342905-08015**

CREATED BY: briggh | LAST MODIFIED: 2/03/2016 | VERSION: 1

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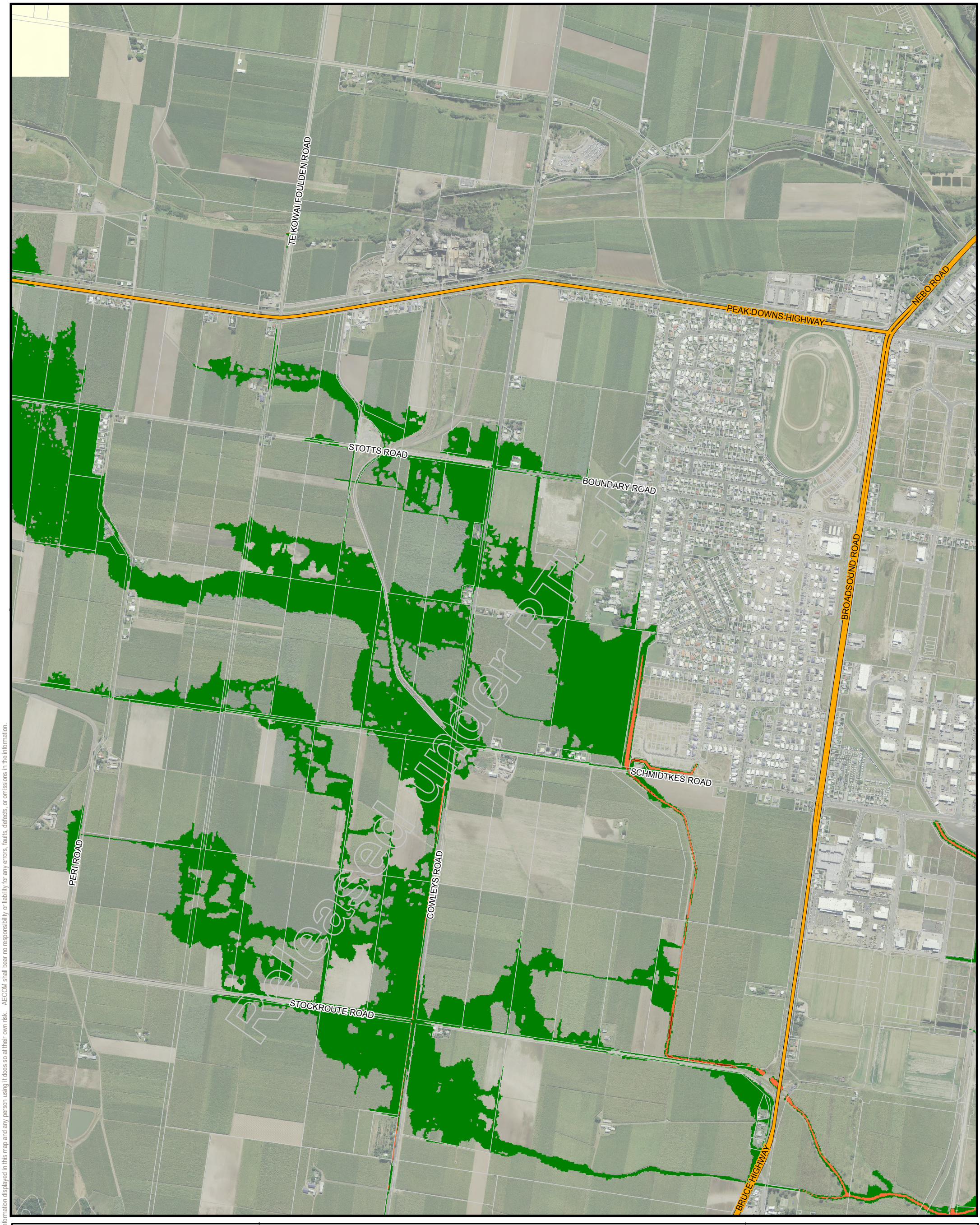


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N

GDA 1994 MGA Zone 55

0 150 300 600

metres

1:15,000 (when printed at A3)

**LEGEND**

**Peak Water Depth (m)**

- < 0.2
- 0.2 - 0.3
- 0.3 - 0.4
- 0.4 - 0.5
- 0.5 - 0.6
- 0.6 - 0.7
- 0.7 - 0.8
- 0.8 - 0.9
- 0.9 - 1.0
- 1.0 - 1.25
- > 1.25

- Highways
- Cadastre

Data sources:

Base Data: Imagery (c) 2015 TMR
Transport Network, DCDB - QLD Gov 2015

# MACKAY RING ROAD STAGE 1 DETAILED DESIGN

## Peak Depth and Velocity
## Bakers One, Existing Case
## 1EY AEP Event, 24 Hour Storm

**SK-60342905-08016**

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|---|---|---|

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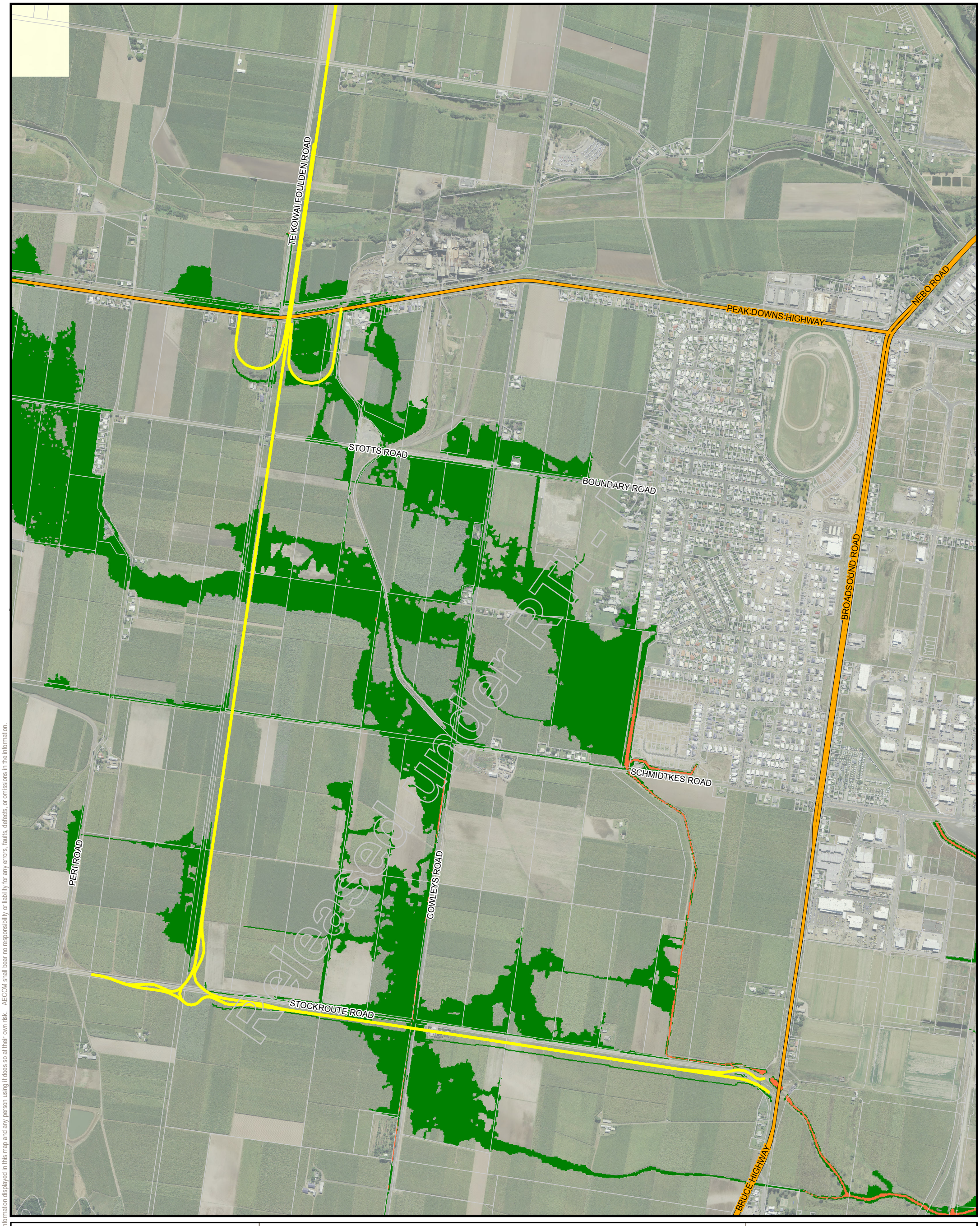
A3 size

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N

GDA 1994 MGA Zone 55

0 150 300 600

metres

1:15,000 (when printed at A3)

**LEGEND**

| Peak Water Depth (m) | | | |
|---|---|---|---|
| < 0.2 | 0.6 - 0.7 | Highways | |
| 0.2 - 0.3 | 0.7 - 0.8 | Cadastre | |
| 0.3 - 0.4 | 0.8 - 0.9 | | |
| 0.4 - 0.5 | 0.9 - 1.0 | | |
| 0.5 - 0.6 | 1.0 - 1.25 | | |
| | > 1.25 | | |

Data sources:

Base Data: Imagery (c) 2015 TMR
Transport Network, DCDB - QLD Gov 2015

**MACKAY RING ROAD STAGE 1**
**DETAILED DESIGN**
**Peak Depth and Velocity**
**Bakers One, Developed Case**
**1EY AEP Event, 24 Hour Storm**

**SK-60342905-08017**

| CREATED BY: briggh | LAST MODIFIED: 8/04/2016 | VERSION: 1 |
|---|---|---|

TE KOWAI FOULDEN ROAD
PEAK DOWNS HIGHWAY
NEBO ROAD
STOTTS ROAD
BOUNDARY ROAD
BROADSOUND ROAD
SCHMIDTKES ROAD
PERI ROAD
COWLEYS ROAD
STOCKROUTE ROAD
BRUCE HIGHWAY

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N

GDA 1994 MGA Zone 55

0 150 300 600
metres

1:15,000 (when printed at A3)

**LEGEND**

**Difference in PWSE (m)**
- < -0.3
- -0.3 to -0.225
- -0.225 to -0.15
- -0.15 to -0.075
- -0.075 to -0.02
- -0.02 to 0.02
- 0.02 to 0.075
- 0.075 to 0.15
- 0.15 to 0.225
- 0.225 to 0.3
- > 0.3
- Was Dry now Wet
- Was Wet Now Dry

- Proposed Alignment
- Highways
- Cadastre

Data sources:

Base Data: Imagery (c) 2015 TMR
Transport Network, DCDB - QLD Gov 2015

# MACKAY RING ROAD STAGE 1 DETAILED DESIGN
## Difference in PWSE
## Bakers One, Developed vs Existing 1EY AEP Event, 24 Hour Storm

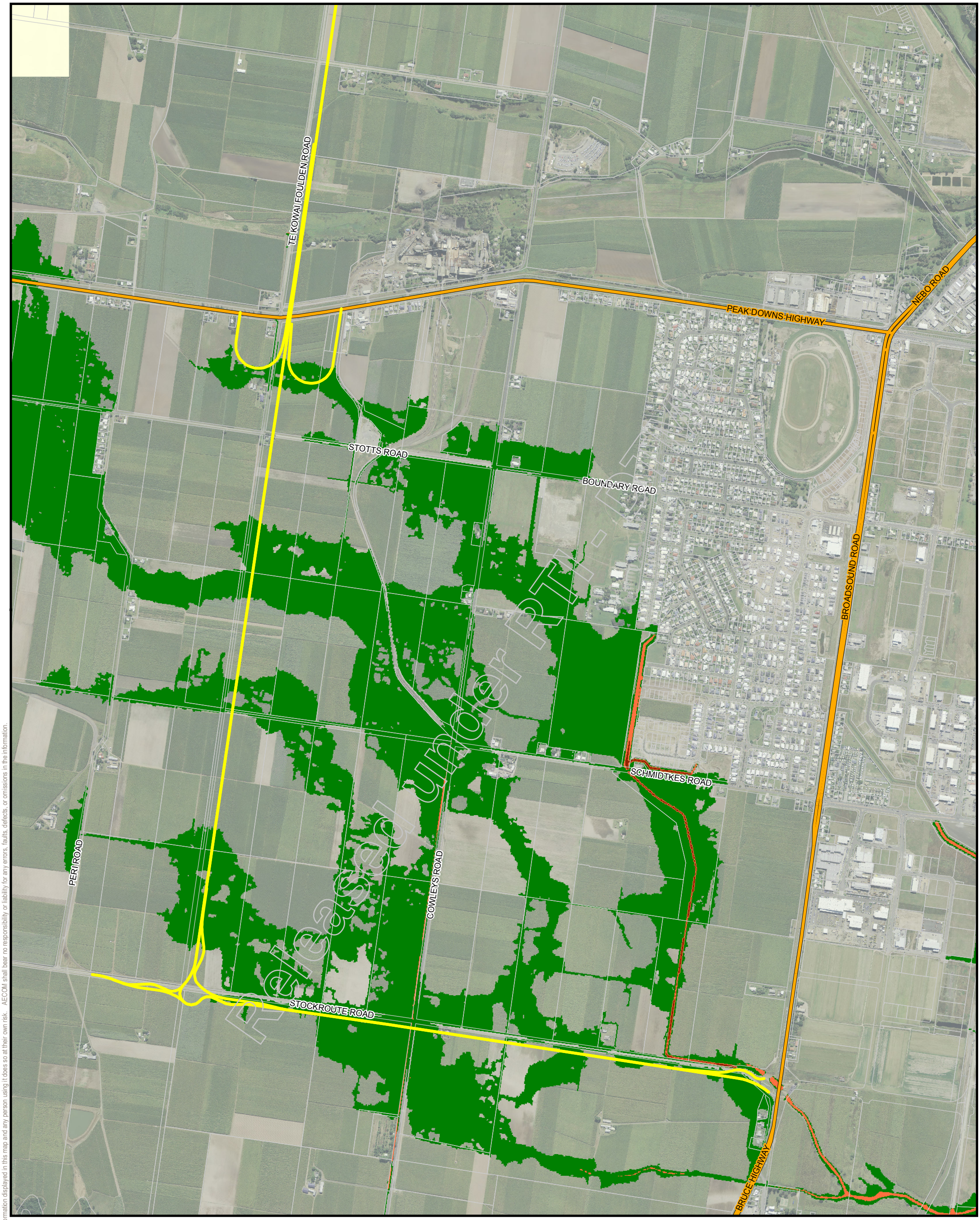
**SK-60342905-08018**

| CREATED BY: briggh | LAST MODIFIED: 8/04/2016 | VERSION: 1 |
|---|---|---|

Filename: J:\60342905\4. Tech Work Area\4.99 GIS\02_MXDs\G_SK-60342905-08005_Difference_PWSE_1EY_Bakers_One_20160408_A3.mxd



A3 size

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N

GDA 1994 MGA Zone 55

0 150 300 600

metres

1:15,000 (when printed at A3)

**LEGEND**

**Peak Water Depth (m)**

- < 0.2
- 0.2 - 0.3
- 0.3 - 0.4
- 0.4 - 0.5
- 0.5 - 0.6
- 0.6 - 0.7
- 0.7 - 0.8
- 0.8 - 0.9
- 0.9 - 1.0
- 1.0 - 1.25
- > 1.25

Highways

Cadastre

Data sources:

Base Data: Imagery (c) 2015 TMR
Transport Network, DCDB - QLD Gov 2015

# MACKAY RING ROAD STAGE 1 DETAILED DESIGN

## Peak Depth and Velocity
## Bakers One, Existing Case
## 40% AEP Event, 24 Hour Storm

**SK-60342905-08019**

| CREATED BY: briggh | LAST MODIFIED: 8/04/2016 | VERSION: 1 |
|---|---|---|

A3 size

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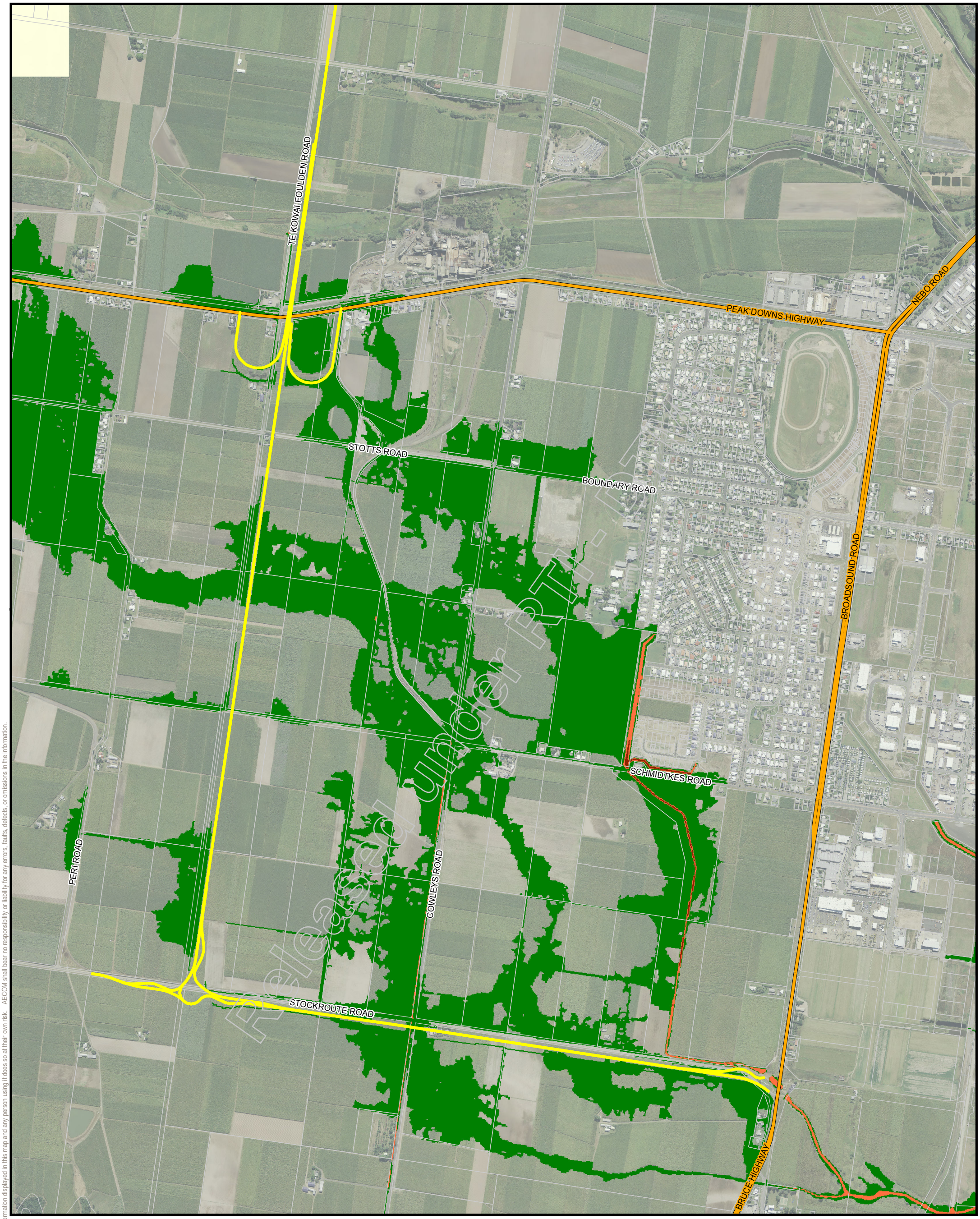


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N

GDA 1994 MGA Zone 55

0 150 300 600

metres

1:15,000 (when printed at A3)

**LEGEND**

| Peak Water Depth (m) | | | Highways |
|---|---|---|---|
| < 0.2 | 0.6 - 0.7 | | Cadastre |
| 0.2 - 0.3 | 0.7 - 0.8 | | |
| 0.3 - 0.4 | 0.8 - 0.9 | | |
| 0.4 - 0.5 | 0.9 - 1.0 | | |
| 0.5 - 0.6 | 1.0 - 1.25 | | |
| | > 1.25 | | |

Data sources:

Base Data: Imagery (c) 2015 TMR
Transport Network, DCDB - QLD Gov 2015

# MACKAY RING ROAD STAGE 1 DETAILED DESIGN
## Peak Depth and Velocity
## Bakers One, Developed Case
## 40% AEP Event, 24 Hour Storm

**SK-60342905-08020**

| CREATED BY: briggh | LAST MODIFIED: 8/04/2016 | VERSION: 1 |
|---|---|---|

Filename: J:\60342905\4. Tech Work Area\4.99 GIS\02_MXDs\G_60342905_WR_Dev_Case_WRM_40%_20160408_V1_A3.mxd



A3 size

TE KOWAI FOULDEN ROAD
PEAK DOWNS HIGHWAY
NEBO ROAD
STOTTS ROAD
BOUNDARY ROAD
BROADSOUND ROAD
SCHMIDTKES ROAD
PERI ROAD
COWLEYS ROAD
STOCKROUTE ROAD
BRUCE HIGHWAY

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GDA 1994 MGA Zone 55

0 150 300 600

metres

1:15,000 (when printed at A3)

**LEGEND**

**Difference in PWSE (m)**

- < -0.3
- -0.3 to -0.225
- -0.225 to -0.15
- -0.15 to -0.075
- -0.075 to -0.02
- -0.02 to 0.02
- 0.02 to 0.075
- 0.075 to 0.15
- 0.15 to 0.225
- 0.225 to 0.3
- > 0.3
- Was Dry now Wet
- Was Wet Now Dry

- Proposed Alignment
- Highways
- Cadastre

Data sources:

Base Data: Imagery (c) 2015 TMR
Transport Network, DCDB - QLD Gov 2015

# MACKAY RING ROAD STAGE 1
## DETAILED DESIGN
## Difference in PWSE
## Bakers One, Developed vs Existing
## 40% AEP Event, 24 Hour Storm

**SK-60342905-08021**

| CREATED BY: briggh | LAST MODIFIED: 8/04/2016 | VERSION: 1 |
|---|---|---|

Filename: J:\60342905\4. Tech Work Area\4.99 GIS\02_MXDs\G_SK-60342905-08005_Difference_PWSE_40%_Bakers_One_20160408_v1_A3.mxd



A3 size

# Appendix F

## Culvert Summary

Released under RTI - DTMR

# MACKAY RING ROAD PROJECT CULVERTS

| Culvert No. | Chainage | Culvert | Comment | Natural Surface Elevation (mAHD) | Nominal Invert Elevation (mAHD) | Depth Below Ground (m) | Lowest Profile Elevation (mAHD) | Highest Profile Elevation (mAHD) | Maximum Depth Of Cover Over Culvert (m) | Minimum Depth Of Cover Over Culvert (m) | Class Of Culvert | Outlet Treatment | Dimensions |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | MC100 | | | | | | | |
| 1A | 50 | Exist. 250 RCP | To Remain | | | | | | | | | | |
| 1B | 120 | Exist. 3/900 RCP | To Remain | | | | | | | | | | |
| 1C | 137 | 3/900 RCP | **Design** | 6.75 | 5.65 | 1.1 | 7.51 | 7.86 | 1.2385 | 0.89 | 3 | $D_{50}$ 200 | L= 3D |
| 1D | 720 | Exist. 450 RCP RHS | Take up & Stack | | | | | | | | | | |
| 1E | 1010 | Exist. 375 RCP RHS | Take up & Stack | | | | | | | | | | |
| 1F | 1190 | Exist. 375 RCP RHS | Take up & Stack | | | | | | | | | | |
| 2A | 1430 | Exist. 375 RCP | Take up & Stack | | | | | | | | | | |
| 2B | 1490 | Exist. 300 RCP | Take up & Stack | | | | | | | | | | |
| 2C | 1550 | Exist. 450x300 RCBC RHS | To Remain | | | | | | | | | | |
| 2D | 1640 | Exist. 3/1200x900 RCBC RHS | Take up & Stack | | | | | | | | | | |
| 2E | 1710 | Exist. 2/1200x450 RCBC RHS | Reuse under Private Entrance | | | | | | | | | | |
| 2F | 1990 | Exist. 2/1200x450 RCBC RHS | Take up & Stack | | | | | | | | | | |
| 2G | 2210 | Exist.2/1200x450 RCBC RHS | Take up & Stack | | | | | | | | | | |
| 2H | 2460 | Exist.1200x450 RCBC RHS | Take up & Stack | | | | | | | | | | |
| 2J | 2480 | 2/1200x450 LHS | **Design under access** | | | | | | | | | | |
| 3A | 2785 | 8/1200x900 RCBC | **Design** | 11 | 9.65 | 1.35 | 12.2 | 12.9 | 2.185 | 1.49 | | $D_{50}$ 200 | L= 3D |
| 4A | 4450 | 6/2400x2400 RCBC | **Design** | 10.8 | 9.5 | 1.3 | 12.7 | 12.9 | 0.795 | 0.59 | | $D_{50}$ 200 | L= 3D |
| 4B | 4554 | 2/1200x900 RCBC | **Design** | 11.06 | 11.08 | -0.02 | 12.8 | 13 | 0.855 | 0.66 | | $D_{50}$ 200 | L= 3D |
| 4C | 4730 | 2/1200x900 RCBC | **Design** | 11 | 10.81 | 0.19 | 13.14 | 13.32 | 1.445 | 1.27 | | $D_{50}$ 200 | L= 3D |
| 5A | 5400 | 4/900 RCP | **Design** | 11.8 | 11.31 | 0.49 | 20.27 | 20.63 | 8.3485 | 7.99 | 8 | $D_{50}$ 200 | L= 3D |
| 6A | 6379.3 | 4/900 RCP | **Design** | 10.28 | 10.1 | 0.18 | 16.72 | 17.23 | 6.1585 | 5.65 | 6 | $D_{50}$ 200 | L= 3D |
| 6B | 7000 | 450 RCP | **Design (NOT MODELLED)** | | | | | | | | | | |
| 6C | 7025 | Exist. 300 RCP LHS | Take up & Stack | | | | | | | | | | |
| 6D | 7245 | Exist. 375 RCP LHS | Take up & Stack | | | | | | | | | | |
| 6E | 7440 | Exist. 225 FRCP LHS | Take up & Stack | | | | | | | | | | |
| 8A | 10165 | Exist. 375 RCP | Take up & Stack | | | | | | | | | | |
| 9A | 10227 | 12/600 RCP | **Design** | 10.38 | 10.02 | 0.36 | 17.18 | 17.87 | 7.2005 | 6.51 | 8 | $D_{50}$ 200 | L= 3D |
| 9B | 10383 | 12/600 RCP | **Design** | 10.3 | 10.27 | 0.03 | 13.18 | 13.85 | 2.9305 | 2.26 | 4 | $D_{50}$ 200 | L= 3D |
| 9C | 10597 | 12/600 RCP | **Design** | 10.2 | 10.1 | 0.1 | 11.58 | 11.75 | 1.0005 | 0.83 | 3 | $D_{50}$ 200 | L= 3D |
| 9D | 10695 | 10/1500x600 RCBC | **Design** | 10.15 | 9.45 | 0.7 | 11.58 | 11.76 | 1.535 | 1.36 | | $D_{50}$ 200 | L= 3D |
| 9E | 11227 | 1/750 RCP | **Design** | 26.8 | 22.3 | 4.5 | 23.9 | 24 | 0.89 | 0.79 | 3 | $D_{50}$ 200 | L= 3D |
| 9F | 11377 | 2/750 RCP | **Design** | 28.8 | 23 | 5.8 | 24.72 | 25.1 | 1.29 | 0.91 | 3 | $D_{50}$ 200 | L= 3D |
| | | | | | | MC000 | | | | | | | |
| 10A | 150 | 600 RCP | **Design** | 23.2 | 22 | 1.2 | 25.7 | 26.1 | 3.4505 | 3.05 | 3 | $D_{50}$ 200 | L= 3D |
| 10B | 205 | Exist. 375 RCP | Take up & Stack | | | | | | | | | | |
| | | | | | | MC001 | | | | | | | |
| 11A | 170 | 3/600 RCP | **Design** | 10.9 | 9.7 | 1.2 | 11.9 | 12.2 | 1.8505 | 1.55 | 3 | $D_{50}$ 200 | L= 3D |
| | | | | | | MC010 | | | | | | | |
| 12A | 5895 | Exist. 300 RCP | To Remain | | | | | | | | | | |
| 12B | 5905 | Exist. 300 RCP | To Remain | | | | | | | | | | |
| 12C | 5944 | 2/900 RCP | **Design** | 23.15 | 19.35 | 3.8 | 22.93 | 23.19 | 2.8685 | 2.61 | 4 | $D_{50}$ 200 | L= 3D |
| 12D | 5955 | Exist. 2/600 RCP | Plug & concrete backfill | | | | | | | | | | |
| 12E | 6090 | Exist.375 RCP LHS | Take up & Stack | | | | | | | | | | |
| 12F | 6090 | Exist. 450x230RCBC LHS | Take up & Stack | | | | | | | | | | |
| 12G | 6090 | Exist. 450 RCP | Take up & Stack | | | | | | | | | | |
| 12H | 6310 | Exist. 450 RCP | To Remain | | | | | | | | | | |
| 13A | 6400 | 1200x600 RCBC | **Design** | 32 | 30.1 | 1.9 | 31.6 | 31.9 | 1.035 | 0.73 | | $D_{50}$ 200 | L= 3D |
| 13B | 6415 | Exist. 600 RCP | Plug & concrete backfill | | | | | | | | | | |
| 13C | 6415 | 450 RCP RHS under access | **Design** | | | | | | | | | | |
| | | | | | | MC020 | | | | | | | |
| 14A | 6043 | 600 RCP | **Design** | 20.3 | 19.3 | 1 | 23.5 | 23.85 | 3.9005 | 3.55 | 6 | $D_{50}$ 200 | L= 3D |
| 15A | 6322 | 600 RCP | **Design** | 26.3 | 24.1 | 2.2 | 28.6 | 29 | 4.2505 | 3.85 | 6 | $D_{50}$ 200 | L= 3D |
| | | | | | | MC120 | | | | | | | |
| 16A | 10 | Exist. 250 RCP RHS | To Remain | | | | | | | | | | |
| 16B | 35 | Exist. 250 RCP RHS | To Remove | | | | | | | | | | |
| 16C | 84.6 | 3/900 RCP | **Design** | 5.3 | 5.44 | -0.14 | 7.76 | 7.83 | 1.4185 | 1.35 | 2 | $D_{50}$ 200 | L= 3D |
| | | | | | | MC130 | | | | | | | |
| 17A | 2373.5 | 600 RCP | **Design** | 10.17 | 9.45 | 0.72 | 11.25 | 11.57 | 1.4705 | 1.15 | 3 | $D_{50}$ 200 | L= 3D |
| | | | | | | | | | | | | | |
| 18A | 2685 | 600 RCP | **Design** | 10.68 | 9.8 | 0.88 | 11.83 | 12.28 | 1.8305 | 1.38 | 2 | $D_{50}$ 200 | L= 3D |
| | | | | | | MC140 | | | | | | | |
| 19A | 11229 | 1/750 RCP | **Design** | 28 | 21.6 | 6.4 | 23.56 | 23.8 | 1.39 | 1.15 | 2 | $D_{50}$ 200 | L= 3D |
| | | | | | | | | | | | | | |
| | | | | | | MC170 | | | | | | | |
| 21A | 83085 | Exist. 1 & 2/1200x450 RCBC LHS | Take up & Stack | | | | | | | | | | |
| 21B | 83245 | Exist. 300 Steel Pipe | Take up & Stack | | | | | | | | | | |
| 21C | 83267 | 1200x600 RCBC | **Design** | 11.17 | 10.63 | 0.54 | 12 | 12.47 | 1.075 | 0.61 | | $D_{50}$ 200 | L= 3D |
| 21D | 83295 | Exist. 1 & 2/1200x450 RCBC LHS | Take up & Stack | | | | | | | | | | |
| | | | | | | MC310 | | | | | | | |
| 22A-1 | 22 | 600x450 RCBC | **Design** | | | | | | | | | | |
| 22A | 22 | 600x450 RCBC | **Design** | 12.6 | 12.23 | 0.37 | 12.87 | 13.16 | 0.765 | 0.475 | | $D_{50}$ 200 | L= 3D |
| | | | | | | MC320 | | | | | | | |
| 23A | 245 | 3600x4000 RCBC | **Design** | 11.7 | 11.25 | 0.45 | 16.6 | 17.18 | 1.65 | 1.07 | | $D_{50}$ 200 | L= 3D |
| 23B | 657.4 | 375 RCP | **Design** | 12.58 | 12.12 | 0.46 | 12.8 | 13.08 | 0.55 | 0.27 | 8 | $D_{50}$ 200 | L= 3D |
| | | | | | | MC410 | | | | | | | |
| 24A | 84675 | Exist. 375 RCP RHS | To Remain | | | | | | | | | | |
| 24B | 84830 | Exist. 375 RCP RHS | To Remain | | | | | | | | | | |

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# MACKAY RING ROAD PROJECT CULVERTS

| Culvert No. | Chainage | Culvert | Comment | Natural Surface Elevation (mAHD) | Nominal Invert Elevation (mAHD) | Depth Below Ground (m) | Lowest Profile Elevation (mAHD) | Highest Profile Elevation (mAHD) | Maximum Depth Of Cover Over Culvert (m) | Minimum Depth Of Cover Over Culvert (m) | Class Of Culvert | Outlet Treatment | Dimensions |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 24C | 84855 | Exist. 375 RCP RHS | To Remain | | | | | | | | | | |
| 24D | 84878 | Exist. 375 RCP RHS | To Remain | | | | | | | | | | |
| 24E | 84965 | Exist. 300 RCP | To Remove | | | | | | | | | | |
| 24F | 85052 | Exist. 375 RCP | Take up & Stack | | | | | | | | | | |
| 25A | 85120 | Exist. 2/375 RCP RHS | To Remain | | | | | | | | | | |
| 25B | 85138 | Exist. 4/450 RCP | Take up & Stack | | | | | | | | | | |
| 25C | 85150 | 2/1200x450 RCBC | **Design** | 13.25 | 12.17 | 1.08 | 13.35 | 13.6 | 0.815 | 0.57 | | $D_{50}$ 200 | L= 3D |
| 25D | 85250 | 2/1200x450 RCBC | **Design** | 13.2 | 12.24 | 0.96 | 13.3 | 13.7 | 0.845 | 0.45 | | $D_{50}$ 200 | L= 3D |
| 25E | 85370 | Exist. 375 RCP | Take up & Stack | | | | | | | | | | |
| 25F | 85444 | 2/1200x450 RCBC | **Design** | 13.3 | 12.26 | 1.04 | 13.3 | 13.56 | 0.685 | 0.43 | | $D_{50}$ 200 | L= 3D |
| 25F-A | 85444 | 1/1200x450 RCBC | **Design** | | | | | | | | | | |
| 25G | 85455 | Exist. 900x450 RCBC RHS | Take up & Stack | | | | | | | | | | |
| 25H | 85465 | Exist. 2/300 RCP LHS | Take up & Stack | | | | | | | | | | |
| 25I | 85485 | Exist. 900x230 RCBC RHS | To Remain | | | | | | | | | | |
| 25J | 85555 | Exist. 900x230 RCBC RHS | To Remain | | | | | | | | | | |
| | | | | MC420 | | | | | | | | | |
| 26A | 85055 | 1200x450 RCBC LHS | **Under shared pathway** | | | | | | | | | | |
| 26B | 85078 | 375 RCP LHS | **Under shared pathway** | | | | | | | | | | |
| 27A | 85125 | 375 RCP LHS | **Under shared pathway** | | | | | | | | | | |
| 27B | 85165 | Exist. 900x450 RCBC RHS | To be Removed | | | | | | | | | | |
| 27C | 85462 | Exist. 900x450 RCBC LHS | To be Removed | | | | | | | | | | |
| 27D | 85470 | 2/1200x450 RCBC LHS | **Under Mill Entrance** | 12.85 | 12.5 | 0.35 | 13.2 | 13.38 | 0.265 | 0.09 | | $D_{50}$ 200 | L= 3D |
| 27E | 85480 | Exist. 900x300 RCBC LHS | To be Removed | | | | | | | | | | |
| 27F | 85491 | Exist. 900x450 RCBC LHS | To be Removed | | | | | | | | | | |
| 27G | 85550 | Exist. 2/1200x600 RCBC LHS | To be Removed | | | | | | | | | | |
| 27H | 85600 | 2/1200x450 RCBC LHS | **Under Mill Exit** | 13.2 | 12.64 | 0.56 | | | | | | $D_{50}$ 200 | L= 3D |
| 27I | 85625 | 1200x450 RCBC LHS | **Under shared pathway** | | | | | | | | | | |
| | | | | MC4030 | | | | | | | | | |
| 28A | 24 | 1/375 RCP | **Design** | 13.2 | 12.24 | 0.96 | 13.1 | 13.24 | 0.59 | 0.45 | 6 | $D_{50}$ 200 | L= 3D |
| 28B | 40 | ist. 375 RCP & 1200x300 RCBC R | To Remain | | | | | | | | | | |
| 28C | 75 | ist. 375 RCP & 1200x300 RCBC R | To Remain | | | | | | | | | | |
| 28D | 190 | 1200x450 RCBC | **Design** | 12.18 | 11.73 | 0.45 | 12.4 | 12.67 | 0.325 | 0.06 | | $D_{50}$ 200 | L= 3D |
| 28E | 209 | 2/1200x450 RCBC | **Design** | 11.9 | 11.63 | 0.27 | 12.4 | 12.67 | 0.425 | 0.16 | | $D_{50}$ 200 | L= 3D |
| 28F | 240 | Exist. 2/375 RCP & 450 RCP RHS | To Remain | | | | | | | | | | |
| | | | | MC4050 | | | | | | | | | |
| 28G | 45 | Exist. 1200x450 RCBC | Take up & Stack | | | | | | | | | | |
| 28H | 37 | 2/1200x450 RCBC | **Design** | 13.2 | 11.88 | 1.32 | 12.9 | 13.19 | 0.695 | 0.41 | | $D_{50}$ 200 | L= 3D |
| 28I | 45 | Exist. 2/525 RCP | Take up & Stack | | | | | | | | | | |
| 28J | 58 | Exist. 1200x900 RCBC LHS | To Remain | | | | | | | | | | |
| | | | | MC5040 | | | | | | | | | |
| 29A | 11 | Exist. 150 PVC | To Remain | | | | | | | | | | |
| 29B | 212 | 4/750 RCP | **Design** | 10.2 | 9.95 | 0.25 | 11.8 | 11.98 | 1.22 | 1.04 | 3 | $D_{50}$ 200 | L= 3D |
| 29C | 352 | 900x450 RCBC | **Design** | 11.2 | 10.49 | 0.71 | 11.5 | 11.6 | 0.91 | 0.81 | | $D_{50}$ 200 | L= 3D |
| 29D | 371 | 4/750 RCP RHS | **Design** | | | | | | | | | | |
| 29E | 371 | 4/750 RCP RHS | To Remain | | | | | | | | | | |
| | | | | MC5060 | | | | | | | | | |
| 30A | 2815 | Exist.2/600 RCP | To Remain | | | | | | | | | | |
| 30B | 3210 | Exist. 3/1200x450 RCBC | To Remain | | | | | | | | | | |
| 30C | 3235 | Exist. 2/900x450 RCBC | To Remain | | | | | | | | | | |
| | | | | MC5140 | | | | | | | | | |
| 31A | 100 | 5/1200x450 RCBC | **Design** | 10.22 | 9.92 | 0.3 | 10.85 | 11.04 | 0.505 | 0.32 | | $D_{50}$ 200 | L= 3D |
| 31B | 145 | 7/1200x450 RCBC | **Design** | 10.16 | 9.96 | 0.2 | 10.9 | 11.04 | 0.465 | 0.33 | | $D_{50}$ 200 | L= 3D |
| 31C | 172 | Exist. 375 RCP RHS | Take up & Stack | | | | | | | | | | |
| 31D | 250 | Exist. 375 RCP RHS | Take up & Stack | | | | | | | | | | |
| 31E | 250 | 375 RCP RHS | **Design** | 10.22 | 9.85 | 0.37 | | | | | | $D_{50}$ 200 | L= 3D |
| 31F | 260 | Exist. 375 RCP | Take up & Stack | | | | | | | | | | |
| 31G | 262 | 7/1200x450 RCBC | **Design** | 10.4 | 9.85 | 0.55 | 10.55 | 10.69 | 0.225 | 0.09 | | $D_{50}$ 200 | L= 3D |
| 31H | 275 | 600 RCP LHS | **Design under access** | | | | | | | | | | |
| 31I | 285 | Exist. 600 RCP | Take up & Stack | 10.33 | 9.64 | 0.69 | 10.36 | 10.41 | 0.1205 | 0.07 | | $D_{50}$ 200 | L= 3D |
| | | | Bus Stop and Uturn/ Shared Footp | | | | | | | | | | |
| WS2A | | 1200 x 450 INVERTED RCBC | Footpath Design | | | | | | | | | | |
| WS2B | | 1200 x 450 INVERTED RCBC | Footpath Design | | | | | | | | | | |
| WS2C | | 600 x 450 INVERTED RCBC | Footpath Design | | | | | | | | | | |
| WS2D | | 600 x 450 INVERTED RCBC | Footpath Design | | | | | | | | | | |
| WS2E | | 600 x 450 INVERTED RCBC | Footpath Design | | | | | | | | | | |
| WS2F | | 600 x 450 INVERTED RCBC | Footpath Design | | | | | | | | | | |
| WS2G | | 600 x 450 INVERTED RCBC | Footpath Design | | | | | | | | | | |
| WS2H | | 600 x 450 INVERTED RCBC | Footpath Design | | | | | | | | | | |
| WS2I | | 600 x 450 INVERTED RCBC | Footpath Design | | | | | | | | | | |
| WS2J | | 600 x 450 INVERTED RCBC | Footpath Design | | | | | | | | | | |
| WS2K | | 600 x 450 INVERTED RCBC | Footpath Design | | | | | | | | | | |

Released under RTI - DTMR